



40TH INTERNATIONAL
CONFERENCE ON
SOFTWARE ENGINEERING



PROGRAM

27 MAY–3 JUNE 2018, GOTHENBURG, SWEDEN

icse2018.org

Pre-conference events, co-located events, workshops			Main conference			Co-located events, workshops
Sun May 27	Mon May 28	Tue May 29	Wed May 30	Thu May 31	Fri June 1	Sat June 2
MiSE (R24/25)		New Faculty Symposium (R2)				GI (R11/12)
CHASE (R11/12)	CESI (R14)	Technical Briefings (R11/12,R14,R18)				SE4Science (R15)
CSI-SE (R9)	GE (R11/R12)	Doctoral Symposium (R5/6)				RET (R21)
GREENS (R21)	RoSE (R31)	Lindhomen Software Development Day (R17)				SEEM (R26)
MET (R22)	SEHS (R15)	2001: A Space Odyssey Symposium (H2)				SEmotion (R24/25)
RAISE (R14)	AST (R22/23)					WAPI (R14)
SEAD (R26)	SBST (R4)					FormaliSE (R22/23)
SEsCPS (R15)	SE4COG (R21)					
SoHeal (R5)	SEFAIAS (R5/6)	RCoSE (R31)				
WETSEB (R4)	SQUADE (R13)	SER&IP (R24/25)				
MobileSoft (H1,J2)		SESoS (R15)				
ICPC (J1,R2)		FairWare (R26)				
TechDebt (R17/18)						
	SEiA (R26)					
	ICGSE (E2)					
	MSR (E4,E3)					
	SEAMS (E1)					

MAIN CONFERENCE OVERVIEW

Main conference overview				
Time	Wed May 30	Thu May 31	Fri June 1	Room
08:30- 9:00	Opening Conference	Opening Conference Session	Awards Session (starts 08:15)	C-Hall
09:00-10:30	ICSE awards	Plenary Keynotes Fred Brooks and Margaret Hamilton	SEIP Keynote: Linda Northrop	C-Hall
	Plenary Keynote Magnus Frodigh		TP Software Comprehension	H1
			TP Studying Software Engineers II	H2
			TP Program Analysis II	G1
			TP Requirements and Recommender Systems	J1
			TP Performance and Maintenance	J2
				E1
			SEET Keynote:Gregor Kiczales Panel	E2
				E3
				TP Testing II
		SRC Presentations	R2	
10:30-11:00	Coffee Break			
11:00-12:30	IF Keynotes: Noel Lovisa and Jan Bosch	TP Test Improvement	TP Testing III	C-Hall
	TP Software Repair I	TP Communities and Ecosystems	TP Code Search, Synthesis, Performance	H1
	TP Apps and App Stores I	TP Empirical Studies of Code	TP Mining Software Repositories	H2
	TP Software Evolution and Maintenance I	TP Security, Privacy and Trust II	TP Models and Modeling I	G1
	TP Human and Social Aspects of Computing I		TP Search-Based Software Engineering I	J1
			TP Software Tools and Environments	J2
	DEMO	DEMO	SEIP Design and Tools	E1
	SEET Reusable recipes & mini-panel	SEET SCORE	SEET The bigger picture	E2
	NIER Security, Safety, and Quality		SEIP Architecture	E3
		SEIP Keynote: Ödgård Andersson	SEIP Testing and Defects I	E4
SEIS Keynote: Roberto Di Cosmo	SEIS Meeting other sciences	NIER Empirical Studies and Requirements	R2	
12:30-14:00	Lunch and Posters			
14:00-15:30	IF Speed Dating Activity & Keynote Danica Kragic	TP Testing I	TP Testing IV	C-Hall
	TP Software Repair II	TP Human and Social Aspects of Computing II	TP Inference and Invariants	H1
	TP Apps and App Stores II	TP Studying Software Engineers I	TP Software Evolution and Maintenance II	H2
	TP Regression Testing	TP Program Analysis I	TP Models and Modeling II	G1
	TP Open-Source Systems		TP Search-Based Software Engineering II	J1
			TP Surveys and Reviews	J2
	DEMO	DEMO	SEIP Agile and Ways of Working	E1
	SEET Take-home lessons I	SEET Take-home lessons II	SEIP Mobile, code and SMEs	E2
	NIER Programming and Code Analysis	SEIP Data and Databases	SEIP Safety and Culture	E3
		SEIP Cloud and DevOps	SEIP Testing and Defects II	E4
SEIS Software by and for people	SEIS Panel	NIER Software Engineering in Other Domains	R2	
		50 years of SE: Ivar Jacobson		
15:30-16:00	Coffee Break and Posters			
16:00-17:30	IF Panel & Industry talks	50 Years of SE celebration, Brian Randell, 40th anniversary of ICSE	Awards Session, ICSE Most Influential Paper Award: Andrew J. Ko and Brad A. Myers, The Outstanding Research Award: Andreas Zeller	C-Hall
	TP Test Generation			H1
	TP Program Reduction Techniques			H2
	TP Security, Privacy and Trust I			G1
	TP Empirical Software Engineering			J1
	DEMO			E1
	SEET We measure			E2
	NIER Mining, Verifying, and Learning			E3
	SEIP Keynote: Frank Buschmann			E4
	SEIS Software development for the regulated and public sectors			R2
17:30-18:30	ACM SigSoft / IEEE TCSE Townhall (H2)		Closing Session (C-Hall)	
	Reception (Universeum, 19:00-22:00)	Banquet (Erikbergshallen, 19:00-23:00)		

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Welcome to ICSE 2018 in Gothenburg!

It is my great pleasure to welcome you to the 40th International Conference on Software Engineering in Gothenburg, Sweden. Science and research, as well as the openness to new ideas and new people, are an important part of the Scandinavian culture. Sweden hosts high technology companies in which software plays an essential role. The Town of Gothenburg, with its two internationally renowned universities, variety of ICT and related companies, with many cultural attractions, and beautiful natural surroundings, welcomes you!

This year's ICSE is unique in at least two respects. **ICSE 2018 celebrates its 40th anniversary.** During its journey, ICSE has developed to the premier conference in Software Engineering, known for its quality, excellence, attractiveness, and inspirational atmosphere. We pay tribute to the 40th anniversary with a collection of memories of previous conferences printed in a booklet, and with a celebration session gathering all previous chairs to thank them for their devoted and highly successful work. The second unique event of this conference **is the celebration of the 50 years of Software Engineering**, that is considered to be born at the NATO Software Engineering Conference 1968, held in Garmisch-Partenkirchen, where the term Software Engineering was coined. We honor this event with keynotes which have direct impact of the Software Engineering development and a panel with some of the participants of the 1968 conference.

ICSE 2018 is, however, not only about the past. It is much about the present and the future - and in particular, about the essence of Software Engineering - collaboration between industry and academia, practitioners and researchers. ICSE 2018 hosts a one-day **Industry Forum** event gathering researchers and practitioners and offering talks of prominent researchers and experts from leading software and software-intensive systems companies.

As a part of the program and the celebration, we are happy to have outstanding conference keynote speakers from industry and academia. **Magnus Frodigh**, Vice President and Head of Research at Ericsson, will talk about new challenges in building Communication systems and networks as enablers or digitizing industry and society. **Frederick P. Brooks, Jr.**, the Kenan Professor of Computer Science, known for his legendary book "The Mythical Man-Month: Essays on

Software Engineering", will talk about the beginnings of Software Engineering Learning the Hard Way: A History of Software Engineering 1948-1980. **Margaret Hamilton**, CEO of Hamilton Technologies, famous for building Apollo's on-board flight software and inventing the term "Software Engineering" to establish it as a form of engineering in its own right, will reflect on being a software engineer with a talk The Language as a Software Engineer. **Brian Randell** from Newcastle University, also a participant of the famous NATO conference 1968, and one of the most prominent researchers in Software Engineering, will introduce the panel discussion 50 years of Software Engineering, with several participants of the 1968 conference. On Friday, the plenary keynotes, **Andrew J. Ko** and **Brad A. Myers**, the authors of the most influential paper, will present their paper Debugging reinvented: asking and answering why and why not questions about program behavior. **Andreas Zeller**, the holder of Outstanding Research Award for 2018, will conclude the award session with his inspirational talk Relevance, Simplicity, and Innovation: Stories and Takeaways from Software Engineering Research.

The ICSE 2018 week starts on Sunday May 27, with three days of workshops, co-located events, special events and symposia. It then continues on Wednesday May 30 with three days of the main conference, and concludes with more workshops and co-located events for the last two days, Saturday June 2, and Sunday, June 3. We have **29 workshops** with the total 280 papers accepted for the presentation and publication, **eight co-located events**, and the conference pre-events: **Technical Briefings** with 12 short tutorials about latest trends in Software Engineering, and **New Faculty Symposium** with inspirational talks from leading researchers in Software Engineering giving advice to young researchers. A side track, but exceptionally attractive one, is the **2001: A Space Odyssey Symposium** - 50 years celebration of the movie that includes a talk about the HAL computer given by David Stork, followed by the panel and finishing by showing the movie.

The heart of ICSE 2018 is the main conference consisting of several tracks. The **Technical Papers** track, with 105 accepted papers (of 502 submitted), and 49 Journal First Papers (JFP), the largest technical papers track in the history of ICSE, has four parallel tracks

during the first two days, and six tracks on the third day are organized. In parallel with the Technical Track, we will have four other special tracks. As a part of the main conference, the **Industry Forum** (IF) track offers two keynotes, **Jan Bosch** from Chalmers university, and **Danica Kragic** from Royal University of Technology, Stockholm, with several invited speakers and a panel from industry and academia. The **Software Engineering in Practice** (SEIP), with 36 paper presentations and three keynote speakers, Linda Northrop from SEI, Frank Buschmann from Siemens, and **Ödgård Andersson** from Volvo Cars, will talk about current challenges and opportunities in software industry. The **Software Engineering and Training** (SEET) track will present 21 papers, have a keynote **Gregor Kiczales** (UBC), and a panel. The **Software Engineering in Society** (SEIS) track will have a keynote speaker **Roberto di Cosmo**, (University Paris Diderot), a panel, and 11 paper presentations. ICSE 2018 is continuing a tradition established earlier with **New Ideas and Emerging Results** (NIER) track, with 28 presentations. In addition, 30 tools will be demonstrated. All in all, 280 papers will be presented at the main conference, and that is the same as the number of papers accepted for the workshops. The main conference track will follow the same pattern for the paper presentations; During a session 3 papers will be presented, each presentation 20 minutes, and the last ten minutes will be reserved for the parallel discussions with the presenters. During the lunches and coffee breaks, the participants can enjoy the poster exhibition; during the three days, 175 posters, about 60 each day, will be presented in the exhibition area.

ICSE 2018 includes three events dedicated to PhD and Master students. In the **Doctoral Symposium** (DS), 17 PhD students were accepted to present and discuss their research. The Student Contest on Software Engineering (SCORE) invited three student teams to compete in the final, and ACM Student Research Competition (SRC) selected 10 students for the final competition.

Finally, ICSE 2018 has 8 co-located events: **ICGSE 2018** - 13th IEEE International Conference on Global Software Engineering, **ICPC 2018** - 26th IEEE International Conference on Program Comprehension, **MSR 2018** - 15th International Conference on Mining Software Repositories, **MobileSoft 2018** - 5th IEEE/ACM International Conference on Mobile Software Engineering and Systems, **SEAMS 2018** - 13th International Symposium on Software Engineering for Adaptive and Self-Managing Systems, **TechDebt 2018** - International Conference on Technical Debt,

SEiA 2018 - Symposium on Software Engineering in Africa, and **FormaliSE 2018** - 6th Conference on Formal Methods in Software Engineering. The last two started as new conferences, and SEiA is the first symposium at ICSE organized from Africa, outside Africa. ICSE is also hosting more than 20 community meetings run during lunches or after the sessions.

ICSE 2018 is not only about the presentations! You can, for example, join the football team and play a match on Tuesday afternoon. You will have excellent opportunity to keep company with the colleagues during reception on Wednesday evening at Universeum, the exacting science museum, in a tropic forest or under an aquarium, or simple on the terrace enjoy the view over Gothenburg. Directly in the morning next day, you can start with 5k or 10k morning run along a beautiful sea Stora Delsjön. And the day will complete with a banquet, celebrating 50 years of Software engineering, in hall at Eriksberg, a former ship yard, now an attractive living and tourist area.

I hope you will have time to visit Gothenburg with its hundreds of restaurants and pubs, and many cultural sights, or take excursion on the West coast or to some of many islands of the archipelago. You will also notice that Gothenburg aims at sustainability in all aspects of the modern society. So does ICSE 2018 as well. All decisions we have taken have also a sustainability perspective.

I hope you will have a wonderful and memorable time at ICSE 2018 and Gothenburg!



Ivica Crnkovic

ICSE 2018 General Chair

Chalmers University of Technology | University of Gothenburg, Sweden

Magnus Frodigh

Communication systems and networks, key enablers for digitizing industry and society – opportunities and challenges

The combination of automation, machine intelligence and 5G networks will provide a wealth of opportunities that can improve productivity and speed up the delivery of services for industry and society. 5G technology with cloud computing technologies, big data analytics, high-quality wireless connectivity communication, and IT capabilities enable overall digital transformation in virtually all areas of the modern society, with high ability to fit the specific business needs. These new technologies and approaches introduce however new challenges on the communication systems, networks, and not least software development, which will be addressed by this talk.

Magnus Frodigh is acting Head of Ericsson Research. Prior to taking up this position, Magnus was Research Area Director for Network Architecture and Protocols at Ericsson Research, he was responsible for research in network architecture and protocols covering radio networks, transport networks and core networks including network management. Magnus joined Ericsson in 1994 and has since held various key senior positions within Ericsson's Research & Development and Product Management focusing on 2G, 3G, 4G and 5G technologies. He was born in Stockholm, Sweden, in 1964. Magnus holds a Master of Science degree from Linköping University of Technology, Sweden and a Ph.D. in Radio Communication Systems from Royal Institute of Technology in Stockholm, Sweden. Since 2013 Magnus is adjunct Professor at Royal Institute of Technology in Wireless Infrastructures.



WEDNESDAY, MAY 30

09:15 - 10:30 - CONGRESS HALL

Frederick P. Brooks, Jr.

Learning the Hard Way: A History of Software Engineering 1948-1980

First came the Program, 1948. Then the Program Product, a program designed to be distributed to others than the author-generalized, documented, tested, maintained, 1950. Then the Program System, a collection of programs designed to work together-defined interfaces, system-integrated, system-tested, 1956. Then the Program System Product, combining the features, labors, and complexities of both, 1963. Many ambitious projects were undertaken; many failed. Over-optimistic goals and schedules abounded. Sometime in this sequence software builders each recognized that building a software system project was about an order of magnitude more effort than just writing the component programs. Process and management techniques had to be devised. Originally, they were borrowed from the electrical and civil engineering disciplines. The discipline as such was born and named at the 1968 NATO Conference on Software Engineering. We identify some of the milestones in the '50's, 60's, and 70's.



Frederick P. Brooks, Jr. is Kenan Professor of Computer Science, Emeritus, at the University of North Carolina at Chapel Hill. He was an architect of the IBM Stretch and Harvest supercomputers. He was Corporate Project Manager for the IBM System/360 mainframe family (now Zsystems), including development of the System/360 computers' hardware, and the Operating System/360 software. He founded the UNC-CH Department of Computer Science in 1964 and chaired it for 20 years. His research there has been in computer architecture, software engineering, and interactive 3-D computer graphics ("virtual reality"). His best-known books are *The Mythical Man-Month: Essays on Software Engineering* (1975, 1995); *The Design of Design* (2010)*; and, with G.A. Blaauw, *Computer Architecture: Concepts and Evolution* (1997). Dr. Brooks has received the U.S. National Medal of Technology, the A.M. Turing Award of the ACM, and others. He is married (61 years) to Nancy Greenwood Brooks. They are joyous servants of Jesus Christ. They have three children and nine grandchildren. For more information see: <https://www.cs.unc.edu/~brooks/>.

THURSDAY, MAY 31

08:45 - 10:30 - CONGRESS HALL

Margaret Hamilton

The Language as a Software Engineer

It was 1959. We were building real-time systems for weather prediction, homeland security and space travel. The space mission software had to be man-rated. Not only did it have to work; it had to work the first time. Not only did the software, itself, have to be ultra-reliable, it needed to be able to perform error detection and recovery in real time. Our languages dared us to make the most subtle of errors. We were on our own to come up with rules for building software. What we learned from the errors was full of surprises. Classifying the errors led to a set of allowable patterns that led to a language together with its preventative paradigm. We have found that a system defined with such a language has properties that inherently support its own development, "before the fact"; including that which becomes no longer needed. We continue to discover new properties in these systems. Lessons learned throughout this process will be discussed in terms of both the earlier systems and the systems of today; and in terms of what is possible for systems of tomorrow.

Margaret H. Hamilton is CEO of Hamilton Technologies, Inc. Margaret H. Hamilton graduated in 1958 with a mathematics major and philosophy minor from Earlham College. To prepare for further studies in abstract math at Brandeis University, she took a "temporary" position at MIT, developing weather prediction software for Edward N. Lorenz in hexadecimal on the LGP-30. Hamilton then developed software on the XD-1 for the SAGE air defense system at Lincoln Laboratories. As soon as she heard MIT was looking for people to build software for "sending man to the moon", she joined NASA/MIT's project to build Apollo's on-board flight software, starting with the unmanned missions. To give their software "legitimacy", so it (and those building it) would be given due respect; she made up the term "software engineering" to establish it as a form of engineering in its own right. For the manned missions, Hamilton was in charge of the team that developed the on-board flight software for the command and lunar modules (she was then the Director of the Software Engineering Division at MIT's Instrumentation Laboratory). With her Display Interface Routines error detection and recovery programs, she created new man-in-the-loop concepts that provided the ability for the on-board flight software to communicate asynchronously in real-time with the



astronaut within a distributed system-of-systems environment. This allowed the software (running in parallel with the astronauts) to interrupt the astronauts and replace their normal displays with Priority Displays in case of an emergency (such as it was during Apollo 11's landing). She led an empirical study of Apollo and later efforts, resulting in her systems and software theory of control; based on lessons learned. From its axioms, the universal systems language was derived together with its automation and "development-before-the-fact" preventative software engineering paradigm. Hamilton received the NASA Exceptional Space Act Award (2003), and the Presidential Medal of Freedom awarded by Barack Obama (2016).

THURSDAY, MAY 31

08:45 - 10:30 - CONGRESS HALL

Brian Randell

50 years of Software Engineering

On several earlier anniversaries of the 1968-69 NATO Software Engineering conferences I have acceded to requests to provide some reminiscences. I repeat some extracts from these reminiscences here, as a backdrop to brief comments on subsequent developments, and in particular on the distinctions between developing off-the-shelf package software and large one-off bespoke software systems. The software package industry had yet to come into existence in 1968-69, but has proved very successful. But some large software projects in the latter bespoke category still suffer from problems that are all too reminiscent of those that, in 1968, gave rise to discussion of a “software crisis”.

Brian Randell graduated in Mathematics from Imperial College, London in 1957 and joined the English Electric Company where he and colleagues implemented the Whetstone KDF9 Algol compiler. From 1964 to 1969 he was with IBM in the United States, mainly at the IBM T.J. Watson Research Center, working on operating systems, the design of ultra-high speed computers and computing system design methodology. With first Peter Naur and then John Buxton he co-edited the two original NATO Software Engineering Reports. He then became Professor of Computing Science at Newcastle University, where in 1971 he set up the project that initiated research into the possibility of software fault tolerance. He has been Principal Investigator on a succession of research projects in reliability and security funded by EPSRC, MoD, and the EU. Another, continuing, research interest has been the history of computing. He has published over three hundred technical papers and reports, and is co-author or editor of seven books. He is now Emeritus Professor of Computing Science, and Senior Research Investigator, at Newcastle University, working on failure analysis of complex evolving systems. He is a Fellow of the BCS and the ACM, and was a Member of the Conseil Scientifique of the CNRS, France (2001-5), Chairman of the IEEE John von Neumann Medal Committee (2003-5), and a Member and then Chairman of the ACM A.M. Turing Award Committee (2005-9). He has received a D.Sc. from the University of London, and Honorary Doctorates from the University of Rennes, and the Institut National Polytechnique of Toulouse, France.



This introductory talk will be followed by a panel discussion with the several participants of the Garmisch conference, David Gries, Doug McIlroy, Bob McClure, Gerhard Goos, and Manfred Paul. The session will conclude with celebration of 40th anniversary of ICSE, with a precipitation with more than 40 organizers from the previous conferences.

THURSDAY, MAY 31

16:00 - 18:00 - CONGRESS HALL

Andreas Zeller

ACM SIGSOFT Research Award: Relevance, Simplicity, and Innovation: Stories and Takeaways from Software Engineering Research

The year is 1993, and I give my very first talk at a big software engineering conference. Right in the middle of my example, a professor stands up and exclaims with a mocking smile “To me, this looks like a solution looking for a problem!”. The audience erupts in laughter, and my advisor sits in the first row, grinning. How would I get out of there? And why would this experience shape all of my career from now? Telling three stories around three conference events, I unfold lessons on impact in software engineering research: Do relevant work – strive for simplicity – keep on innovating.

Andreas Zeller is Faculty at the Center for IT-Security, Privacy, and Accountability (CISPA), and professor for Software Engineering at Saarland University, both in Saarbrücken, Germany. His research concerns the analysis of large software systems and their development process. In 2010, Zeller was inducted as Fellow of the ACM for his contributions to automated debugging and mining software archives, for which he also was awarded 10-year impact awards from ACM SIGSOFT and ICSE. In 2011, he received an ERC Advanced Grant, Europe’s highest and most prestigious individual research grant, for work on specification mining and test case generation.



FRIDAY, JUNE 01

16:00 - 17:30 - CONGRESS HALL

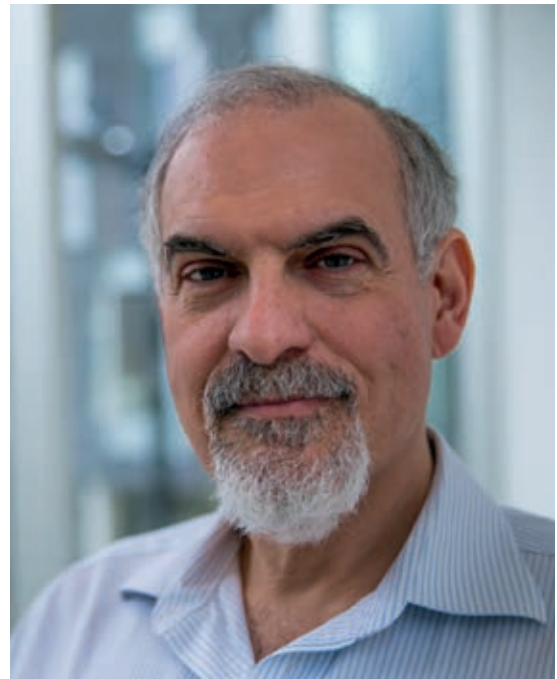
Andrew J. Ko and Brad A. Myers

Most Influential Paper Award: Debugging reinvented: asking and answering why and why not questions about program behavior

Ten years ago, we published the Whyline, a system that allowed developers to get answers to “why” questions about program output. While the idea was a powerful one, behind the work were several even more powerful ideas about scholarship, theory, interdisciplinarity, and interaction. Some of these were inherent to the research and others have only become apparent over the past decade. In this talk, We’ll share these big ideas, show how they shaped my research, and argue that they have never been more important to grand challenges in software engineering research and practice.

Andrew J. Ko is an Associate Professor at the University of Washington Information School and an Adjunct Associate Professor in Computer Science and Engineering. He directs the Code & Cognition Lab, where he invents and evaluates interactions between people and code, spanning the areas of human-computer interaction, computing education, and software engineering. He is the author of over 90 peer-reviewed publications, 9 receiving best paper awards and 3 receiving most influential paper awards. In 2013, he co-founded AnswerDash, a SaaS company offering instant answers on websites using a selection-based search technology invented in his lab. In 2010, he was awarded an NSF CAREER award for research on evidence-based bug triage. He received his Ph.D. at the Human-Computer Interaction Institute at Carnegie Mellon University in 2008. He received degrees in Computer Science and Psychology with Honors from Oregon State University in 2002.

Brad A. Myers is a Professor in the Human-Computer Interaction Institute in the School of Computer Science at Carnegie Mellon University. He was chosen to receive the ACM SIGCHI Lifetime Achievement Award in Research in 2017, for outstanding fundamental and influential research contributions to the study of human-computer interaction. He is an IEEE Fellow, ACM Fellow, member of the CHI Academy, and winner of 12 Best Paper type awards and 5 Most Influential Paper Awards. He is the author or editor of over 475 publications, and he has been on the editorial board of six journals. Myers received a PhD in computer science at the University of Toronto, and MS and BSc degrees from MIT during which time he was a research intern at Xerox PARC.



FRIDAY, JUNE 01

16:00 - 17:30 - CONGRESS HALL

Ivar Jacobson

50 years of software engineering, so now what?

“This is not the end, it is not even the beginning of the end, maybe it is the end of the beginning” (Winston Churchill). We are more than 20 million software developers on the planet, with a large number of methods to develop software. However, the most successful recipe for success is a method that focuses on hiring the most brilliant people in the world and empowering them to create wonders. 50 years ago, Ericsson in Sweden did that. Now Apple, Google, Amazon, etc. do that. What about the rest of the world? – banks, insurance, airlines, defense, telecom, automotive, etc. How can we get these industries to be more innovative and develop better software, faster, cheaper and with happier customers? How can we do that given that the state of the art of our discipline is in such a chaos, characterized by the multitude of competing methods out there? It starts with education, but it doesn't end there. It goes on to dramatically change the way we work with methods, how we teach, learn, change, and in particular use them. I will introduce Essence: a new way of thinking that promises many things, never before known to software engineering, but already being adopted by for instance Scrum.

Ivar Jacobson was born in Ystad, Sweden, graduated from Chalmers as an electrical engineer, got his Ph.D. from KTH Royal Institute of Technology, was rewarded the Gustaf Dalén medal from Chalmers in 2003, and made an honorary doctor at San Martin de Porres University, Peru, in 2009. Ivar has both an academic and an industrial career. He has authored 10 books in software, system and business development, most of them best-selling. He has written more than hundred papers, and in the last couple of years had seven papers published in CACM and ACM Queue. He is a frequent keynote speaker at conferences around the world. After graduation from Chalmers he started to work at Ericsson. His major contribution there was the creation of a new way of developing software, component-based development, which was adopted in the development of the AXE system. This system was the greatest commercial success story ever in the history of Sweden, and it still is. Later he founded the company Objectory, which was acquired by Rational Software, now part of IBM. In 2004 he founded his current company Ivar Jacobson International, now an international leader in software development methods.



Ivar Jacobson is a father of components and component architecture, use cases, the Unified Modelling Language and the Rational Unified Process. However, all this is history. Lately he has been working on how to deal with methods and tools in a smart, superlight and agile way. He has developed a practice concept that is now being adopted by both developers and tool vendors. Now he is one of the leaders of a worldwide network SEMAT, which has the mission to revolutionize software development. And this is happening as we speak.

FRIDAY, JUNE 01

15:00 - 15:30 - ROOM R2

Danica Kragic

Robotics, Software and Artificial Intelligence: State of the art and future challenges

The integral ability of any robot is to act in the environment, interact and collaborate with people and other robots. The current trend in computer vision is development of data-driven approaches where the use of large amounts of data tries to compensate for the complexity of the world captured by cameras. Are these approaches also viable solutions in robotics? Apart from 'seeing', a robot is capable of acting, thus purposively change what and how it sees the world around it. There is a need for an interplay between processes such as attention, segmentation, object detection, recognition and categorization in order to interact with the environment. In addition, the parameterization of these is inevitably guided by the task or the goal a robot is supposed to achieve. In this talk, I will present the current state of the art in the area of robot vision and discuss open problems in the area. I will also show how visual input can be integrated with proprioception, tactile and force-torque feedback in order to plan, guide and assess robot's action and interaction with the environment.



WEDNESDAY, MAY 30

14:00 - 15:30 - CONGRESS HALL

Jan Bosch

Why Digitalization Will Kill Your (Software) Company Too

Incumbent companies in many industries have optimized themselves for traditional business models and are, for a variety of reasons, notoriously slow to change and adjust themselves to new market realities. At the same time, connectivity, data and services (in short: digitalization) enable new business models, new ecosystem engagements and new forms of value delivery to customers. As a consequence, many mature companies will be disrupted by new entrants and faster moving competitors. As evidenced by the ever-shortening tenure of companies on the Fortune 500 (now down to 10 years), this has already become a reality. In this keynote, I first provide more detail and insight into the specifics of the digitalization challenge and then outline how companies should act to maintain their competitiveness. This requires building new organizational capabilities around speed and continuous value delivery, transitioning from opinion-based to data-driven decision making, engaging with the ecosystems surrounding the company in new ways and finally transitioning from traditional hierarchical or-



ganizational models to empowered organizations with autonomous teams. The keynote uses examples from industry as well as results from research conducted in Software Center, a research collaboration with 11 companies, including Ericsson, Volvo Cars, AB Volvo, Saab Defense, Siemens, Bosch and Tetra Pak.

WEDNESDAY, MAY 30

10:30 - 11:00 - CONGRESS HALL

Noel Lovisa

The software industry is not industrialised

In 1968, Douglas McIlroy made the observation that "the software industry is not industrialised." Today, 50 years (and many noble attempts) later, a mass-produced software components industry has yet to emerge. For us to achieve industrialisation, it must be possible for a developer to specialise, to earn a living selling their software 'component.' What prevents a developer from creating a business around a single component, from continually honing that component, and repeatedly selling that component? What does it take to unlock the viability of software specialisation for developers? And what should the world expect from a Software Industry that is industrialised?

WEDNESDAY, MAY 30

10:30 - 11:00 - CONGRESS HALL



Linda Northrop

Modern Trends through an Architecture Lens

The landscape of software-enabled systems has changed dramatically over the last ten years in terms of ubiquity, scale, and complexity. The resultant proliferation of data has given rise to the need for data analytics and data scientists. The availability of machine learning technology has exploded, creating many opportunities to explore its use in unprecedented areas. Autonomous and semi-autonomous systems have arrived. Humans have moved inside the system boundary resulting in cyber-physical-social systems. Open source libraries, frameworks, microservices, continuous development supported by tool chains, and agile approaches all aim to satisfy the appetite for accelerated capability from these systems. This talk will survey these trends and their impact on today's software engineering. Of particular focus will be their impact on the software architecture of these systems: how universal and timeless is attention to architecture and does that attention still scale to the world we now inhabit?



FRIDAY, JUNE 01

09:00 - 10:30 - CONGRESS HALL

Frank Buschmann

Industrial-grade DevOps – Balancing Agility and Speed with Extreme Quality

DevOps is an adopted culture and practice in Enterprise and Consumer IT. Establishing DevOps in Industry, specifically for operations and control systems, is still a challenge. Stringent requirements, such as real-time performance and highest availability, regulatory compliance for safety and security, and the huge complexity of cloud to edge operations environments cannot be fully addressed with Enterprise DevOps methods, technologies, and environments. On the Dev side, for instance, it is essential to frontload quality assurance without degrading the speed of agile development. Novel methods and tools are required, such as for a knowledge-based application design, adaptive continuous testing, formal verification, and for application versioning and release management. Highest automation of all development and quality assurance tasks is success-critical. On the Ops side, for example, concepts and architectures for deployment are required that enable an update of features in run without degrading system availability. Similarly, new methods and infrastructures for continuous testing of



deployed functions during operations are needed that do not interfere with the system under test. This talk introduces to the challenges of leveraging DevOps for Industry systems and provides deep dives into selected aspects of current research and state of practice.

WEDNESDAY, MAY 30

16:00 - 17:30 - ROOM E4

Ödgård Andersson

The Car as a Computer On Wheels

The automotive industry is shifting more and more value from mechanics to software, and software is creating the customer experience. This means we are deploying software business models as well as software methods and practices. The customers are able to get cars that improve over their lifetime and the new approaches offer many opportunities, but also pose challenges to the established automotive eco system. This talk will address some of those opportunities and challenges and how car companies may think about the impact.

THURSDAY, MAY 31

11:00 - 12:30 - ROOM E4



Gregor Kiczales

Using MOOCs to Teach Software Engineering

UBC's introductory course has been MOOC based for 5 years. In that time, more than 5,000 UBC students have taken the course, spread across 40+ sections with more than a dozen instructors. Meanwhile hundreds of thousands of learners have participated in the public version of the courses. The MOOC has enabled us to invest significant resources in content and infrastructure development, and this has had a significant impact on the course, our teaching, and students learning experience. This talk will explore the effect our MOOC based course has had on lectures, labs, office hours, student feedback, and the instructor experience. Particular attention will be given to the way the MOOC has allowed us to leverage the expertise of a small software engineering group to deliver an SE based introductory course. We will also discuss the kinds of work that has been required to reach this point, implications for other parts of the program, and our rationale for our current development of MOOCs for the second and third software engineering courses.



FRIDAY, JUNE 01

09:00 - 10:30 - ROOM E2

Roberto Di Cosmo

Software Heritage: why and how we collect, preserve and share all the software source code.

Software is at the heart of our digital society and embodies a growing part of our scientific, technical and organisational knowledge. Software Heritage is an open non-profit initiative whose mission is to ensure that this precious body of knowledge will be preserved over time and made available to all. We do this for multiple reasons. To preserve the scientific and technological knowledge embedded in software source code. To allow better software development and reuse for society and industry. To foster better science, preserving research software, a stepping stone for reproducibility, and assembling the largest curated archive for software research. We do this now, because we are at a turning point: the founding fathers are still around, and willing to contribute their knowledge, but only for a limited time. And we face the risk of massive loss of source code developed by the Free and Open Source community, with code hosting sites that shut down when their popularity decreases. Software Heritage archives already more than 4 billion unique source code files,



spanning more than 70 million projects, with their full development history.

WEDNESDAY, MAY 30

11:00 - 12:30 - ROOM R2

ICSE 2018 Celebration

50 years of Software Engineering and 40th anniversary of ICSE, May 31

ICSE 2018 is celebration two big milestones for our discipline: the 40th incarnation of the ICSE conference itself, and the 50th anniversary of the NATO Software Engineering Conference held in Garmisch, Germany, in 1968, which is widely considered to have given birth to the field of software engineering. We have prepared several events that will take place during the second day of ICSE 2018, Thursday, May 31st, and that will involve both software engineering pioneers and organizers of previous ICSEs. This is shaping up to be a day to remember, with keynote talks by **Margaret Hamilton** and **Fred Brooks**, in the morning, and **Brian Randell**, the introductory talk with the panel involving several participants of the Garmisch conference.



The celebration will conclude with appreciation to the ICSE organizers, the General Chairs and Program Chairs (more than 40 will be present at ICSE 2018!) and reflecting about the most important events in ICSE history, through photos, videos, and short interviews. The celebration will continue on the Banquet! On Friday, Ivar Jacobson will give a final talk about the whole event, the history, and the future.

SE 50 and 40th ICSE Celebration Program

THURSDAY, MAY 31 - CONGRESS HALL

Time	Session
08:30 - 08:45	Opening
	Plenary Keynotes
08:45- 10:30	Learning the Hard Way: A History of Software Engineering 1948-1980 Frederick P. Brooks, Jr. The Language as a Software Engineer Margaret Hamilton
	SE 50 years celebration
16:00 - 17:00	Introductory talk: 50 years of Software Engineering Brian Randell Panel David Gries, Doug McIlroy, Bob McClure, Gerhard Goos and Manfred Paul
17:00 - 18:00	Celebration of 40th anniversary of ICSE
19:00 - 23:00	ICSE 2018 Banquet (Eriksbergshallen)

FRIDAY, JUNE 01 - R2

Time	Session
	Keynote
15:00 - 15:30	50 years of software engineering, so now what? Ivar Jacobson

Gathering researchers and practitioners

Industry Forum and Lindholmen Software Development Day

Software Engineering research and practice are tightly coupled, and one of the goals of ICSE 2018 is enable active communication between the researchers coming from academia, but also for industrial research institutes, and the software engineering experts from industry or public sector, developers of advanced software and software-intensive systems.

This year we have a brand-new venture - **Industry Forum**, a one-day event- on Wednesday May 30, packed with high-level talks, exhibitions and networking opportunities. The Industry Forum is aimed at creating synergy between new industrial participants and ICSE goers. The Forum is providing local and international industry an opportunity to expand their reach within the software engineering community. Through an exchange of ideas, new understandings and partnerships will emerge. The Forum is also the day when industry can connect with students for recruiting.

Key elements of the day will be the opening ICSE plenary keynote, invited talks (**Jan Bosch, Danica Kragic**) and a panel featuring industry and academic experts: **Lionel Briand** - University of Luxembourg, **Markus Borg** - RISE SICS, **Mark Harman** - Facebook and University College London, **Liliana Pasquale** - LERO and University of Dublin, **Caitlin Sadowski** - Google, **Tom Zimmermann** - Microsoft Research. Networking will be encouraged by an exhibition area with dedicated show times coinciding with breaks, speed dating sessions, a sit-down lunch, and a closing aperitif.

In addition to Industry Forum, we make it possible to get connected with the local and Scandinavian industry through interaction with the **Lindholmen Software Development Day (LSDD)** - <https://softwareday.lindholmen.se/en/events/lindholmen-software-development-day-2018>, a yearly event that attracts 500-600 software developers, using live video streaming between ICSE 2018 and LSDD on Tuesday, May 29 - in the morning from LSDD where leading Swedish companies including **Saab** and **Volvo Cars**, and invited researchers **Laurie Williams** and others will have plenary talks, and in the afternoon from ICSE 2018 to LSDD. We will also organize transfer from ICSE 2018 to LSDD to participate in the event (which is free of charge). During the morning you can follow the LSDD program via video streaming, room R17.

You can visit Lindholmen Software Development Day during the afternoon; we will organize a bus transfer. See <https://www.icse2018.org/info/software-development-day> for more details.

TUESDAY, MAY 29 - ROOM R17 AND LINDHOLMEN

Lindholmen Software Development Day

WEDNESDAY, MAY 30 - CONGRESS HALL

Industry Forum

Wednesday morning, May 30		
08:30-09:15	Opening Conference Session and ICSE Awards (Congress Hall)	
09:15-10:30	Plenary Keynote (Congress Hall) Magnus Frodigh - Communication systems and networks, key enablers for digitizing industry and society – opportunities and challenges	
10:30-11:00	Coffee Break	
11:00-12:30	TP - Software Repair I (H1) Chair(s): Lars Grunske	TP - Apps and App Stores I (H2) Chair(s): Jocelyn Simmonds
	Context-Aware Patch Generation for Better Automated Program Repair Ming Wen, Junjie Chen, Rongxin Wu, Dan Hao, Shing-Chi Cheung	Software Protection on the Go: A Large-Scale Empirical Study on Mobile App Obfuscation Pei Wang, Qinkun Bao, Li Wang, Shuai Wang, Zhaofeng Chen, Tao Wei, Dinghao Wu
	Towards Practical Program Repair with On-Demand Candidate Generation Jinru Hua, Mengshi Zhang, Kaiyuan Wang, Sarfraz Khurshid	GUILeak: Tracing Privacy-Policy Claims on User Input Data for Android Applications Xiaoyin Wang, Xue Qin, Mitra Bokaei Hosseini, Rocky Slavin, Travis Breaux, Jianwei Niu
	[Journal First] A Correlation Study between Automated Program Repair and Test-Suite Metrics Jooyong Yi, Shin Hwei Tan, Sergey Mehtaev, Marcel Böhme, Abhik Roychoudhury	Online App Review Analysis for Identifying Emerging Issues Cuiyun Gao, Jichuan Zeng, Michael Lyu, Irwin King
	[Journal First] Do Automated Program Repair Techniques Repair Hard and Important Bugs? Manish Motwani, Sandhya Sankaranarayanan, René Just, Yuriy Brun	[Journal First] EARMO: An Energy-Aware Refactoring Approach for Mobile Apps Rodrigo Morales, Rubén Saborido Infantes, Foutse Khomh, Francisco Chicano, Giuliano Antoniol
	Q&A in groups	Q&A in groups
12:30-14:00	Lunch & Posters	

Wednesday morning, May 30		
08:30-09:15	Opening Conference Session and ICSE Awards (Congress Hall)	
09:15-10:30	Plenary Keynote (Congress Hall) Magnus Frodigh - Communication systems and networks, key enablers for digitizing industry and society – opportunities and challenges	
10:30-11:00	Coffee Break	
11:00-12:30	TP - Software Evolution and Maintenance I (G1) Chair(s): Chanchal K. Roy	TP Human and Social Aspects of Computing I (J1) Chair(s): Ita Richardson
	Neuro-Symbolic Program Repair for Correcting Introductory Programming Assignments Sahil Bhatia, Pushmeet Kohli, Rishabh Singh	Sentiment Analysis for Software Engineering: How Far Can We Go? Bin Lin, Fiorella Zampetti, Gabriele Bavota, Massimiliano Di Penta, Michele Lanza, Rocco Oliveto
	 Automated Localization for Unreproducible Builds Zhilei Ren, He Jiang, Jifeng Xuan, Zijiang Yang	Identifying Features in Forks Shurui Zhou, Stefan Stanciulescu, Olaf Leßenich, Yingfei Xiong, Andrzej Wasowski, Christian Kästner
	Enlightened Debugging Xiangyu Li, Shaowei Zhu, Marcelo d'Amorim, Alessandro Orso	Roles and Impacts of Hands-on Software Architects in Five Industrial Case Studies Inayat Rehman, Mehdi Mirakhorli, Mei Nagappan, Azad Aralbay, Matthew Thornton
	[Journal First] Experiences and Challenges in Building a Data Intensive System for Data Migration Marco Scavuzzo, Elisabetta Di Nitto, Danilo Ardagna	[Journal First] Sentiment Polarity Detection for Software Development Fabio Calefato, Filippo Lanubile, Federico Maiorano, Nicole Novielli
	Q&A in groups	Q&A in groups
12:30-14:00	Lunch & Posters	

Wednesday morning, May 30			
08:30-09:15	Opening Conference Session and ICSE Awards (Congress Hall)		
09:15-10:30	Plenary Keynote (Congress Hall) Magnus Frodigh - Communication systems and networks, key enablers for digitizing industry and society – opportunities and challenges		
10:30-11:00	Coffee Break		
11:00-12:30	SEIS - Keynote (R2) Chair(s): Valerie Issarny	SEET - Reusable Recipes & Mini-Panel (E2) Chair(s): Hakan Erdogmus	NIER - Security, Safety, and Quality (E3) Chair(s): Michael Whalen
	Software Heritage: why and how we collect, preserve and share all the software source code. Roberto Di Cosmo	10+ Years of Teaching Software Engineering with iTrust: the Good, the Bad, and the Ugly Sarah Heckman, Kathryn Stolee, Chris Parnin	Generative Secure Design, Defined Riccardo Scandariato, Jennifer Horkhoff, Robert Feldt
		Toward Enhancing the Training of Software Engineering Students and Professionals using Active Video Watching Matthias Galster, Tanja Mitrovic, Matthew Gordon	Towards Secure Dynamic Product Lines in the Cloud Sebastian Krieter, Jacob Krüger, Nico Weichbrodt, Vasily Sartakov, Rüdiger Kapitza, Thomas Leich
		Developing an Optimizing Compiler for the Game Boy as a Software Engineering Project Stefan Kögel, Matthias Tichy, Raffaella Groner, Michael Stegmaier, Stefan Götz, Sascha Rechenberger	Towards Forensic-Ready Software Systems Liliana Pasquale, Dalal Alrajeh, Claudia Peersman, Thein Tun, Bashar Nuseibeh, Awais Rashid
		Easing IoT Development for Novice Programmers Through Code Recipes Fulvio Corno, Luigi De Russis, Juan Pablo Sáenz	Measure Confidence of Assurance Cases in Safety-Critical Domains Rodrigo Morales, Rubén Saborido Infantes, Foutse Khomh, Francisco Chicano, Giuliano Antoniol
		Making the Liskov Substitution Principle Happy and Sad Elisa Baniassad	A Critical Review of "A Practical Guide to Select Quality Indicators for Assessing Pareto-Based Search Algorithms in Search-Based Software Engineering": Essay on Quality Indicator Selection for SBSE Miqing Li, Tao Chen, Xin Yao
		[Mini-Panel] Design patterns for teaching	Enabling Real-Time Feedback in Software Engineering Enrique Larios Vargas, Joseph Hejderup, Maria Kechagia, Magiel Bruntink, Georgios Gousios
12:30-14:00	Lunch & Posters		

Wednesday morning, May 30			
08:30-09:15	Opening Conference Session and ICSE Awards (Congress Hall)		
09:15-10:30	Plenary Keynote (Congress Hall) Magnus Frodigh - Communication systems and networks, key enablers for digitizing industry and society – opportunities and challenges		
10:30-11:00	Coffee Break		
11:00-12:30	DEMO - Mining repositories (E1/A)	DEMO - Test automation and failure diagnosis (E1/B)	IF - Opening and Keynotes: (C-Hall) Chair(s): Jaana Nyfjord, Judith Bishop, Pekka Abrahamsson
	Perceval: Software Project Data at Your Will Santiago Dueñas, Valerio Cosentino, Gregorio Robles, Jesus M. Gonzalez-Barahona	Aletheia: A Failure Diagnosis Tool-chain Mojdeh Golagha, Abu Mohammed Raisuddin, Lennart Mittag, Alexander Pretschner, Dominik Hellhake	Opening Judith Bishop, Pekka Abrahamsson, Jaana Nyfjord The software industry is not industrialised Noel Lovisa
	IStackInTheFlow: Behavior-Driven Recommendation System for Stack Overflow Posts Chase Greco, Tyler Haden, Kostadin Damevski	When the testing gets tough, the tough get ElasTest Antonia Bertolino, Antonello Calabrò, Guglielmo De Angelis, Micael Gallego, Boni García, Francisco Gortázar	Why Digitalization Will Kill Your (Software) Company Too Jan Bosch
	SATD Detector: A Text-Mining-Based Self-Admitted Technical Debt Detection Tool Zhongxin Liu, Qiao Huang, Xin Xia, Emad Shihab, David Lo, Shanping Li	SUSHI: A Test Generator for Programs with Complex Structured Inputs Pietro Braione, Giovanni Denaro, Andrea Mattavelli, Mauro Pezze	
12:30-14:00	Lunch & Posters		

Wednesday afternoon, May 30

Wednesday afternoon, May 30		
14:00-15:30	TP - Software Repair II (H1) Chair(s): Alessandro Orso	TP - Apps and App Stores II (H2) Chair(s): Patrick Maeder
	Semantic Program Repair Using a Reference Implementation Sergey Mechtaev, Manh-Dung Nguyen, Yannic Noller, Lars Grunske, Abhik Roychoudhury	[Journal First] Studying the Dialogue Between Users and Developers of Free Apps in the Google Play Store Safwat Hassan, Chakkrit Tantithamthavorn, Cor-Paul Bezemer, Ahmed Hassan
	Automated Repair of Mobile Friendly Problems in Web Pages Sonal Mahajan, Negarsadat Abolhassani, Phil McMinn, William G.J. Halfond	Automated Reporting of GUI Design Violations for Mobile Apps Kevin Moran, Boyang Li, Carlos Bernal-Cárdenas, Dan Jelf, Denys Poshyvanyk
	Static Automated Program Repair for Heap Properties Rijnard van Tonder, Claire Le Goues	Leveraging Program Analysis to Reduce User-Perceived Latency in Mobile Applications Yixue Zhao, Marcelo Laser, Yingjun Lyu, Nenad Medvidovic
	[Journal First] Overfitting in Semantics-based Automated Program Repair Le Dinh Xuan Bach, Ferdian Thung, David Lo, Claire Le Goues	Repairing Crashes in Android Apps Shin Hwei Tan, Zhen Dong, Xiang Gao, Abhik Roychoudhury
Q&A in groups	Q&A in groups	
15:30-16:00	Coffee Break & Posters	
16:00-17:30	TP - Test Generation (H1) Chair(s): Lionel Briand	TP - Program Reduction Techniques (H2) Chair(s): Jianjun Zhao
	Augusto: Exploiting Popular Functionalities for the Generation of Semantic GUI Tests with Oracles Leonardo Mariani, Mauro Pezzè, Daniele Zuddas	Spatio-Temporal Context Reduction: A Pointer-Analysis-Based Static Approach for Detecting Use-After-Free Vulnerabilities Hua Yan, Yulei Sui, Shiping Chen, Jingling Xue
	Towards Optimal Concolic Testing Xinyu Wang, Jun Sun, Zhenbang Chen, Peixin Zhang, Jingyi Wang, Yun Lin	Program Splicing Yanxin Lu, Swarat Chaudhuri, Christopher Jermaine, David Melski
	DeepTest: Automated Testing of Deep-Neural-Network-driven Autonomous Cars Yuchi Tian, Kexin Pei, Suman Jana, Baishakhi Ray	Chopped Symbolic Execution David Trabish, Andrea Mattavelli, Noam Rinetzky, Cristian Cadar
	Precise Concolic Unit Testing of C Programs with Alarm Filtering Using Symbolic Calling Contexts Yunho Kim, Yunja Choi, Moonzoo Kim	Perses: Syntax-Guided Program Reduction Chengnian Sun, Yuanbo Li, Qirun Zhang, Tianxiao Gu, Zhendong Su
Q&A in groups	Q&A in groups	
17:30-18:45	ACM SigSoft/ IEEE TCSE Townhall (H2)	
19:00-22:00	Reception (Universeum)	

Wednesday afternoon, May 30

14:00-15:30	TP - Regression Testing (G1) Chair(s): Dan Hao	TP - Open-Source Systems (J1) Chair(s): Andrzej Wasowski
	Hybrid Regression Test Selection Lingming Zhang	Inheritance Usage Patterns in Open-Source Systems Jamie Stevenson, Murray Wood
	Fine-Grained Test Minimization Arash Vahabzadeh, Andrea Stocco, Ali Mesbah	Almost There: A Study on Quasi-Contributors in Open-Source Software Projects Igor Steinmacher, Gustavo Pinto, Igor Wiese, Marco Gerosa
	FAST Approaches to Scalable Similarity-based Test Case Prioritization Breno Miranda, Emilio Cruciani, Roberto Verdecchia, Antonia Bertolino	[Journal First] Analyzing a Decade of Linux System Calls Mojtaba Bagherzadeh, Nafiseh Kahani, Cor-Paul Bezemer, Ahmed E. Hassan, Juergen Dingel, James R. Cordy
	Towards Refactoring-Aware Regression Test Selection Kaiyuan Wang, Chenguang Zhu, Ahmet Celik, Jongwook Kim, Don Batory, Milos Gligoric	To Distribute or Not to Distribute? Why Licensing Bugs Matter Christopher Vendome, Daniel M. German, Massimiliano Di Penta, Gabriele Bavota, Mario Linares-Vásquez, Denys Poshyvanyk
	Q&A in groups	Q&A in groups
15:30-16:00	Coffee Break & Posters	
16:00-17:30	TP - Security, Privacy and Trust I (G1) Chair(s): Alessandra Gorla	TP - Empirical Software Engineering (J1) Chair(s): Marija Mikic
	Secure Coding Practices in Java: Challenges and Vulnerabilities Na Meng, Stefan Nagy, Daphne Yao, Wenjie Zhuang, Gustavo Arango Argoty	Does the Propagation of Artifact Changes across Tasks reflect Work Dependencies? Christoph Mayr-Dorn, Alexander Egyed
	EnMobile: Entity-based Characterization and Analysis of Mobile Malware Wei Yang, Mukul Prasad, Tao Xie	 Large-Scale Analysis of Framework-Specific Exceptions in Android Apps Lingling Fan, Ting Su, Sen Chen, Guozhu Meng, Yang Liu, Lihua Xu, Geguang Pu, Zhendong Su
	[Journal First] Model Comprehension for Security Risk Assessment: An Empirical Comparison of Tabular vs. Graphical Representations Katsiaryna Labunets, Fabio Massacci, Federica Paci, Sabrina Marczak, Flávio Moreira de Oliveira	[Journal First] Effect Sizes and their Variance for AB/BA Crossover Design Studies Lech Madeyski, Barbara Kitchenhamy
	[Journal First] Privacy by Designers: Software Developers' Privacy Mindset Irit Hadar, Tomer Hasson, Oshrat Ayalon, Eran Toch, Michael Birnhack, Sofia Sherman, Arod Balissa	A Large-Scale Empirical Study on the Effects of Code Obfuscations on Android Apps and Anti-Malware Products Mahmoud Hammad, Joshua Garcia, Sam Malek
	Q&A in groups	Q&A in groups
17:30-18:45	ACM SigSoft/ IEEE TCSE Townhall (H2)	
19:00-22:00	Reception (Universeum)	

Wednesday afternoon, May 30

14:00-15:30	SEIS - Software by and for people (R2) Chair(s): Hausi Müller		SEET - Take-home lessons I (E2) Chair(s): Sira Vegas		
		[Full paper] The Role of Foundations in Open Source Projects Javier Luis Cánovas Izquierdo, Jordi Cabot	Software Engineering Lab – an Essential Component of a Software Engineering Curriculum Mira Balaban, Arnon Sturm		
	[Full paper] User Feedback in the App Store: a Cross-Cultural Study Emitzá Guzmán, Luís Oliveira, Laura C. Wagner, Yves Steiner, Martin Glinz		Dimensions of Experientialism for Software Engineering Education Reid Holmes, Meghan Allen, Michelle Craig		
	[Full paper] Assistive Computing: A Human-Centered Approach To Developing Computing Support for Cognition Charles Consel		Open-Source Software in Class: Students' Common Mistakes Zhewei Hu, Yang Song, Edward Gehringer		
	[Short paper] Agile development for vulnerable populations: lessons learned and recommendations Marcos Baez, Fabio Casati		How Does Participating in a Capstone Project with Industrial Customers Affect Student Attitudes? Maria Paasivaara, Dragos Voda, Ville Heikkilä, Jari Vanhanen, Casper Lassenius		
	Q&A in groups		Q&A in groups		
15:30-16:00	Coffee Break & Posters				
16:00-17:30	SEIP - Keynote (E4) Chair(s): Jakob Axelsson	SEIS - Software development for the regulated and public sectors (R2) Chair(s): Gordana Dodig-Crnkovic		SEET - We measure (E2) Chair(s): Matthias Galster	
	[Keynote] Industrial-grade DevOps - Balancing Agility and Speed with Extreme Quality Frank Buschmann	[Case study] Digitalization of Swedish Government Agencies - A Perspective Through the Lens of a Software Development Census Markus Borg, Thomas Olsson, Ulrik Franke, Saïd Assar		Continuous Delivery of Personalized Assessment and Feedback in Agile Software Engineering Projects Xiaoying Bai, Mingjie Li, Dan Pei, Shanshan Li, Deming Ye	
		[Full paper] Contracting Agile Developments for Mission Critical Systems in the Public Sector Daniel Russo, Gerolamo Taccogna, Paolo Ciancarini, Angelo Messina, Giancarlo Succi		Are Computer Science and Engineering Graduates Ready for the Software Industry? Experiences from an Industrial Student Training Program Eray Tüzün, Hakan Erdogmus, Izzet Gokhan Ozbilgin	
		[Short paper] Resolving Ambiguities in Regulations - Towards Achieving the Kohlbergian Stage of Principled Morality Smita Ghaisas, Abhishek Sainani, Preethu Rose Anish		Compilation Error Repair: For the Student Programs, From the Student Programs Umair Z. Ahmed, Pawan Kumar, Amey Karkare, Purushottam Kar, Sumit Gulwani	
		Q&A in groups		Improving Integrated Development Environment Commands Knowledge With Recommender Systems Marko Gasparic, Tural Gurbanov, Francesco Ricci	
Q&A in groups		Q&A in groups			
17:30-18:45	ACM SigSoft/ IEEE TCSE Townhall (H2)				
19:00-22:00	Reception (Universeum)				

Wednesday afternoon, May 30

Wednesday afternoon, May 30				
14:00-15:30	DEMO - Mutation testing (E1/A)	DEMO - Performance and NFR (E1/B)	NIER - Programming and Code Analysis (E3) Chair(s): Thorsten Berger	IF - Speed Dating Activity & Keynote (C-Hall) Chair(s): Judith Bishop, Jaana Nyfjord
	MuAlloy: A Mutation Testing Framework for Alloy Kaiyuan Wang, Allison Sullivan, Sarfraz Khurshid	The Palladio-Bench for Modeling and Simulating Software Architectures Robert Heinrich, Dominik Werle, Heiko Klare, et al.	<div style="background-color: #F5DEB3; padding: 2px;">Combining Spreadsheet Smells for Improved Fault Prediction Patrick Koch, Konstantin Schekotihin, Dietmar Jannach, et al.</div> <div style="background-color: #F5DEB3; padding: 2px;">Images of Code: Lossy Compression for Native Instructions Marcelino Rodriguez-Cancio, Benoit Baudry, Jules White</div>	Speed Dating Activity lightning chats with other attendees
	An Extensible, Regular-Expression-Based Tool for Multi-Language Mutant Generation Alex Groce, Josie Holmes, Darko Marinov, et al.	PerformanceHat - Augmenting Source Code with Runtime Performance Traces in the IDE Jürgen Cito, Philipp Leitner, Christian Bosshard, et al.	<div style="background-color: #F5DEB3; padding: 2px;">Hierarchical Learning of Cross-Language Mappings through Distributed Vector Representations for Code Nghi Bui, Lingxiao Jiang</div> <div style="background-color: #F5DEB3; padding: 2px;">Which library should I use? A metric-based comparison of software libraries Fernando Lopez de La Mora, Sarah Nadi</div>	
	MDroid+: A Mutation Testing Framework for Android Kevin Moran, Michele Tufano, Carlos Bernal-Cárdenas, et al.	PROMopedia – A web-content management-based encyclopedia of software property models Séverine Sentilles, Federico Ciccozzi, Efi Papatheocharous	<div style="background-color: #F5DEB3; padding: 2px;">UniComp: a semantics-aware model compiler for optimised predictable software Federico Ciccozzi</div> <div style="background-color: #F5DEB3; padding: 2px;">Self-adaptive static analysis Eric Bodden</div>	
15:30-16:00	Coffee Break & Posters			
16:00-17:30	DEMO - Testing vulnerabilities (E1/A)	DEMO - Evolution (E1/B)	NIER - Mining, Verifying, and Learning (E3) Chair(s): Mukul Prasad	IF - Panel and Industry Talks (C-Hall) Chair(s): Pekka Abrahamsson, Judith Bishop
	SAFL: Increasing and Accelerating Testing Coverage with Symbolic Execution and Guided Fuzzing Mingzhe Wang, Jie Liang, Yuanliang Chen, et al.	GuideGen - A Tool for Keeping Requirements and Acceptance Tests Aligned Sofija Hotomski, Martin Glinz	Mining Container Image Repositories - MSR for Software Configurations and Beyond Tianyin Xu, Darko Marinov	Panel: Software Engineering in 2030 Lionel Briand, Markus Borg, Mark Harman, Liliana Pasquale, Caitlin Sadowski, Thomas Zimmermann
	ReGuard: Finding Re-entrancy Bugs in Smart Contracts Chao Liu, Han Liu, Zhao Cao, et al.	EVA: A Tool for Visualizing Software Architectural Evolution Daye Nam, Youn Kyu Lee, Nenad Medvidovi	Explainable Software Analytics Hoa Khanh Dam, Truyen Tran, Aditya Ghose	
	Weak-Assert: A Weakness-Oriented Assertion Recommendation Toolkit for Program Analysis Cong Wang, Yu Jiang, et al.	CSLICERCLOUD: A Web-Based Semantic History Slicing Framework Yi Li, Chenguang Zhu, Julia Rubin, Marsha Chechik	<div style="background-color: #F5DEB3; padding: 2px;">Generalizing Specific-Instance Interpolation Proofs with SyGuS Muqsit Azeem, Kumar Madhukar, R Venkatesh</div> <div style="background-color: #F5DEB3; padding: 2px;">Deep Learning UI Design Patterns of Mobile Apps Tam Nguyen, Phong Vu, et al.</div>	Supporter talk: Mälardalen University, Sweden - Industrial PhD School (IT-EASY) - Efficient industry-academia cooperation Kristina Lundqvist
17:30-18:45	ACM SigSoft/ IEEE TCSE Townhall (H2)			
19:00-22:00	Reception (Universeum)			

Thursday morning, May 31		
08:30-08:45	Opening Conference Session (Congress Hall)	
08:45-10:30	Plenary Keynote (Congress Hall) Fred Brooks - Learning the Hard Way: A History of Software Engineering 1948-1980 Margaret Hamilton - The Language as a Software Engineer	
10:30-11:00	Coffee Break	
11:00-12:30	TP - Communities and Ecosystems (H1) Chair(s): Alexander Serebrenik	TP - Empirical Studies of Code (H2) Chair(s): Natalia Juristo
	How Modern News Aggregators Help Development Communities Shape and Share Knowledge Mauricio Aniche, Christoph Treude, Igor Steinmacher, Igor Wiese, Gustavo Pinto, Margaret-Anne Storey, Marco Gerosa	[Journal First] An empirical study of early access games on the Steam platform Dayi Lin, Cor-Paul Bezemer, Ahmed E. Hassan
	Adding Sparkle to Social Coding: An Empirical Study of Repository Badges in the npm Ecosystem Asher Trockman, Shurui Zhou, Christian Kästner, Bogdan Vasilescu	[Journal First] Correctness Attraction: A Study of Stability of Software Behavior Under Runtime Perturbation Benjamin Danglot, Philippe Preux, Benoit Baudry, Martin Monperus
	"Was my contribution fairly reviewed?" A framework and an empirical study of fairness in Modern Code Reviews Daniel M. German, Gregorio Robles, Germán Poo-Caamaño, Xin Yang, Hajimu Iida, Katsuro Inoue	[Journal First] On the Diffuseness and the Impact on Maintainability of Code Smells: A Large Scale Empirical Investigation Fabio Palomba, Gabriele Bavota, Massimiliano Di Penta, Fausto Fasano, Rocco Oliveto, Andrea De Lucia
	[Journal First] Collaborative Model-Driven Software Engineering: a Classification Framework and a Research Map Mirco Franzago, Ivano Malavolta, Davide Di Ruscio, Henry Muccini	Accurate and Efficient Refactoring Detection in Commit History Nikolaos Tsantalis, Matin Mansouri, Laleh M-Eshkevari, Davood Mazinanian, Danny Dig
	Q&A in groups	Q&A in groups
12:30-14:00	Lunch & Posters	

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Thursday morning, May 31		
08:30-08:45	Opening Conference Session (Congress Hall)	
08:45-10:30	Plenary Keynote (Congress Hall) Fred Brooks - Learning the Hard Way: A History of Software Engineering 1948-1980 Margaret Hamilton - The Language as a Software Engineer	
10:30-11:00	Coffee Break	
11:00-12:30	TP - Security, Privacy and Trust II (G1) Chair(s): Julia Rubin	TP - Test Improvement (C-hall) Chair(s): Yves Le Traon
	[[Journal First] ENTRUST: Engineering Trustworthy Self-Adaptive Software with Dynamic Assurance Cases] Radu Calinescu, Danny Weyns, Simos Gerasimou, Muhammad Usman Iftikhar, Ibrahim Habli, Tim Kelly	DeFlaker: Automatically Detecting Flaky Tests Jonathan Bell, Owolabi Legunsen, Michael Hilton, Lamyaa Eloussi, Tiffany Yung, Darko Marinov
	[[Journal First] The Good, the Bad and the Ugly: A Study of Security Decisions in a Cyber-Physical Systems Game] Sylvain Frey, Awais Rashid, Pauline Anthonysamy, Syed Asad Naqvi	DetReduce: Minimizing Android GUI Test Suites for Regression Testing Wontae Choi, Koushik Sen, George Necula, Wenyu Wang
	[[Journal First] Lightweight, Obfuscation-Resilient Detection and Family Identification of Android Malware] Joshua Garcia, Mahmoud Hammad, Sam Malek	Time to Clean your Test Objectives Michael Marcozzi, Sebastien Bardin, Nikolai Kosmatov, Mike Papadakis, Virgile Prevosto, Loïc Correnson
	[[Journal First] Are Vulnerabilities Discovered and Resolved like Other Defects?] Patrick Morrison, Rahul Pandita, Xusheng Xiao, Ram Chillarege, Laurie Williams	Prioritizing Browser Environments for Web Application Test Execution Junghyun Kwon, In-Young Ko, Gregg Rothermel
	Q&A in groups	Q&A in groups
12:30-14:00	Lunch & Posters	

Thursday morning, May 31			
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10:30-11:00	Coffee Break		
11:00-12:30	SEIP - Keynote (E4) Chair(s): Jan Bosch	SEIS - Meeting other sciences (R2) Chair(s): Amel Bennaceur	SEET (E2) - SCORE Chair(s): Rafael Prikladnicki, Christine Julien
	[Keynote] The Car as a Computer On Wheels Ödgård Andersson	[Full paper] SE in ES: Opportunities for Software Engineering and Cloud Computing in Environmental Science Will Simm, Faiza Samreen, Richard Bassett, Gordon Blair, Maria Angela Ferrario, Jon Whittle, Paul Young	Ridertrack - an accessible tracking platform for outdoor sports events Giulia Leonardi, Alessandro Caprarelli, Marzia Degiorgi, Mariano Etchart, Ante Brescic, Ivan Kvesi, Josip Mališa
		[Full paper] Towards a Unified Conceptual Model for Surveillance Theories Balbir Barn, Ravinder Barn	Transient Shared Communication Channels Birkan Denizer, Berkay Giris, Kagan Özgün, Alperen Özkan, Berk Dehrioglu, Ayse Tosun
		[Full paper] Competence-Confidence Gap: A Threat to Female Developers' Contribution on GitHub Zhendong Wang, Yi Wang, David Redmiles	Travlendar by CPSoftware Anderson Júnior, Gabriel Lima, Genilson Almeida, Igor Santana
		[Short paper] Digital Ecclesia: Towards an Online Direct-Democracy Framework Dionysis Athanasopoulos	
	Q&A in groups		
12:30-14:00	Lunch & Posters		

Thursday morning, May 31

08:30-08:45	Opening Conference Session (Congress Hall)	
08:45-10:30	Plenary Keynote (Congress Hall) Fred Brooks - Learning the Hard Way: A History of Software Engineering 1948-1980 Margaret Hamilton - The Language as a Software Engineer	
10:30-11:00	Coffee Break	
11:00-12:30	DEMO - SPLs and OO repair (E1/A)	DEMO - Static analysis (E1/B)
	KernelHaven – An Experimentation Workbench for Analyzing Software Product Lines Christian Kröher, Sascha El-Sharkawy, Klaus Schmid	AnATLyzer: An Advanced IDE for ATL Model Transformations Jesús Sánchez Cuadrado, Esther Guerra, Juan de Lara
	Elixir: An Automated Repair Tool for Java Programms Ripon Saha, Hiroaki Yoshida, Mukul Prasad, Susumu Tokumoto, Kuniharu Takayama, Isao Nanba	VisuFlow: a Debugging Environment for Static Analyses Lisa Nguyen Quang Do, Stefan Krüger, Patrick Hill, Karim Ali, Eric Bodden
	Multi-View Editing of Software Product Lines with PEOPL Mukelabai Mukelabai, Benjamin Behringer, Moritz Fey, Jochen Palz, Jacob Krüger, Thorsten Berger	SQLInspect: A Static Analyzer to Inspect Database Usage in Java Applications Csaba Nagy, Anthony Cleve
12:30-14:00	Lunch & Posters	

Thursday afternoon, May 31

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	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%; background-color: #e0f2f1;"> TP - Human and Social Aspects of Computing II (H1) Chair(s): Margaret-Anne Storey </td> <td style="width: 50%; background-color: #e0f2f1;"> TP - Studying Software Engineers I (H2) Chair(s): Andrew J. Ko </td> </tr> <tr> <td> Statistical Learning of API Fully Qualified Names in Code Snippets of Online Forums Hung Phan, Hoan Nguyen, Ngoc Tran, Linh Truong, Anh Nguyen, Tien Nguyen </td> <td> Understanding Developers' Needs on Deprecation as a Language Feature Anand Ashok Sawant, Mauricio Aniche, Arie van Deursen, Alberto Bacchelli </td> </tr> <tr> <td> When Not to Comment: Questions and Tradeoffs with API Documentation for C++ Projects Andrew Head, Caitlin Sadowski, Emerson Murphy-Hill, Andrea Knight </td> <td> On The Dichotomy of Debugging Behavior Among Programmers Moritz Beller , Niels Spruit, Diomidis Spinellis, Andy Zaidman </td> </tr> <tr> <td> Deuce: A Lightweight User Interface for Structured Editing Brian Hempel, Justin Lubin, Grace Lu, Ravi Chugh </td> <td> [Journal First] Measuring Program Comprehension: A Large-Scale Field Study with Professionals Xin Xia, Lingfeng Bao , David Lo, Zhenchang Xing, Ahmed E. Hassan, Shanping Li </td> </tr> <tr> <td> From UI Design Image to GUI Skeleton: A Neural Machine Translator to Bootstrap Mobile GUI Implementation Chunyang Chen, Ting Su, Guozhu Meng, Zhenchang Xing, Yang Liu </td> <td> [Journal First] Data Scientists in Software Teams: State of the Art and Challenges Miryung Kim, Thomas Zimmermann, Robert Deline, Andrew Begel </td> </tr> <tr> <td style="text-align: center;">Q&A in groups</td> <td style="text-align: center;">Q&A in groups</td> </tr> </table>	TP - Human and Social Aspects of Computing II (H1) Chair(s): Margaret-Anne Storey	TP - Studying Software Engineers I (H2) Chair(s): Andrew J. Ko	Statistical Learning of API Fully Qualified Names in Code Snippets of Online Forums Hung Phan, Hoan Nguyen, Ngoc Tran, Linh Truong, Anh Nguyen, Tien Nguyen	Understanding Developers' Needs on Deprecation as a Language Feature Anand Ashok Sawant, Mauricio Aniche, Arie van Deursen, Alberto Bacchelli	When Not to Comment: Questions and Tradeoffs with API Documentation for C++ Projects Andrew Head, Caitlin Sadowski, Emerson Murphy-Hill, Andrea Knight	On The Dichotomy of Debugging Behavior Among Programmers Moritz Beller , Niels Spruit, Diomidis Spinellis, Andy Zaidman	Deuce: A Lightweight User Interface for Structured Editing Brian Hempel, Justin Lubin, Grace Lu, Ravi Chugh	[Journal First] Measuring Program Comprehension: A Large-Scale Field Study with Professionals Xin Xia, Lingfeng Bao , David Lo, Zhenchang Xing, Ahmed E. Hassan, Shanping Li	From UI Design Image to GUI Skeleton: A Neural Machine Translator to Bootstrap Mobile GUI Implementation Chunyang Chen, Ting Su, Guozhu Meng, Zhenchang Xing, Yang Liu	[Journal First] Data Scientists in Software Teams: State of the Art and Challenges Miryung Kim, Thomas Zimmermann, Robert Deline, Andrew Begel	Q&A in groups	Q&A in groups
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Thursday afternoon, May 31

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Thursday afternoon, May 31

Thursday afternoon, May 31			
	SEIP - Cloud and DevOps (E4) Chair(s): Yvonne Dittrich	SEIP - Data and Databases (E3) Chair(s): Helena Holmström Olsson	SEIS - Panel (R2) Chair(s): Schahram Dustdar
14:00-15:30	Adopting Autonomic Computing Capabilities in Existing Large-Scale Systems Heng Li, Tse-Hsun (Peter) Chen, Ahmed E. Hassan, Mohamed Nasser, Parminder Flora	A Data Decomposition Method for Stepwise Migration of Complex Legacy Data Andreas Martens, Matthias Book, Volker Gruhn	
	Java Performance Troubleshooting and Optimization at Alibaba Fangxi Yin, Denghui Dong, Sanhong Li, Jianmei Guo, Kingsum Chow	Mind The Gap: Can And Should Software Engineering Data Sharing Become A Path Of Less Resistance? Ken Wallace	
	An Exploratory Study on Faults in Web API Integration in a Large-Scale Payment Company Joop Aué, Maurício Aniche, Maikel Lobbezoo, Arie van Deursen	Cross-Language Optimizations in Big Data Systems: A Case Study of SCOPE Marija Selakovic, Michael Barnett, Madan Musuvathi, Todd Mytkowicz	
	Transparency and Contracts: Continuous Integration and Delivery in the Automotive Ecosystem Rob van der Valk, Patrizio Pelliccione, Patricia Lago, Rogardt Heldal, Eric Knauss, Jacob Juul	Smelly Relations: Measuring and Understanding Database Schema Quality Tushar Sharma, Marios Fragkoulis, Stamatia Rizou, Magiel Bruntink, Diomidis Spinellis	
	Q&A in this session	Q&A in this session	
15:30-16:00	Coffee Break & Posters		
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Thursday afternoon, May 31

	DEMO - Model-driven development (E1/A)	DEMO - Verification (E1/B)	SEET - Take-home lessons II (E2) Chair(s): Maria Paasivaara
14:00-15:30	MDebugger: A Model-level Debugger for UML-RT Mojtaba Bagherzadeh, Nicolas Hill, David Seekatz, Juergen Dingel	COMB: Computing Relevant Program Behaviors Benjamin Holland, Payas Awadhutkar, Suresh Kothari, Ahmed Tamrawi, Jon Mathews	Assessing Software Development Skills Among K-6 Learners in a Project-Based Workshop with Scratch Francisco J. Gutierrez, Jocelyn Simmonds, Nancy Hitschfeld, Cecilia Casanova, Cecilia Sotomayor, Vanessa Peña-Araya
	CyPhEF: A Model-Driven Engineering Framework for Self-Adaptive Cyber-Physical Systems Mirko D'Angelo, Annalisa Napolitano, Mauro Caporuscio	The Gamma Statechart Composition Framework: Design, Verification and Code Generation for Component-Based Reactive Systems Vince Molnár, Bence Graics, András Vörös, Istvan Majzik, Daniel Varro	IUse of JiTT in a Graduate Software Testing Course: An Experience Report Alexandra Martinez
	ReVision: A Tool for History-based Model Repair Recommendations Manuel Ohrndorf, Christopher Pietsch, Udo Kelter, Timo Kehrner	A Regression Proof Selection Tool For Coq Ahmet Celik, Karl Palmkog, Milos Gligoric	Re-imagining a Course in Software Project Management Paul Ralph
			Providing a Baseline in Software Process Improvement Education with Lego Scrum Simulations Jan-Philipp Steghöfer
			Q&A in groups
15:30-16:00	Coffee Break & Posters		
16:00-18:00	50 Years of SE celebration (Congress Hall) Brian Randell - 50 years of Software Engineering or The View from Garmisch, Panel 40th anniversary of ICSE		
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Friday morning, June 1			
08:15-08:55	ICSE Awards (Congress Hall)		
09:00-10:30	TP - Testing II (E4) Chair(s): Mike Papadakis	TP - Studying Software Engineers II (H2) Chair(s): Minghui Zhou	TP - Program Analysis II (G1) Chair(s): Christine Julien
	When Testing Meets Code Review: Why and How Developers Review Tests Davide Spadini, Mauricio Aniche, Margaret-Anne Storey, Magiel Bruntink, Alberto Bacchelli	[Journal First] What makes a great manager of software engineers? Eirini Kalliamvakou, Christian Bird, Thomas Zimmermann, Andrew Begel, Robert Deline, Daniel M. German	Multi-Granular Conflict and Dependency Analysis in Software Engineering based on Graph Transformation Leen Lambers, Daniel Strüber, Gabriele Taentzer, Kristopher Born, Jevgenij Huebert
	Redefining Prioritization: Continuous Prioritization for Continuous Integration Jingjing Liang, Sebastian Elbaum, Gregg Rothermel	[Journal First] Older adults and hackathons: a qualitative study Wiesław Kope, Bartłomiej Balcerzak, Radosław Nielek, Grzegorz Kowalik, Adam Wierzbicki, Fabio Casati	Self-Hiding Behavior in Android Apps: Detection and Characterization Zhiyong Shan, Iulian Neamtiu, Raina Samuel
	[Journal First] MAHAKIL: Diversity based Oversampling Approach to Alleviate the Class Imbalance Issue in Software Defect Prediction Kwabena E. Bennin, Jacky Keung, Passakorn Phannachitta, Akito Monden, Solomon Mensah	[Journal First] Does Syntax Highlighting Help Programming Novices? Christoph Hannebauer, Marc Hesenius, Volker Gruhn	[Journal First] The Scent of a Smell: An Extensive Comparison between Textual and Structural Smells Fabio Palomba, Annibale Panichella, Andy Zaidman, Rocco Oliveto, Andrea De Lucia
	[Journal First] On the Use of Hidden Markov Model to Predict the Time to Fix Bugs Mayy Habayeb, Syed Shariyar Murtaza, Andriy Miranskyy, Ayse Bener	Do programmers work at night or during weekend? Maëlick Claes, Mika Mäntylä, Miikka Kuuttila, Bram Adams	ConflictJS: Finding and Understanding Conflicts Between JavaScript Libraries Jibesh Patra, Pooja N. Dixit, Michael Pradel
	Q&A in groups	Q&A in groups	Q&A in groups
10:30-11:00	Coffee Break		
11:00-12:30	TP - Testing III (C-Hall) Chair(s): Myra Cohen	TP - Mining Software Repositories (H2) Chair(s): Tim Menzies	TP - Models and Modeling I (G1) Chair(s): Jon Whittle
	RFC-Directed Differential Testing of Certificate Validation in SSL/TLS Implementations Chu Chen, Cong Tian, Zhenhua Duan, Liang Zhao	[Journal First] Understanding the Factors for Fast Answers in Technical Q&A Websites: An Empirical Study of Four Stack Exchange Websites Shaowei Wang, Tse-Hsun (Peter) Chen, Ahmed E. Hassan	Propagating Configuration Decisions with Modal Implication Graphs Sebastian Krieter, Thomas Thüm, Sandro Schulze, Reimar Schröter, Gunter Saake
	Symbolic Verification of Regular Properties Hengbiao Yu, Zhenbang Chen, Ji Wang, Zhendong Su, Wei Dong	[Journal First] Towards Reusing Hints from Past Fixes- An Exploratory Study on Thousands of Real Samples Hao Zhong, Na Meng	A Combinatorial Approach for Exposing Off-Nominal Behaviors Kaushik Madala, Hyunsook Do, Daniel Aceituna
	[Journal First] Metamorphic Testing of RESTful Web APIs Sergio Segura, José Antonio Parejo Maestre, Javier Troya, Antonio Carzaniga	Are Code Examples on an Online Q&A Forum Reliable? A Study of API Misuse on Stack Overflow Tianyi Zhang, Ganesha Upadhyaya, Anastasia Reinhardt, Hridesh Rajan, Miryung Kim	 Identifying Design Problems in the Source Code: A Grounded Theory Leonardo Da Silva Sousa, Anderson Oliveira, Willian Oizumi, et al.
	[Journal First] Integrating Technical Debt Management and Software Quality Management Processes: A Normative Framework and Field Tests Narayan Ramasubbu, Chris Kemerer	[Journal First] Inference of Development Activities from Interaction with Uninstrumented Applications Lingfeng Bao, Zhenchang Xing, Xin Xia, David Lo, Ahmed E. Hassan	[Journal First] Predicting Future Developer Behavior in the IDE Using Topic Models Kostadin Damevski, Hui Chen, David Shepherd, Nicholas A. Kraft, Lori Pollock
Q&A in groups	Q&A in groups	Q&A in groups	
12:30-14:00	Lunch & Posters		

Friday morning, June 1

08:15-08:55	ICSE Awards (Congress Hall)		
09:00-10:30	TP - Software Comprehension (H1) Chair(s): Margaret Burnett	TP - Performance and Maintenance (J2) Chair(s): Miryung Kim	TP - Requirements and Recommender Systems (J1) Chair(s): Joanne M. Atlee
	Debugging Data Flows in Reactive Programs Herman Banken, Georgios Gousios, Erik Meijer	Identifying Patch Correctness in Test-Based Program Repair Xinyuan Liu, Muhan Zeng, Yingfei Xiong, Lu Zhang, Gang Huang	The Evolution of Requirements Practices in Software Startups Catarina Gralha, Daniela Damian, Anthony Wasserman, Miguel Goulao, João Araújo
	Do You Remember This Source Code? Jacob Krüger, Jens Wiemann, Wolfram Fenske, Gunter Saake, Thomas Leich	How not to structure your database-backed web applications: a study of performance bugs in the wild Junwen Yang, Cong Yan, Pranav Subramaniam, Shan Lu, Alvin Cheung	 Traceability in the Wild: Automatically Augmenting Incomplete Trace links Michael Rath, Jacob Rendall, Jin L.C. Guo, Jane Cleland-Huang, Patrick Mäder
	Inferring Hierarchical Motifs from Execution Traces Saba Alimadadi, Ali Mesbah, Karthik Pattabiraman	Speedoo: Prioritizing Performance Optimization Opportunities Zhifei Chen, Bihuan Chen, Lu Xiao, Xiao Wang, Lin Chen, Yang Liu, Baowen Xu	A Temporal Permission Analysis and Enforcement Framework for Android Alireza Sadeghi, Reyhaneh Jabbarvand, Negar Ghorbani, Hamid Bagheri, Sam Malek
	[Journal First] A Comparison of Program Comprehension Strategies by Blind and Sighted Programmers Ameer Armaly, Paige Rodeghero, Collin McMillan	[Journal First] Empirical Study on the Discrepancy between Performance Testing Results from Virtual and Physical Environments Muhammad Moiz Arif, Weiyi (Ian) Shang, Emad Shihab	[Journal First] Global-Aware Recommendations for Repairing Violations in Exception Handling Eiji Adachi Barbosa, Alessandro Garcia
Q&A in groups	Q&A in groups	Q&A in groups	
10:30-11:00	Coffee Break		
11:00-12:30	TP - Code Search, Synthesis, Performance (H1) Chair(s): Shahar Maoz	TP - Software Tools and Environments (J2) Chair(s): Barbora Buhnova	TP - Search-Based Software Engineering I (J1) Chair(s): Shin Yoo
	Deep Code Search Xiaodong Gu, Hongyu Zhang, Sunghun Kim	A Graph Solver for the Automated Generation of Consistent Domain-Specific Models Oszkár Semeráth, András Szabolcs Nagy, Daniel Varro	Testing Vision-Based Control Systems Using Learnable Evolutionary Algorithms Raja Ben Abdesslem, Shiva Nejati, Lionel Briand, Thomas Stifter
	[Journal First] Augmenting and Structuring User Queries to Support Efficient Free-Form Code Search Raphaël Sirres, Tegawendé F. Bissyandé, Dongsun Kim, David Lo, Jacques Klein, Kisub Kim, Yves Le Traon	Automatically Finding Bugs in Cyber-Physical System Development Tool Chains With Siforge Shafiqul Azam Chowdhury, Soumik Mohian, Sidharth Mehra, Siddhant Gawsane, Taylor T. Johnson, Christoph Csallner	To Preserve or Not to Preserve Invalid Solutions in Search-Based Software Engineering: A Case Study in Software Product Lines Jianmei Guo, Kai Shi
	FaCoY – A Code-to-Code Search Engine Kisub Kim, Dongsun Kim, Tegawendé F. Bissyandé, Eunjong Choi, Li Li, Jacques Klein, Yves Le Traon	Context-Aware Conversational Developer Assistants Nicholas Bradley, Thomas Fritz, Reid Holmes	Nemo: Multi-Criteria Test-Suite Minimization with Integer Nonlinear Programming Jun-Wei Lin, Reyhaneh Jabbarvand, Joshua Garcia, Sam Malek
	 Generalized Data Structure Synthesis Calvin Loncaric, Michael D. Ernst, Emina Torlak	Open Source Barriers to Entry, Revisited: A Tools Perspective Christopher Mendez, Hema Susmita Padala, Zoe Steine-Hanson, Claudia Hilderbrand, Amber Horvath, Charles Hill, Logan Simpson, Nupoor Patil, Anita Sarma, Margaret Burnett	Is "Better Data" Better Than "Better Data Miners"? Amritanshu Agrawal, Tim Menzies
Q&A in groups	Q&A in groups	Q&A in groups	
12:30-14:00	Lunch & Posters		

Friday morning, June 1			
08:15-08:55	ICSE Awards (Congress Hall)		
09:00-10:30	SEIP - Keynote (C-Hall) Chair(s): Frances Paulisch		
	[Keynote] Modern Trends through an Architecture Lens Linda Northrop		
10:30-11:00	Coffee Break		
11:00-12:30	SEIP - Testing and Defects I (E4) Chair(s): Sigrid Eldh	SEIP - Architecture (E3) Chair(s): Ipek Ozkaya	SEIP - Design and Tools (E1) Chair(s): Caitlin Sadowski
	Proactive and Pervasive Combinatorial Testing Dale Blue, Oma Raz, Rachel Tzoref-Brill, Paul Wojciak, Marcel Zalmanovici	Rethink EE Architecture in Automotive to Facilitate Automation, Connectivity, and Electro mobility Anders Magnusson, Leo Laine, Johan Lindberg	Echoes from Space: Grouping Commands with Large-Scale Telemetry Data Alexander Lattas, Diomidis Spinellis
	Practical Selective Regression Testing with Effective Redundancy in Interleaved Tests Dusica Marijan, Marius Liaaen	Exploration of Technical Debt in Start-ups Eriks Klotins, Michael Unterkalmsteiner, Panagiota Chatzipetrou, Tony Gorschek, Rafael Prikladnicki, Nirnaya Tripathi, Leandro Bento Pompermaier	Tool-based Interactive Parallelization: A Case Study Andreas Wilhelm, Faris Cakaric, Tobias Schule, Michael Gerndt
	State of Mutation Testing at Google Goran Petrovic, Marko Ivankovic	Variant Management Solution for Large Scale Software Product Lines Richard Pohl, Mischa Höchsmann, Philipp Wohlgemuth, Christian Tischer	Studying Pull Request Merges: A Case Study of Shopify's Active Merchant Oleksii Kononenko, Tresa Rose, Olga Baysal, Mike Godfrey, Dennis Theisen, Bart de Water
	Improving Model-Based Testing in Automotive Software Engineering Matthias Markthaler, Stefan Kriebel, Karin Samira Salman, Timo Greifenberg, Steffen Hillemacher, Bernhard Rumpe, Christoph Schulze, Andreas Wortmann, Philipp Orth, Johannes Richenhagen	How to Design a Program Repair Bot? Insights from the Repairnator Project Simon Urli, Zhongxing Yu, Lionel Seinturier, Martin Monperrus	A Detailed and Real-time Performance Monitoring Framework for Blockchain Systems Peilin Zheng, Zibin Zheng, Xiapu Luo, Xiangping Chen, Xuanzhe Liu
Q&A in this session	Q&A in this session	Q&A in this session	
12:30-14:00	Lunch & Posters		

Friday morning, June 1

08:15-08:55	ICSE Awards (Congress Hall)	
09:00-10:30	SEET - Keynote and Panel (E2) Chair(s): Michal Young, Patricia Lago	SRC - Presentations (R2)
	[Keynote] Using MOOCs to Teach Software Engineering Gregor Kiczales	Selected during the conference
	[Panel] What is the Role of Universities in the Age of Online Education and Digitalization? Daniela Damian, Jim Herbsleb, Gregor Kiczales, Marian Petre	
10:30-11:00	Coffee Break	
11:00-12:30	SEET - The Bigger Picture (E2) Chair(s): Henry Muccini	NIER - Empirical Studies and Requirements (R2) Chair(s): Julia Lawall
	Increasing Student Engagement in Higher Education Using a Context-Aware Q&A Teaching Framework Jan Knobloch, Jonas Kaltenbach, Bernd Bruegge	Replication Studies Considered Harmful Martin Shepperd
	 Barriers to Gender Diversity in Software Development Education: Actionable Insights from a Danish Case Study Valeria Borsotti	From Craft to Science: The Road Ahead for Empirical Software Engineering Research Matthias Galster, Danny Weyns, Antony Tang, Rick Kazman, Mehdi Mirakhorli
	Everything is Interrelated: Teaching Software Engineering for Sustainability Birgit Penzenstadler, Stefanie Betz, Colin C. Venters, Ruzanna Chitchyan, Norbert Seyff, Letícia Duboc, Christoph Becker, Jari Porras	Towards Saving Money in Using Smart Contracts Ting Chen, Zihao Li, Hao Zhou, Jiachi Chen, Xiapu Luo, Xiaoqi Li, Xiaosong Zhang
		Understanding the Impact of Software Processes on the Minds of Developers Sara Busechian, Vladimir Ivanov, Alan Rogers, Ilyas Sirazitdinov, Giancarlo Succi, Alexander Tormasov, Jooyong Yi
	Redesigning an Undergraduate Software Engineering Course for a Large Cohort Claudia Iacob, Shamal Faily	Retrospective based on Data-Driven Persona Significance in B-to-B Software Development Yasuhiro Watanabe, Hironori Washizaki, Kiyoshi Honda, Yoshiaki Fukazawa, Masahiro Taga, Akira Matsuzaki, Takayoshi Suzuki
Q&A in groups	Dazed: Measuring the Cognitive Load of Solving Technical Interview Problems At the Whiteboard Mahnaz Behroozi, Alison Lui, Ian Moore, Denae Ford, Chris Parnin	
12:30-14:00	Lunch & Posters	

Friday afternoon, June 1			
	TP - Testing IV (C-Hall) Chair(s): Xiaoying Bai	TP - Software Evolution and Maintenance II (H2) Chair(s): Massimiliano Di Penta	TP - Models and Modeling II (G1) Chair(s): Sebastian Uchitel
	[Journal First] Analyzing The Effects of Test Driven Development In GitHub Neil Borle, Meysam Feghhi, Eleni Stroulia, Russell Grenier, Abram Hindle	CCAligner: a Token Based Large-Gap Clone Detector Pengcheng Wang, Jeffrey Svajlenko, Yanzhao Wu, Yun Xu, Chanchal K. Roy	Programming Not Only by Example Hila Peleg, Sharon Shoham, Eran Yahav
	[Journal First] A Comparative Study to Benchmark Cross-project Defect Prediction Approaches Steffen Herbold, Alexander Trautsch, Jens Grabowski	HireBuild: An Automatic Approach to History-Driven Repair of Build Scripts Foyzul Hassan, Xiaoyin Wang	Goal-Conflict Likelihood Assessment based on Model Counting Renzo Degiovanni, Pablo Castro, Marcelo Arroyo, Marcelo Ruiz, Nazareno Aguirre, Marcelo F. Frias
14:00-15:30	[Journal First] MSeer - An Advanced Technique for Locating Multiple Bugs in Parallel Ruizhi Gao, W. Eric Wong	The Road to Live Programming: Insights From the Practice Juraj Kubelka, Romain Robbes, Alexandre Bergel	[Journal First] A Posteriori Typing for Model-Driven Engineering: Concepts, Analysis, and Applications Juan de Lara, Esther Guerra
	[Journal First] Presentation of an Experience Report on Applying Software Testing Academic Results in Industry: we Need Usable Automated Test Generation Andrea Arcuri	Assessing the Threat of Untracked Changes in Software Evolution Andre Hora, Danilo Silva, Marco Tulio Valente, Romain Robbes	A Static Verification Framework for Message Passing in Go using Behavioural Types Julien Lange, Nicholas Ng, Bernardo Toninho, Nobuko Yoshida
	Q&A in groups	Q&A in groups	Q&A in groups
15:30-16:00	Coffee Break & Posters		
16:00-17:30	Awards Session (Congress hall) Most Influential Paper: Andrew J. Ko, Brad Myers - Debugging reinvented: asking and answering why and why not questions about program behavior The Outstanding Research Award: Andreas Zeller - Relevance, Simplicity, and Innovation: Stories and Takeaways from Software Engineering Research		
17:30-18:00	Closing Session (Congress hall)		

Friday afternoon, June 1

Friday afternoon, June 1			
	TP - Inference and Invariants (H1) Chair(s): Robert Feldt	TP - Surveys and Reviews (J2) Chair(s): Anne Koziolok	TP- Search-Based Software Engineering II (J1) Chair(s): Daniel Varro
14:00-15:30	Inferring and Asserting Distributed System Invariants Stewart Grant, Hendrik Cech, Ivan Beschastnikh	[Journal First] Challenges and Pitfalls on Surveying Evidence in the Software Engineering Technical Literature: an Exploratory Study with Novices Talita Vieira Ribeiro, Jobson Massollar, Guilherme Horta Travassos	Search-Based Test Data Generation for SQL Queries Jeroen Castelein, Mauricio Aniche, Mozhan Soltani, Annibale Panichella, Arie van Deursen
	DroidStar: Callback Typestates for Android Classes Arjun Radhakrishna, Nicholas Lewchenko, Shawn Meier, Sergio Mover, Krishna Chaitanya Sripada, Damien Zufferey, Bor-Yuh Evan Chang, Pavol Cerny	Statistical Errors in Software Engineering Experiments: A Preliminary Literature Review Rolando Reyes, Oscar Dieste, Efraín R. Fonseca C., Natalia Juristo	Multi-Objective Integer Programming Approaches for Solving Optimal Feature Selection Problem Yinxing Xue, Yan-Fu Li
	Debugging with Intelligence via Probabilistic Inference Zhaogui Xu, Shiqing Ma, Xiangyu Zhang, Shuofei Zhu, Baowen Xu	Synthesizing Qualitative Research in Software Engineering: A Critical Review Xin Huang, He Zhang, Xin Zhou, Yang Song, Muhammad Ali Babar	[Journal First] Automated Refactoring of OCL Constraints with Search Hong Lu, Shuai Wang, Tao Yue, Shaikat Ali, Jan Nygard
	Reducer-Based Construction of Conditional Verifiers Dirk Beyer, Marie-Christine Jakobs, Thomas Lemberger, Heike Wehrheim	[Journal First] Automatic Software Repair: A Survey Luca Gazzola, Daniela Micucci, Leonardo Mariani	Automatically Generating Search Heuristics for Concolic Testing Sooyoung Cha, Seongjoon Hong, Junhee Lee, Hakjoo Oh
	Q&A in groups	Q&A in groups	Q&A in groups
15:30-16:00	Coffee Break & Posters		
16:00-17:30	Awards Session (Congress hall) Most Influential Paper: Andrew J. Ko, Brad Myers - Debugging reinvented: asking and answering why and why not questions about program behavior The Outstanding Research Award: Andreas Zeller - Relevance, Simplicity, and Innovation: Stories and Takeaways from Software Engineering Research		
17:30-18:00	Closing Session (Congress hall)		

Friday afternoon, June 1

Friday afternoon, June 1		
	<p>SEIP - Testing and Defects II (E4) Chair(s): Peter Rotella</p>	<p>SEIP - Safety and Culture (E3) Chair(s): Dusica Marijan</p>
	<p>Robustness Testing of Autonomy Software Casidhe Hutchison, Milda Zizyte, Patrick E. Lanigan, David Gutten- dorf, Michael Wagner, Claire Le Goues, Philip Koopman</p>	<p>We Don't Need Another Hero? The Impact of "Heroes" on Software Development Amritanshu Agrawal, Akond Rahman, Rahul Krishna, Alexander Sobran, Tim Menzies</p>
	<p>An Experience Report on Defect Modelling in Practice: Pitfalls and Challenges Chakkrit Tantithamthavorn, Ahmed E. Hassan</p>	<p>Improve The Definition of Software Development Projects Through Design Thinking Led Collaboration Workshops Hilary Cinis</p>
14:00- 15:30	<p>SmartUnit: Empirical Evaluations for Automated Unit Testing of Embedded Software in Industry Chengyu Zhang, Yichen Yan, Hanru Zhou, Yinbo Yao, Ke Wu, Ting Su, Weikai Miao, Geguang Pu</p>	<p>Evaluating Specification-level MC/DC Criterion in Model-ba- sed Testing of Safety Critical Systems Syed Samsul Arefin, Hadi Hemmati, Howard W. Loewen</p>
	<p>What is the Connection Between Issues, Bugs, and Enhance- ments? (Lessons Learned from 800+ Software Projects) Rahul Krishna, Amritanshu Agrawal, Akond Rahman, Alexander Sobran, Tim Menzies</p>	<p>On groupthink in safety analysis: An industrial case study Yang Wang, Stefan Wagner</p>
	Q&A in groups	Q&A in groups
15:30- 16:00	Coffee Break & Posters	
16:00- 17:30	Awards Session (Congress hall) Most Influential Paper: Andrew J. Ko, Brad Myers - Debugging reinvented: asking and answering why and why not questions about program behavior The Outstanding Research Award: Andreas Zeller - Relevance, Simplicity, and Innovation: Stories and Takeaways from Software Engineering Research	
17:30- 18:00	Closing Session (Congress hall)	

Friday afternoon, June 1

Friday afternoon, June 1			
	SEIP - Agile and Ways of Working (E1) Chair(s): Zhi Jin	SEIP - Mobile, code and SMEs (E2) Chair(s): Diomidis Spinellis	NIER - Software Engineering in Other Domains (R2) Chair(s): Liliana Pasquale
14:00-15:30	Modern Code Review: A Case Study at Google Caitlin Sadowski, Emma Söderberg, Luke Church, Michal Sipko, Alberto Bacchelli	Helping SMEs to Better Develop Software: Experience Report and Challenges Ahead Christophe Ponsard, Jean-Christophe Deprez	Deep Customization of Multi-Tenant SaaS Using Intrusive Microservices Hui Song, Franck Chauvel, Arnor Solberg
	A Study of the Organizational Dynamics of Software Teams Michael Hilton, Andrew Begel	Static Analysis of Context Leaks in Android Applications Flavio Toffalini, Jun Sun, Martin Ochoa	Software Ecosystem Call Graph for Dependency Management Joseph Hejderup, Arie van Deursen, Georgios Gousios
	An Investigation of Work Practices Used by Companies Making Contributions to Established OSS Projects Simon Butler, Jonas Gamalielsson, Bjorn Lundell, Per Jonsson, Johan Sjöberg, Anders Mattsson, Niklas Rickö, Tomas Gustavsson, Jonas Feist, Stefan Landemoo, Erik Lönroth	 Advantages and Disadvantages of a Monolithic Repository - A case study at Google Ciera Jaspan, Matthew Jorde, Andrea Knight, Caitlin Sadowski, Edward Smith, Colin Winter, Emerson Murphy-Hill	Dronology: An Incubator for Cyber-Physical Systems Research Jane Cleland-Huang, Michael Vierhauser, Sean Bayley
	From Agile to Continuous Development in the Healthcare Domain – Lessons Learned Walter Stocker	Protecting Million-User iOS Apps with Obfuscation: Motivations, Pitfalls, and Experience Pei Wang, Dinghao Wu, Zhaofeng Chen, Tao Wei	50 years of celebration (R2) 50 years of software engineering, so now what? Ivar Jacobson
	Q&A in groups	Q&A in groups	
15:30-16:00	Coffee Break & Posters		
16:00-17:30	Awards Session (Congress hall) Most Influential Paper: Andrew J. Ko, Brad Myers - Debugging reinvented: asking and answering why and why not questions about program behavior The Outstanding Research Award: Andreas Zeller - Relevance, Simplicity, and Innovation: Stories and Takeaways from Software Engineering Research		
17:30-18:00	Closing Session (Congress hall)		

Awards

ACM SIGSOFT DISTINGUISHED PAPER AWARDS

Spatio-Temporal Context Reduction: A Pointer-Analysis-Based Static Approach for Detecting Use-After-Free Vulnerabilities

Hua Yan, Yulei Sui, Shiping Chen, and Jingling Xue

Identifying Design Problems in the Source Code: A Grounded Theory

Leonardo De Silva Sousa, Anderson Oliviera, Willian Oizumi, Simone Barbosa, Alessandro Garcia, Jaejoon Lee, Marcos Kalinowski, Rafael de Mello, Roberto Oliviera, Neto Baldoino and Rodrigo Paes

Static Automated Program Repair for Heap Properties

Rijnard van Tonder and Claire Le Goues

Automated Localization for Unreproducible Builds

Zhilei Ren and He Jiang, Jifeng Xuan, and Zijiang Yang

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Shin Yoo

Korea Advanced Institute of Science and Technology, South Korea

Large-Scale Analysis of Framework-Specific Exceptions in Android Apps

Lingling Fan, Ting Su, Sen Chen, Guozhu Meng, Yang Liu, Lihua Xu, Geguang Pu and Zhendong Su

Generalized Data Structure Synthesis

Calvin Loncaric, Michael D. Ernst and Emina Torlak

Traceability in the Wild: Automatically Augmenting Incomplete

Trace links

Michael Rath, Jacob Rendall, Jin Guo, Jane Cleland-Huang, and Patrick Mäder

Towards Optimal Concolic Testinge

Xinyu Wang, Jun Sun, Zhenbang Chen, Peixin Zhang, Jingyi Wang, and Yun LinMäder

Alexander Serebrenik

Eindhoven University of Technology, The Netherlands

Federica Sarro

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Premkumar Devanbu

University of California, Davis, USA

NEW IDEAS AND EMERGING RESULTS DISTINGUISHED PAPER AWARDS

Combining Spreadsheet Smells for Improved Fault Prediction

Patrick Koch, Konstantin Schekotihin, Dietmar Jannach, Birgit Hofer, Franz Wotawa, and Thomas Schmitz

Hierarchical Learning of Cross-Language Mappings through

Distributed Vector Representations for Code

Nghi Bui and Lingxiao Jiang

ICSE-10 MOST INFLUENTIAL PAPER AWARD (PAPER APPEARED AT ICSE 2018)

Debugging Reinvented: Asking and Answering Why and Why Not Questions About Program Behavior

Andy J Ko and Brad A Myers

IEEE SOFTWARE BEST SOFTWARE ENGINEERING IN PRACTICE PAPER AWARD

Advantages and Disadvantages of a Monolithic Repository - A case study at Google

Ciera Jaspán, Matthew Jorde, Andrea Knight, Caitlin Sadowski, Edward K. Smith, Collin Winter, Emerson Murphy-Hill

SOFTWARE ENGINEERING IN SOCIETY PAPER AWARDS

The Role of Foundations in Open Source Projects

Javier Luis Canovas Izquierdo and Jordi Cabot

SOFTWARE ENGINEERING EDUCATION AND TRAINING PAPER AWARDS

Barriers to Gender Diversity in Software Development Education: Actionable Insights from a Danish Case Study

Valeria Borsotti

ACM STUDENT RESEARCH COMPETITION WINNERS: GRADUATE CATEGORY

To be decided during the conference

STUDENT CONTEST ON SOFTWARE ENGINEERING

Finalists

To be decided during the conference

DOCTORAL SYMPOSIUM

To be decided during the conference

IEEE CS TCSE AWARDS

IEEE CS TCSE Distinguished Service Award

Thomas Zimmermann

Microsoft Research

IEEE CS TCSE Distinguished Synergy Award

Lero

The Irish Software Research Centre

IEEE CS TCSE Distinguished Education Award

Carlo Ghezzi

Politecnico di Milano

Harlan D. Mills Award

Gail Murphy

University of British Columbia

IEEE CS TCSE Distinguished Women in Science and Engineering (WISE) Leadership Award

Barbara G. Ryder

Virginia

ACM SIGSOFT AWARDS

ACM SIGSOFT Distinguished Service Award

David Rosenblum

National University of Singapore

ACM SIGSOFT Impact Paper Award

DECKARD: Scalable and Accurate Tree-Based Detection of Code Clones

Lingxiao Jiang, Ghassan Misherghi, Zhendong Su, and Stephane Gloudu
In Proceedings of the 29th international conference on Software Engineering (ICSE '07)

ACM SIGSOFT Influential Educator Award

Shriram Krishnamurthy

Brown University, USA

ACM SIGSOFT Doctoral Dissertation Award Authors

Automatic Patch Generation via Learning from Successful Human Patches

Fan Long

MIT, USA

Supervisor: Martin Rinard

IACM SIGSOFT Outstanding Research Award

Andreas Zeller

Saarland University, Germany

ACM SIGSOFT Early Career Researcher Award

Gabriele Bavota

USI, Switzerland

ACTIVE SIGSOFT ACM FELLOWS - 2017

Margaret Burnett

Gail C. Murphy

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ACTIVE SIGSOFT ACM SENIOR MEMBERS - 2017

Alex Groce

Mickey W. Mantle

Lin Zhpng

New Faculty Symposium

May 29

You have landed that dream job as an academic; just what you have always wanted. What now? Becoming a new faculty member at a university or a researcher at a research lab is a challenge accepted with enthusiasm, energy, and trepidation. This first position is a signal of accomplishment and the culmination of years of dedicated effort, but it also marks the start of another round of hard work characterized by challenges that are new and often unfamiliar: how to establish an independent research program; learning how to be a mentor and be mentored; balancing career and personal life; collaborating with colleagues inside and outside your institution; and, for those heading into academic careers, learning how to teach.

The New Faculty Symposium (NFS) focuses on helping new software engineering faculty members and researchers feel more comfortable and confident in dealing with these many challenges. NFS features advice and guidance from leading software engineering faculty and researchers based upon their personal experiences and insights into the contemporary community. Ample time for informal and small group interactions allows the attendees to dig deeper into pertinent questions and concerns. NFS is intended primarily for those who expect to hold a position soon or have recently started their careers.

Time	Session
08:30 - 09:00	Opening
09:00 - 10:30	Session I Introduction Xiaoying Bai, Betty Cheng, Lars Grunske Kicking Ass with Your Research Lionel Briand Publishing your Research: Strategies, Prospects, and Pitfalls Sven Apel
10:30 - 11:00	Coffee
11:00 - 12:30	Session II Advising and Supervising Students Margaret Burnett Keeping All the Balls in the Air: Career, Family and Play Marsha Chechik Promotion for Junior Faculty: Processes, Priorities, and Strategies Matthew Dwyer
12:30 - 14:00	Lunch (Networking, Joint Discussion)
14:00 - 15:30	Session III On Impact in Software Engineering Research, Andreas Zeller Obtaining Research Funding (How to figure out a competitive project proposal?) Zhi Jin, Sol Greenspan
15:30 - 16:00	Coffee
16:00 - 17:30	Session IV How to Improve the Chances to Get a Paper Accepted? Laurie Williams Advice from Junior Faculty and Researchers (Panel) Liliana Pasquale, Kathryn Stolee, Claire Le Goues, Thomas Fritz, Jun Sun

Technical Briefings

May 29

The ICSE Technical Briefings program provides conference participants with the opportunity to gain new insights, knowledge, and skills in a broad range of areas of software engineering. The audience includes both academic researchers and industry practitioners. Technical Briefings offer a venue for communicating the current state of a timely topic related to software engineering.

Time	Big data and Machine Learning (R14)	Testing (R11/12)	Programming (R18)
09:00 - 10:30 Session I	Big Data Software Analytics with Apache Spark Georgios Gousios	Strategies for Continuous Testing in iDevOps Peter Zimmerer	Detecting and Managing Code Smells: Research and Practice Tushar Sharma
10:30 - 11:00	Coffee		
11:00 - 12:30 Session II	Machine Learning for Software Engineering: Models, Methods, and Applications Karl Meinke and Amel Bennaceur	Metamorphic Testing 20 Years Later: A Hands-on Introduction Sergio Segura and Zhiquan Zhou	Multi-Platform Computing for Physical Devices with MakeCode and CODAL Thomas Ball, Judith Bishop and Joe Finney
12:30 - 14:00	Lunch		
	Natural Language Processing (R14)	Security (R11/12)	Research Methods (R18)
14:00 - 15:30 Session III	Automatic Software Summarization - The State of the Art Laura Moreno and Andrian Marcus	Demystifying Cyber-Physical Malware Suraj Kothari	Analyzing Software Engineering Experiments: Everything You Always Wanted to Know but Were Afraid to Ask Sira Vegas
15:30 - 16:00	Coffee		
16:00 - 17:30 Session IV	Natural Language Requirements Processing: from Research to Practice Alessio Ferarri	State of the Systems Security Eric Bodden	How to Analyze Git Repositories with Command Line Tools: We're not in Kansas anymore Diomidis Spinellis and Georgios Gousios

Doctoral Symposium

May 29

08:30 - 09:00	Opening and Introductions
09:00 - 10:00	Keynote Jan Vitek, Northeastern University, Boston, USA
10:00 - 11:00	Poster Teasers (3 mins each)
	An Approach to Engineer and Realize Emergent Configurations in the Internet of Things Fahed Alkhabbas, University Malmö, Sweden
	Effort-Oriented Methods and Tools for Software Development and Maintenance for Mobile Apps Gemma Catolino, University of Salerno, Italy
	Understanding and Improving Cyber-Physical System Models and Development Tools Shafiqul Azam Chowdhury, University of Texas at Arlington, USA
	Effective Engineering of Multi-Robot Software Applications Sergio García, Chalmers University of Technology and University of Gothenburg, Sweden
	Automated Migration Support for Software Product Line Co-Evolution Lea Gerling, University of Hildesheim, Germany
	Constructing Supply Chains in Open Source Software Yuxing Ma, University of Tennessee, USA
	The Relationship between Personality and Value-Based Decision-Making Fabiana Freitas Mendes, University of Oulu, Finland and University of Brasilia, Brazil
IoT-based Urban Security Models Mahyar Turchi Moghaddam, University of L'Aquila, Italy	
10:30 - 11:00	Coffee Break
11:00-12:30	Session I: Testing and Analysis
	The Assisted Discovery of Software Vulnerabilities Nuthan Munaiah, Rochester Institute of Technology, USA
	Automatic Verification of Time Behavior of Programs Giovanni Liva, University of Klagenfurt, Austria
	Learning to Accelerate Compiler Testing Junjie Chen, Peking University Beijing, China
	Characteristics of Defective Infrastructure as Code Scripts in DevOps Akond Rahman, North Carolina State University, USA
12:30-14:00	Lunch Break (Posters, Networking, Joint Discussion)
	Session II: Productivity Improvement
	Fostering Software Developers' Productivity at Work Through Self-Monitoring and Goal-Setting André Meyer, University of Zurich, Switzerland
	Interactive Model Mining from Embedded Legacy Software Wasim Said, University of Bremen, Germany
	Towards Personalized Software Defect Predictors Beyza Eken, Istanbul Technical University, Turkey:
	Session II: Productivity Improvement
	Crowd Sourced Software Development and Maintenance Bin Lin, Università della Svizzera Italiana
A Neuro-Cognitive Perspective of Program Comprehension Norman Peitek, Leibniz Institute for Neurobiology, Magdeburg, Germany	
15:30 - 16:00	Coffee Break
	Panel: Best and Worst of Doctoral Studies
	Jocelyn Simmonds, University of Chile, Chile Gregor Engels, University of Paderborn, Germany Massimiliano Di Penta, University of Sannio, Italy Andrian Marcus, University of Texas at Dallas, USA
17:00-17:30	Closing
18:00	Social Event

2001: A Space Odyssey Symposium

50 years celebration, May 29

Along with the celebration of 50 years of Software engineering we also will celebrate the appearances of the famous science fiction movie 2001: A Space Odyssey Symposium. One of the central parts in the movie is the supercomputer HAL. HAL is the most powerful computer that one can image in that time, with knowledge superior to a human being, controlling the spaceship, finding solutions to the most complex problems, playing chess with the astronauts, and serving them continuously. And then something terribly went wrong, Why? What was the problem? Was it a (software) bug in the system, or is it about an intrinsic problem of AI? This is a question that the audience can state while watching the movie. 50 years after the movie was released, so the same number of years as for Software Engineering, we can state a number of similar, but also different questions: Would it be possible to design a computer today that could reach or outreach HAL's capabilities? Can software of today implement the functions HAL had? Are the addressed problems beyond a software implementation? What are the ethical questions and dangers of AI in such a context?



This symposium, a complementary one to the ICSE numerous technical tracks, will illuminate the movie with many details, and then discuss the questions that will arise from the presentation and from the panel debate. At the end there will be the movie show!

TUESDAY, MAY 29 - ROOM H2

The Symposium program includes:

Time	Session
14:00 - 15:30	Keynote speech HAL's Legacy after 50 years of 2001 David Stork
16:00-17:30	Panel Will computers be able to do what HAL did? Panellists Olle Häggström, Dorna Behdadi, Thore Husfeldt, Prem Devanbu, David Stork
18:30-21:15	The movie show 2001: A Space Odyssey

Community Meetings

Mon May 28	Tue May 29	Wed May 30	Thu May 31	Fri Jun 1	Sat Jun 2	Sun Jun 3
12:30-14:00 R36 MSR SC*	12:30-14:00 R9 ICGSE SC	12:30-14:00 R25 ESEC/FSE SC	12:00-13:00 R11 IEEE CS Chapter	12:30-14:00 R22/23 ICSE'19 PB	8:00-18:00 J1 FSE PC	8:00-18:00 J1 FSE PC
12:30-14:00 R9 SEAMS SC	18:30-24:00 Bryggan ICSE SC	12:30-14:00 R24 INFOSOF EB	12:30-17:00 R26 JSS EB	12:30-14:00 R24 IEEE TSE EB		
		12:30-14:00 R14 ICSE'19 OC	12:30-14:00 R25 IEEE TCSE EC	18:00-19:00 J2 ICSE'19 PC		
		12:30-14:00 R23 ACM TOSEM EB	12:30-14:00 R14 ACM SIGSOFT EC	18:00-19:00 R24 ICSE 2018 Post Mortem		
		13:30-14:00 R11/12 ITS-EASY	12:30-14:00 R24 LGBTIQ			
		17:30-18:00 R14 ICSE'20 OC	12:30-14:00 R22 ISSTA SC			
		17:30-18:30 R25 ESEC/FSE OC				
		17:30-18:45 H2 ACM SigSoft / IEEE TCSE Townhal				

* the table shows Time (e.g. 12:30-14:00), Room (e.g. R36), Event (e.g. MSR SC)

Workshops

The workshops at the International Conference on Software Engineering 2018 (ICSE) provide a forum for groups of 20-50 participants to discuss topics in software engineering research and practice. ICSE workshops serve as incubators for scientific communities that form and share a particular research agenda. ICSE workshops also provide opportunities for researchers to exchange and discuss scientific and engineering ideas at an early stage, before they have matured to warrant conference or journal publication.

Workshops at ICSE 2018 are one or two days long and may be held before or after the main conference. Participation in ICSE workshops is open. The workshop papers will be published in ACM Digital Library and IEEE eXplore Digital Library.

Acronym	Full Name	Date
CHASE	11th International Workshop on Cooperative and Human Aspects of Software Engineering	27-May
CSI-SE	5th International Workshop on Crowd Sourcing in Software Engineering	27-May
MET	International Workshop on Metamorphic Testing	27-May
RAISE	6th International Workshop on Realizing Artificial Intelligence Synergies in Software Engineering	27-May
SEAD	1st International Workshop on Security Awareness from Design to Deployment	27-May
SEsCPS	4th International Workshop on Software Engineering for Smart Cyber-Physical Systems	27-May
SoHeal	1st International Workshop on Software Health	27-May
WETSEB	1st Workshop on Emerging Trends in Software Engineering for Blockchain	27-May
GREENS	6th International Workshop on Green And Sustainable Software	27-May
MiSE	10th International Workshop on Modelling in Software Engineering	27-28-May
SEHS	International Workshop on Software Engineering in Healthcare Systems	28-May
CESI	6th International Workshop on Conducting Empirical Studies in Industry	28-May
GE	1st Workshop on Gender Equality in Software Engineering	28-May
RoSE	1st International Workshop on Robotics Software Engineering	28-May
SEFAIAS	Software Engineering for AI in Autonomous Systems	28-May
SQUADE	1st International Workshop on Software Qualities and their Dependencies	28-May
AST	13th IEEE/ACM International Workshop on Automation of Software Test	28-29 May
SBST	11th International Workshop on Search-Based Software Testing	28-29 May
SE4COG	1st International Workshop on Software Engineering for Cognitive Services	28-29 May
FairWare	International Workshop on Software Fairness	29-May
RCoSE	4th International Workshop on Rapid Continuous Software Engineering	29-May
SER&IP	5th International Workshop on Software Engineering Research and Industrial Practice	29-May
SESoS	6th International Workshop on Software Engineering for Systems-of-Systems	29-May
GI	4th International Genetic Improvement Workshop	2-Jun
SE4Science	International Workshop on Software Engineering for Science	2-Jun
RET	5th International Workshop on Requirements Engineering and Testing	2-Jun
SEEM	International Workshop on Software Engineering Education for Millennials	2-Jun
SEmotion	3rd International Workshop on Emotion Awareness in Software Engineering	2-Jun
WAPI	2nd International Workshop on API Usage and Evolution	2-Jun

Co-located events

ICSE 2018 has 7 co-located events: ICGSE 2018 - 13th IEEE International Conference on Global Software Engineering, ICPC 2018 - 26th IEEE International Conference on Program Comprehension, MSR 2018 - 15th International Conference on Mining Software Repositories, MobileSoft 2018 - 5th IEEE/ACM International Conference on Mobile Software Engineering and Systems, SEAMS 2018 - 13th International Symposium on Software Engineering for Adaptive and Self-Managing Systems, TechDebt 2018 - International Conference on Technical Debt, SEiA 2018 - Symposium on Software Engineering in Africa, and FormaliSE 2018 - 6th Conference on Formal Methods in Software Engineering. The last two started as new conferences, and SEiA was the first conference at ICSE organized from Africa.

Acronym	Full Name	Date
ICPC	IEEE/ACM International Conference on Program Comprehension	27-28-May
MobileSoft	5th IEEE/ACM International Conference on Mobile Software Engineering and Systems	27-28-May
TechDebt	International Conference on Technical Debt	27-28-May
SEiA	Symposium on Software Engineering in Africa	28-May
ICGSE	13th IEEE/ACM International Conference on Global Software Engineering	28-29-May
SEAMS	13th International Symposium on Software Engineering for Adaptive and Self-Managing Systems	28-29-May
MSR	15th International Conference on Mining Software Repositories	28-29-May
FormaliSE	6th Conference on Formal Methods in Software Engineering	02-June

Social events

Welcome reception at Universeum, May 30, 19:00–21:30

ICSE and the City of Gothenburg has the pleasure to invite you to attend the Welcome reception where you will find ample opportunity to meet old friends and make new acquaintances. The welcome reception will be held in Universeum, the Scandinavia largest Nature Museum, close to the conference venue. Throughout its seven floors you can experience a tropical rainforest, huge aquariums and lots of exciting experiments – on your own or with the Universeum guides. Finger food and refreshments will be served.



Banquet at Eriksbergshallen at Eriksbergstorget, May 31, 19:00–23:00

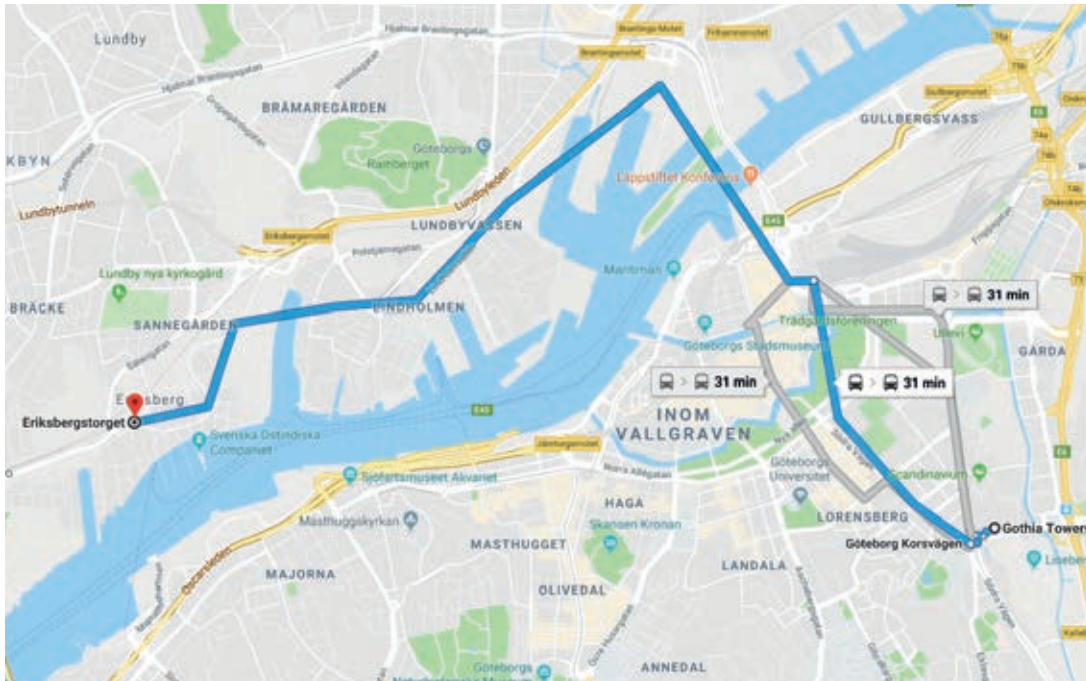
The banquet will take place at Eriksbergshallen at Eriksbergstorget. Eriksbergshallen, previous an “Shipbuilders Engineers & Reparation Company”, now a place for big events will be the place of the Banquet. Eriksbergstorget, previously a part of a bog shipyard, is today a pleasant square that attracts guest by small restaurants, cafés, and historical exhibitions.

Organized transfer buses will leave from outside Entrance 8 to Eriksberg from 17:50. The last bus will leave 18:45.

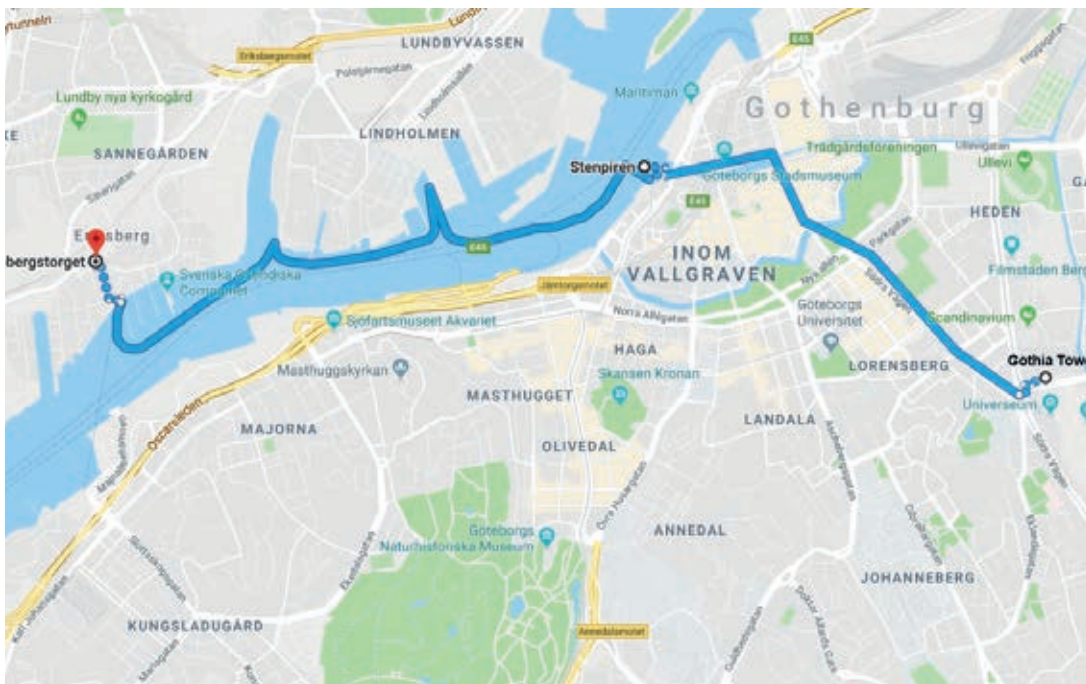


Eriksbergstorget is also reachable by public transport, including boats. Plan your route with public transportation through www.vasttrafik.se/en/

Arriving by organized bus transport, or by taxi.



Using public transportation and combining a bus or tram and a boat



5 or 10k running, May 31, 06:45

As a part of the social program of ICSE 2018, we offer a morning run on Thursday, May 31st. We start rather early, at 6:45 sharp, so that you are back at the conference on time!

We meet at 6:30 in front of the Gothia Tower, or 6:45 at the tram stop Bögatan. To get there, take Tram 5 from Liseberg towards "Östra sjukhuset" and get off at the fourth stop (Bögatan).

Please sign up at http://grischalieber.de/personal_wp/?page_id=207 if you want to participate!

THE RUNNING TRACK

The distance will be somewhat shorter than 10km, but the track is rather hilly. We will try to be back at the tram stop at 8:00. If needed, we turn around earlier to make it on time.

The plan is to run at roughly 5:30min/km (approx. 9min/mile). Please indicate in the sign-up if you want to participate, but don't run as fast. In that case, we will try to come up with a second option!



You can find a map of the track at http://grischalieber.de/personal_wp/?page_id=207, and an elevation profile of the run.

The run goes all the way over gravel/dirt paths, through the forest and along a beautiful lake! Some pictures of the area below (both in the right and the wrong season :D).



Football

As part of ICSE 2018 Excursion and Side Plan, we organize a football session where the ICSE attendees can register and play for free. If you want to participate, then please register yourself using the following form: <https://goo.gl/forms/x5T4h8bmHKUpU60C2>. Information and news regarding the match will be posted in <https://www.icse2018.org/attending/football>. Please contact Truong Ho-Quang at truongh@chalmers.se for any question/request regarding registration of the event.

THE PLACE

We will play at Heden Sport Center which is located in the city center. The football field is in a walking distance (800m) from the conference place. From Svenska Mässan Tower, just walk along Södra Vägen street towards the city center, you will see the football fields on the right side.



This is the main venue for the annual Gothia World Youth Cup which is the world's largest and most international youth football tournament. This area accommodates 6 artificial grass fields (four 11-a-side and two 7-a-side). We will play on one or two of the 11-a-side fields. You will have access to the changing room 30 minutes before and after the match time. More information about the Heden Sport Center could be found here: <https://www.goteborg.com/en/event-organiser/event-venues/heden-event-venue/>

DATE & TIME

The specific date and time is not yet fixed, due to ongoing booking process. We will update this information as soon as possible in the website <https://www.icse2018.org/attending/football>.

MATCH TIME

The match will last 65 minutes (including 30 minutes each half and a 5 minute half time).

Sweden and Gothenburg

On this page we give you some (fun) facts about Sweden.

At 450,295 square kilometres (173,860 sq mi), Sweden is the third-largest country in the European Union by area, and has Europe's 2nd lowest population density. About 15% of Sweden lies north of the Arctic Circle. Sweden has more than 95,000 lakes forming 8.7% of the surface area. Sweden has a total population of 10 million people and around 350,000 moose (*Alces alces*). In the capital, Stockholm, daylight lasts for more than 18 hours in late June but only around 6 hours in late December. Gothenburg is Sweden's largest city on the west-coast and hosts the largest harbor of Sweden. Sweden is a member of the EU (since 1995), but does not use the Euro. The two main spectator sports are football (soccer) and ice hockey. You may know Sweden for: IKEA (DIY furniture), ABBA (band), Björn Borg (tennis player), H&M (fashion).



Vikings are an iconic people that lived in Scandinavia and (mostly) the South of Sweden. The Viking age lasted from the 8th until the 11th century. There are not some many visible remains of the Viking period around as houses and ships were made of wood. Some museums may have Viking-handcraft, armour and rune stones. The rune stones use the old-rune script (earliest datings from 200AD) and often depict and describe ownership of a region, or historic and religious tales. There are influences of Viking language on modern English: the word Thursday (*Torsdag*) is derived from "Thor's day"; "Hell" derives from Norse mythology: it is the name of Loki's daughter who rules the underworld. Some other interesting words are: 'kid' from 'kið' meaning young goat; "happy" derived from "happ" meaning "good luck; fate"; "window" from "vindauga" whose literal meaning is "wind-eye", and "husband" from "húsbóndi" which is composed of "hús" (house) + "bóndi" (occupier and tiller of soil).

Some software products/companies that come from Sweden/Gothenburg are: Ericsson (mobile telecommunications networks), Volvo (self-driving cars and trucks). Volvo actually has several production sites near Gothenburg and you will see that many cars in Gothenburg are actually of the Volvo brand.

There is some well-known software that comes from Sweden: Minecraft (from Mojang), Skype, Spotify (music streaming), Candy Crush (by King), Battlefield (by Dice). The Gothenburg office of EA Games produces the leading car racing game 'Need for Speed'. Gothenburg also has a film- and TV Industry. Over the years Swedish film(maker)s have won 26 Oscars.

Here are a few Swedish words that may come in useful: hello – *hej* *hej*, bye – *hej då*, *lax* – salmon, *räkor* – shrimp, *köttbullar* – meatballs, *fika* – coffee with a treat, such as *kanelbullar* – cinnamon bun. In the Haga area of Gothenburg you can find many nice cafés with *kanelbullar*. One other signature dish for Gothenburg is the shrimp served on rye-bread (you can find one of the best in the Heaven23 restaurant of Svenska Mässan). For food lovers: there are currently six restaurants with a Michelin star in Gothenburg.

We hope you will enjoy the conference and Gothenburg!

Excursions and side program

Explore Gothenburg

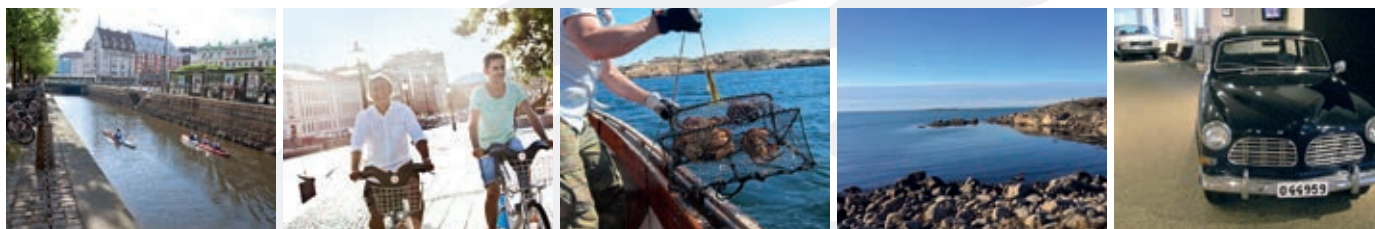
For ICSE 2018 an exciting program has been put together to explore the city of Gothenburg and its surrounding. We would like to welcome delegates, their spouses and family to join the activities during the conference from May 27th – June 3rd, 2018. This will be an opportunity to get together and experience Gothenburg and its beautiful nature or the interesting Scandinavian culture. Alternatively, you could join a more active program, doing something creative or try one of the activities to relax.

Via <https://www.icse2018.org/attending/excursions-and-side-program> you will find an detailed day-to-day program with activities and excursion as well as activities on demand. Please visit the website and discover a program with local highlights like the beautiful nature, visit one of the Southern islands, the harbour with magnificent and historical ships, modern art and much more.

We will arrange experiences by taking you to the places that only the locals know!

Date	Time	Activity
Sun 27 May	13:30h	Crab fishing tour at Hönö including dinner (3 hours + 1 hour travel)
Mon 28 May	09:00h	Walking in mindfulness along the lakes (2 hours)
Mon 28 May	18:00h	Cycling tour in and around Gothenburg including bike rental (1,5-2 hours)
Tue 29 May	10:00h	Visit an important collection of art of the 19th century in the museum of Art (1 hour)
Wed 30 May	tbd	Take a trip through Volvo's history and heritage in the Volvo Museum
Wed 30 May	08:00h	Guided Tour: The Southern Gothenburg Archipelago – Vrångö (return 14.30h)
Wed 30 May	16:00h	Walking in Mindfulness along the Swedish West Coast (2,5 hours)
Wed 30 May	10:30h	Kayaking throughout the stunning areas of natural beauty in Gothenburg or its surroundings (half or full day)
Thu 31 May	15:00h	The Archipelago Experience: seal spotting and visit the Light house at Vinga (2 hours + 1 hour travel)
Fri 1 June	10:00h	Guided Tour: Gothenburg 400 years (2 hours)
Fri 1 June	10:00h	Kayaking throughout the stunning areas of natural beauty in Gothenburg or its surroundings (3 hours)
Fri 1 June	20:00h	Elvis Live on Screen (2 hours 45)
Sat 2 June	10:30h	Cycling Tour in and around Gothenburg including bike rental (1,5-2 hours)
Sat 2 June	10:00h	Outdoor training in a large park and recreation area in the city centre (1 hour)

Are you more interested in an individual activity, please contact me, I will be at the registration area at the conference venue in the Svenska Mässan on Tuesday, Wednesday and Thursday mornings from 9:00 – 11:00. Or e-mail me via: info@go-locus.net



| tel +46 76 568 4288 | info@go-locus.net |

General information

Transportation within the city

PUBLIC TRANSPORT

The venue is located in right in the city center, on Mässans gata. The closest tram and bus stop is called Korsvägen. In Korsvägen, you can get the trams 2, 4, 5, 6, 8, 10 and 13, and a number of busses, including the Flygbussarna that goes to the airport.

To travel within the city, there are buses, ferries and trams, all using the same type of tickets. You can buy the physical tickets at kiosks called “Pressbyrån”, which you can find at the airport and several other places in the town and also close to the venue.

There are different fares, from single ticket to 3-day touristic passes. Please visit <https://www.vasttrafik.se/en/tickets/> for more information. You can also download an app that allows to buy the single tickets via mobile phone (note: you need to be able to connect to the internet during the trip). Download Västtrafik ToGo at: <https://www.vasttrafik.se/en/tickets/more-about-tickets/vasttrafik-to-go/>. Some of the trams and busses allow the traveller to purchase the ticket with credit card on-board, but this feature is limited to a few vehicles.

BICYCLE

For a small fee you can rent publicly available bicycles in the city. Pick one up at one of the stations spread around the city, and return it to any convenient bike station. 3-day tickets can be purchased at one of the bike stations. For more information and a map of the stations, please visit <http://en.goteborgbikes.se/>

Easily plan your biking route through the city with either the webpage <https://trafikenu/goteborg/cykelreplanerare/> or an app, there are several available for download on both Android and iPhone. Look for Trafiken.nu or Cykelstaden.

Taxi

It is possible to take a Taxi from the airport directly to your hotel, and the price from the airport to the city center is around SEK 400 (45 euro).

Taxi Göteborg: +46 (0) 31 650 00 or <http://www.taxigoteborg.se/En/Home>

Taxi Kurir: +46 (0) 31 27 27 27

Currency and ATM Machine

The currency in Sweden is the Swedish Krona (kr)/SEK. 1 USD is approximately 8.40 SEK, or 1 euro is approximately 10.40 SEK

The venue has an ATM Machine located by the main entrance number 5. Be aware that some places in Sweden do not accept cash (cash-free or kontantfri). Credit card is the most common way to pay in Sweden.

Emergency information

Police emergency: 112

Police non-emergency: 114 14

National Telephone Number for Health Care Advice: 1177 or +46 771 11 77 00

Ambulance: 112

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Submission Dates



Technical Papers	August 24, 2018
Software Engineering in Practice	October 1, 2018
Software Engineering Education and Training	October 1, 2018
Software Engineering in Society	October 1, 2018
New Ideas and Emerging Results	October 1, 2018
Demonstrations	October 1, 2018
Workshop Proposals	October 10, 2018
Doctoral Symposium	November 19, 2018
Journal-First Papers	December 20, 2018
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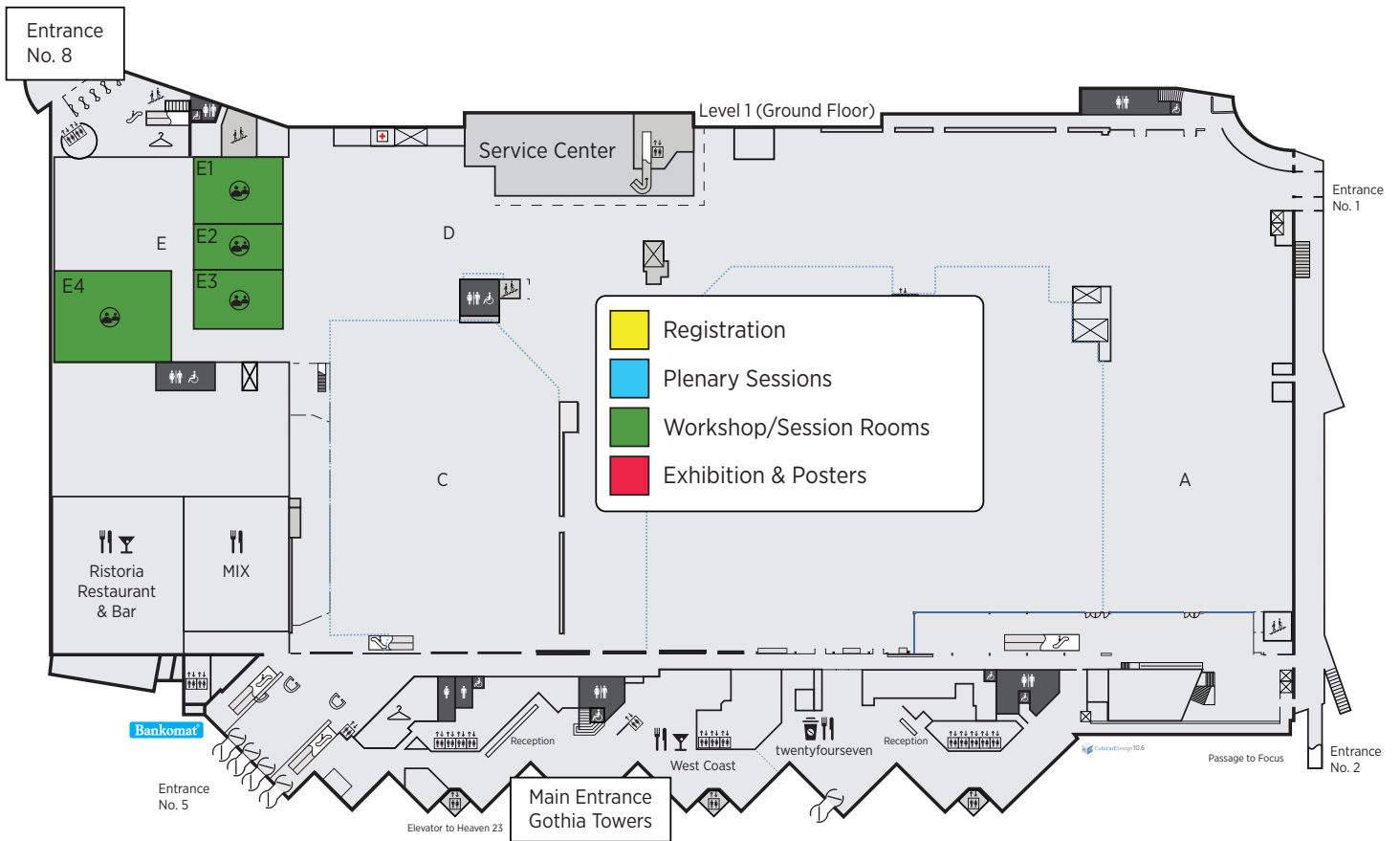
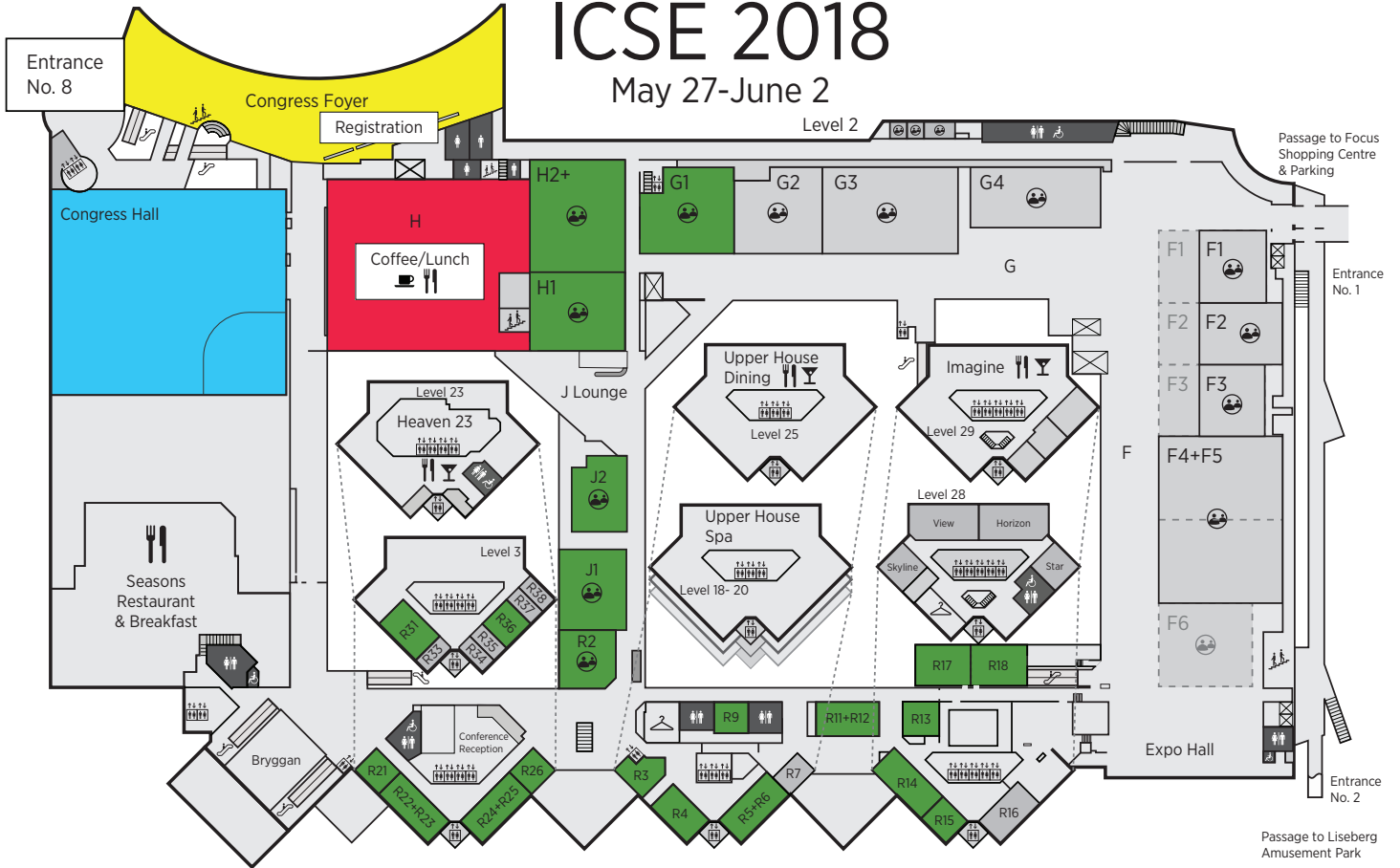
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