ICSE 2018

40th International Conference on Software Engineering
May 27 - 3 June 2018, Gothenburg, Sweden
50 years ago:          2001: A Space Odyssey
50 years ago
Apollo 8 – flight around the Moon
50 years ago

Software Engineering at NASA

Margaret Hamilton, the navigation software for the Apollo project.
50 years ago

NATO Software Engineering Conference 1968
ICSE 40th International Conference on Software Engineering

50 years after

40th International Conference of Software Engineering
Welcome to ICSE2018!

Ivica Crnkovic
General Chair

Marsha Chechik
Program Chair

Mark Harman
Program Chair
Welcome! Organisation Committee (53 members)
Welcome! PB (35) and PC (101)
Welcome! (Track PC members — 300 members)
Welcome! (Workshops 750 PC members & co-located events 350 members)
530 Students
420 practitioners from 75 companies
1765 Conference participants

Contribution to some records....
The ICSE 2018 hosts welcome you!

Stefan Bengtsson  
President and CEO of Chalmers University of Technology

Elisabet Rothenberg  
Deputy Lord Mayor  
Gothenburg
Attendees (By May 30 01:00)

2015, St. Louis, USA
2016, Shanghai, China
2017, Minneapolis, USA
2018, Vancouver, Canada
2019, Cape Town, South Africa
2020, Leuven, Belgium
2021, Helsinki, Finland
2022, Arizona, USA
2023, Florence, Italy
2024, Austin, USA
2025, Buenos Aires, Argentina
2026, Gothenburg, Sweden

Total Head Count
Main Conference

All Heads 1765
Main conference 1365
Participation in ICSE 2018

Attendees from 56 different countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>347</td>
</tr>
<tr>
<td>Sweden</td>
<td>232</td>
</tr>
<tr>
<td>Germany</td>
<td>187</td>
</tr>
<tr>
<td>China</td>
<td>126</td>
</tr>
<tr>
<td>UK</td>
<td>84</td>
</tr>
<tr>
<td>Canada</td>
<td>83</td>
</tr>
<tr>
<td>Italy</td>
<td>69</td>
</tr>
<tr>
<td>Netherlands</td>
<td>55</td>
</tr>
<tr>
<td>Switzerland</td>
<td>37</td>
</tr>
<tr>
<td>Japan</td>
<td>41</td>
</tr>
<tr>
<td>Korea</td>
<td>52</td>
</tr>
<tr>
<td>Brazil</td>
<td>53</td>
</tr>
<tr>
<td>Belgium</td>
<td>20</td>
</tr>
<tr>
<td>Singapore</td>
<td>19</td>
</tr>
<tr>
<td>Luxemburg</td>
<td>20</td>
</tr>
<tr>
<td>Austria</td>
<td>25</td>
</tr>
<tr>
<td>Ireland</td>
<td>25</td>
</tr>
<tr>
<td>France</td>
<td>28</td>
</tr>
<tr>
<td>Australia</td>
<td>28</td>
</tr>
<tr>
<td>Spain</td>
<td>33</td>
</tr>
<tr>
<td>Switzerland</td>
<td>37</td>
</tr>
<tr>
<td>Japan</td>
<td>41</td>
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<td>Korea</td>
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<td>Italy</td>
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<tr>
<td>UK</td>
<td>84</td>
</tr>
<tr>
<td>China</td>
<td>126</td>
</tr>
<tr>
<td>Others</td>
<td>141</td>
</tr>
</tbody>
</table>
Attendees

Frequent attendees
- More than 10 times: 7%
- 5-10 times: 10%
- 3-5 times: 13%
- Twice: 10%
- Once: 12%
- First time: 48%

Student attendees
- Students: 30%
- Others: 70%

First-time students
- Non-first time students: 42%
- First time students: 58%
Demographics

Academia vs Industry
- Academia: 74%
- Industry: 17%
- Research institute: 7%
- Other: 2%

Gender distribution
- Male: 68%
- Female: 19%
- Non-declared: 13%

Publications
- Single article: 52%
- Several articles: 14%
- No articles: 34%

2790 unique authors
1010 papers in the proceedings
The Program – before and after the main conference

Sun- Tue, Sat-Sun

• 29 workshops 767 attendees
• 8 co-located events 668 attendees
• 3 Pre-conference events 123 attendees
  • Doctoral Symposium
  • Technical Briefings
  • New faculty symposium
  • 2001: Space Odyssey – 50 years

• Interaction with Lindholmen Software Development Day
Program - Main Conference

88 Sessions in 9 Tracks

- Plenary Sessions and awards (5)
- Technical track (38 sessions)
- Other track (280 papers)
  - Industry Forum (4) - Mon
  - SEIP (12 session) – Mon-Fri
  - SEET (7 sessions) – Mon-Fri
  - SEIS (5 sessions) – Mon-Thu
  - NIER (5 sessions) – Mon, Fri
  - DEMO (5*2 sessions), Mon, Thu
  - SRC (1 Session + Posters), Thu, Fri
  - SCORE (1 Session + Posters), Thu

Poster exhibitions Wed-Fri
- During lunch and afternoon coffee

- TCSE/SigSoft TownHall (Wed)
  - Awards, Aperitivo

We start at 8:30 on Thursday, and 8:15 on Friday!
The Venue

- Congress hall
- Rooms on 2 levels
- H1, H2, J1, J2, R2 rooms – level 2
- E1-E4 – level 1
- H hall
  - Lunch, posters
  - Exhibitions

Industry Forum Lunch

- Session Restaurant
Don’t – worry: Information is everywhere

• icse2018.org

• ICSE 2018 Brochure


• Live stream

Women and Men in Yellow shirts

Student volunteers & their Chairs
Highlights: The Keynote Speakers
Highlights: Industry Forum (740)

Opening
Noel Lovisa, The software industry is not industrialised

Jan Bosch, Why Digitalization Will Kill Your (Software) Company Too

Forum Sit Down Working Lunch – academics meet industrialists
Speed Dating Activity – lightning chats with other attendees

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

Forum Session V: Panel - Software Engineering in 2030
Lionel Briand, Markus Borg, Mark Harman, Liliana Pasquale – Caitlin Sadowski, Tom Zimmermann

Mark Harman, Mechanisms through which academics and industrialists can work together productively

Kristina Lundqvist, Industrial PhD School – efficient industry-academia cooperation
Highlights:
50 years of SE and 40th edition of ICSE

Congress Hall, Thursday May 31

08:30 – 08:45  Opening

               Margaret Hamilton, The Language as a Software Engineer

16:00 – 17:00  Brian Randell, Introductory talk: 50 years of Software Engineering
               Panel: Brian Randell, David Gries, Doug McIlroy, Bob McClure, Gerhard Goos, Manfred Paul

17:00 – 18:00  Celebration of 40th anniversary of ICSE

19:00 – 23:00  ICSE 2018 Banquet

R2, Friday June 1

15:00 – 15:30  Ivar Jacobson, 50 years of software engineering, so now what?
Welcome reception at Universeum
May 30 19:00-21:30

Don’t forget your badge!

Just on other side of the square – start 19:00
Five floors of exhibition, guidance available
Drinks available on several levels
Visit the terrace

https://www.universeum.se/en/

Before that: 17:30 – 28:45
Industry Forum (Foyer)
After work – aperitivo
Others (H2)
TownHall – Discussions, Awards, aperitivo
Banquet, Thursday May 31, Erikbergshallen

Don’t forget your badge!
If you do not plan to come
Inform at registration desk

Buses from the venue 18:00 – 18:30
15-20 minutes driving
Buses leave from 22:30 – 24:00
Possible to use public transport (also a ferry)
Drink on the square, music
Dinner, local food, music – passing 50 years...
Some videos...

Relax and enjoy
And stay in shape!

- Set on Step counter and impress yourself!

- Take a morning run (Thursday 6.30) – 5 or 10 K

- We also have football teams
ICSE 2018
Technical Program

Marsha Chechik, University of Toronto
Mark Harman, Facebook and UCL
Program co-chairs
Reviewing Process – Board Model

101 PC Members

- Review papers
- Discuss online
- Try to reach consensus, accept/reject where possible

35 PB Members

- Oversee reviewing
- Attend PB meeting
- Decide where no consensus among PC

Over 5,000 comments!
ICSE Review Timeline

• Submission deadline: August 25, 2017
  • received 502 papers
Submitted Papers by Country

- 502 papers submitted altogether
- 1493 authors from 52 countries
ICSE Review Timeline

- Submission deadline: August 25, 2017
  - received 502 papers
  - 13 papers are desk-rejected for double-blind violations (see later)
- Author responses: November 12-15, 2017
  - 402 responses received, 17 papers withdrawn
- On-line discussion: November 16-December 1, 2017
  - Accepted 71 papers, rejected 327 papers
- Program board meeting: December 6-7, 2017, London UK
  - Accepted 34 additional papers
Accepted Papers by Country

Accepted 105 papers, from 30 countries  (21% acceptance rate)
Statistics over the years

<table>
<thead>
<tr>
<th>Year</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>12%</td>
</tr>
<tr>
<td>2010</td>
<td>14%</td>
</tr>
<tr>
<td>2011</td>
<td>14%</td>
</tr>
<tr>
<td>2012</td>
<td>21%</td>
</tr>
<tr>
<td>2013</td>
<td>18%</td>
</tr>
<tr>
<td>2014</td>
<td>20%</td>
</tr>
<tr>
<td>2015</td>
<td>18%</td>
</tr>
<tr>
<td>2016</td>
<td>19%</td>
</tr>
<tr>
<td>2017</td>
<td>16%</td>
</tr>
<tr>
<td>2018</td>
<td>21%</td>
</tr>
</tbody>
</table>
Topics: Submitted and Accepted

- Empirical software analysis
- Program analysis
- Mining software environments
- Tools and environments
- Validation and verification
- Mobile app store analysis
- Search-based software analysis
- Software requirements engineering
- Programming languages
- Model-driven engineering
- Software product lines
- Distributed and parallel computing
- Human-computer interaction
- Reverse engineering
- Configuration and deployment
- Component-based software
- End-users visualization
- Software services
- Embedded software
New this year: Double Blind Review Process

- **Goal**: remove author identity from the review process
  - The goal is not to make it *impossible* to know author identity
- **At submit time**
  - DBR blatant fail: desk reject
  - DBR non-blatant fail: give time to repair
- **During review**
  - PC/PB do not know author names as they write their reviews
  - Names only revealed for accepted papers
  - Names of authors of rejected papers never revealed
## Survey Results: Overall Review Process

<table>
<thead>
<tr>
<th></th>
<th>Review Process</th>
<th>Review Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Satisfied</td>
<td>Dissatisfied</td>
</tr>
<tr>
<td>Authors (all)</td>
<td>70%</td>
<td>16%</td>
</tr>
<tr>
<td>Authors: no accept</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>Authors: some accept/reject</td>
<td>71%</td>
<td>13%</td>
</tr>
<tr>
<td>Authors: all accept</td>
<td>93%</td>
<td>0%</td>
</tr>
<tr>
<td>PC/PB</td>
<td>71%</td>
<td>21%</td>
</tr>
<tr>
<td>PC</td>
<td>73%</td>
<td>18%</td>
</tr>
<tr>
<td>PB</td>
<td>65%</td>
<td>29%</td>
</tr>
</tbody>
</table>
Double Blind Review Process
Reviewer Reactions?

<table>
<thead>
<tr>
<th>Program Committee</th>
<th>Agreement</th>
<th>Disagreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double-blind reviewing helped make decisions which are more fair.</td>
<td>64%</td>
<td>14%</td>
</tr>
<tr>
<td>Double-blind reviewing gave me all data that I needed to make a decision.</td>
<td>77%</td>
<td>9%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program Board</th>
<th>Agreement</th>
<th>Disagreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double-blind reviewing made decisions which are more fair.</td>
<td>65%</td>
<td>6%</td>
</tr>
<tr>
<td>Double-blind reviewing provided sufficient data to make a decision.</td>
<td>82%</td>
<td>6%</td>
</tr>
</tbody>
</table>
## Double Blind Review Process
### Author and PC/PB Reactions?

<table>
<thead>
<tr>
<th>Question</th>
<th>Authors</th>
<th></th>
<th></th>
<th>PC/PB members</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Making submissions double-blind is a lot of work.</td>
<td>Agree</td>
<td>33%</td>
<td>Disagree</td>
<td>42%</td>
<td>Agree</td>
<td>37%</td>
</tr>
<tr>
<td>Submitting supplemental materials such as data, case studies, code is</td>
<td></td>
<td>55%</td>
<td>Disagree</td>
<td>21%</td>
<td>Agree</td>
<td>63%</td>
</tr>
<tr>
<td>difficult for double-blind review.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double-blind reviewing decreases the quality of reviews because it is</td>
<td></td>
<td>16%</td>
<td>Disagree</td>
<td>51%</td>
<td>Agree</td>
<td>18%</td>
</tr>
<tr>
<td>harder to solicit external opinions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reviewers should recuse themselves from the discussion if they</td>
<td></td>
<td>48%</td>
<td>Disagree</td>
<td>21%</td>
<td>Agree</td>
<td>37%</td>
</tr>
<tr>
<td>discover the authors’ identity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The authors names of rejected submissions should never be revealed.</td>
<td></td>
<td>67%</td>
<td>Disagree</td>
<td>6%</td>
<td>Agree</td>
<td>57%</td>
</tr>
<tr>
<td>Submissions that accidentally reveal the authors identity should be</td>
<td></td>
<td>29%</td>
<td>Disagree</td>
<td>43%</td>
<td>Agree</td>
<td>15%</td>
</tr>
<tr>
<td>rejected.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Program of the Technical Track

• 105 technical papers
• 48 JFP
  • 20 from TSE
  • 2 from TOSEM
  • 26 from JESE
• Between 4-6 parallel sessions
Awards
ICSE 2018 Outstanding Reviewers

Kelly Lyons, Univ. of Toronto, Canada
Travis Breaux, Carnegie Mellon Univ., USA
Laurie Williams, North Carolina State Univ., USA
Emelie Engstrom, Lund Univ., Sweden
Annibale Pannichella, Univ. of Luxembourg, Luxembourg
Daniel Varro, McGill Univ., Canada
Dalal Aranjeh, Imperial College London, UK
Shiva Nejati, SnT Centre/Univ. of Luxembourg, Luxembourg
Shin Yoo, KAIST, South Korea
Alexander Serebrenik, Eindhoven Univ. of Technology, The Netherlands
Federica Sarro, University College, London UK

Award ceremony is on Friday morning!
ICSE 2018 RRRR: Reliable Rapid Response Reviewers

Andrew Ko, Univ. of Washington, USA
Premkumar Devanbu, Univ. of California, Davis, USA
Ahmed E. Hassan, Queen’s Univ., Canada
Yue Jia, Facebook
Arie Van Deursen, Delft Univ. of Technology, The Netherlands
Tracy Hall, Brunel Univ., London, UK
Claire Le Goues, Carnegie Mellon Univ., USA
Paolo Tonella, Fondazione Bruno Kessler, Trento, Italy
Darko Marinov, Univ. of Illinois, Urbana Champaign, USA
Perdita Stevens, Univ. of Edinburgh, Scotland
Yuriy Brun, Univ. of Massachusetts, USA

Award ceremony is on Friday morning!
Distinguished Paper Awards

105 Accepted Papers

Reviewers’ comments and scores

8 with notably enthusiastic reviews

Award ceremony is on Friday morning!
ACM SIGSOFT
Distinguished Paper

Huan Yan and Yulei Sui
University of New South Wales, Australia
Shiping Chen
CSIRO, Australia
Jingling Xue
University of New South Wales, Australia

For
Spatio-Temporal Context Reduction: A Pointer-Analysis-Based Static Approach for Detecting Use-After-Free Vulnerabilities
Leonardo De Silva Sousa, Anderson Oliviera, Willian Oizumi, Simone Barbosa and Alessandro Garcia
Pontifícia Universidade Católica do Rio de Janeiro (PUC-RIO), Brazil

Jaejoon Lee
Lancaster University, United Kingdom

Marcos Kalinowski, Rafael de Mello and Roberto Oliviera
Pontifícia Universidade Católica do Rio de Janeiro (PUC-RIO), Brazil

Neto Baldoino and Rodrigo Paes
UFAL, Brazil

For

Identifying Design Problems in the Source Code: A Grounded Theory
ACM SIGSOFT
Distinguished Paper

Calvin Loncaric, Michael D. Ernst and Emina Torlak
University of Washington, USA

For
Generalized Data Structure Synthesis
ACM SIGSOFT
Distinguished Paper

Michael Rath
Technische Universität Ilmenau, Germany
Jacob Rendall, Jin Guo and Jane Cleland-Huang
University of Notre Dame, USA
Patrick Mäder
Technische Universität Ilmenau, Germany

For
Traceability in the Wild: Automatically Augmenting Incomplete Trace links
ACM SIGSOFT
Distinguished Paper

Xinyu Wang
Zhejiang University, China

Jun Sun
Singapore University of Technology and Design, Singapore

Zhenbang Chen
National University of Defense Technology, China

Peixin Zhang
Zhejiang University, China

Jingyi Wang
Singapore University of Technology and Design, Singapore

Yun Lin
National University of Singapore, Singapore

For
Towards Optimal Concolic Testing
ACM SIGSOFT
Distinguished Paper

Rijnard van Tonder and Claire Le Goues
Carnegie Mellon University, USA

For
Static Automated Program Repair for Heap Properties
ACM SIGSOFT
Distinguished Paper

Zhilei Ren and He Jiang
Dalian University of Technology, China
Jifeng Xuan
Wuhan University, China
Zijiang Yang
Western Michigan University, USA

For
Automated Localization for Unreproducible Builds
ACM SIGSOFT
Distinguished Paper

Fan Lingling, Sen Chen, Lihua Xu, Geguang Pu
East China Normal University, China

Ting Su, Guozhu Meng, Yang Liu
Nanyang Technological University, China

Zhendong Su
University of California, Davis, USA

For
Large-Scale Analysis of Framework-Specific
Exceptions in Android Apps
HAVE
A
GREAT ICSE
Keynote

Magnus Frodigh, Ericsson
acting Head of Ericsson Research

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