

26th IEEE International
REQUIREMENTS ENGINEERING CONFERENCE

August 20 -24, 2018 – Banff, Alberta, Canada



KINNEAR CENTRE
FOR CREATIVITY & INNOVATION

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PROGRAM



Guenther Ruhe
General Chair



Walid Maalej
Program Chair



Daniel Amyot
Program Chair

Welcome to RE'18!

The 26th edition of the premier IEEE International Requirements Engineering Conference takes place on August 20 to 24, 2018, in Canada. RE'18 brings together around 250 researchers, practitioners, educators, and students to present and discuss the most recent research results, innovations, experiences, and concerns in the discipline of requirements engineering. RE'18 is held at the Banff Centre for Arts and Creativity in the gorgeous Banff National Park, one of Canada's oldest and most popular tourist destinations. Known for its breathtaking mountainous surroundings and hot springs, Banff is a prime destination for outdoor sports and features extensive hiking, biking, and mountain climbing opportunities.

This year's RE theme is "Crossing Boundaries and Increasing Impact". While being focused on requirements engineering, we also open the door to innovation and new perspectives on our discipline. The conference theme is reflected in this year's rich program, with over 70 talks about RE-related scientific contributions to research, industrial innovation, RE@Next!, and a data challenge/showcase. We are excited to have three distinguished and inspiring keynote speakers with talks related to this year's theme. There are also posters and tool demos, panel discussions, and journal-first presentations. The pre-conference program consists of an industry day, 12 workshops, 6 tutorials, a doctoral symposium, and an RE Cares event.

In total, the RE'18 main conference attracted 182 paper submissions. Each paper was independently reviewed by members of the track's program committee (PC) and was eventually the subject of an online – and for the research papers a face-to-face – discussion by its reviewers and other members of the PCs.

In total, 24 research papers (27%) were accepted. We introduced this year a triple-blind review process to mitigate potential biases related to the reputation of authors and of reviewers, focus the review process on content, and depersonalize research and knowledge sharing. We also extended the paper length to 2 additional pages for references, and encouraged structured abstracts and the submission of additional material.

This year, the industry papers are renamed to Industry Innovation papers to stress the nature and importance of these contributions to the RE community. Industry Innovation papers were also allowed 10+2 pages. A total of 8 papers were accepted (36%). The RE@Next! papers were evaluated by 3 PC members through a double-

blind process, also new this year. An online discussion led to a selection of 9 papers (24%). The Data Chairs and their committee accepted 5 papers, the Doctoral Symposium Chairs accepted 8 submissions, and the Posters & Demo Chairs and their committee accepted 7 contributions.

For the first time, we also invited authors of papers published in recognized journals, but not previously presented at conferences, to come present their work during the RE conference. These papers are identified as “Journal-First” (JF) in the program and are presented in the sessions that contain Research and Industry Innovation papers. Three reputable journals were considered this year: Springer’s *Requirements Engineering*, *IEEE Transactions on Software Engineering*, and Elsevier’s *Information and Software Technology*.

RE'18 offers a unique *Industry Day* that will bring together entrepreneurs across industry sectors. Finally, *RE Cares* is a new multi-day opportunity for conference participants to integrate top notch research and address problems of societal interest.

We are very thankful to the whole RE'18 organizing committee and other volunteers. We also express our appreciation to our hardworking Program Committees (and awards committees) who spent many hours reviewing and discussing papers. Finally, we are thankful to all authors and attendants who contributed to the program sharing their work, findings, and feedback with the community to continue advance the field of requirements engineering and related fields.

Last but not least we highly acknowledge the contributions of our conference sponsors. In particular, we would like to thank Intel Inc., Tata Consulting Services and the University of Calgary Schulich School of Engineering serving as platinum, gold, and silver sponsors, respectively.

Enjoy RE'18!

ORGANIZING COMMITTEE

| | |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| General Chair | Guenther Ruhe, <i>University of Calgary, Canada</i> |
| Program Co-Chairs | Walid Maalej, <i>University of Hamburg, Germany</i> Daniel Amyot, <i>University of Ottawa, Canada</i> |
| Industrial Innovation Co-Chairs | Lionel Briand, <i>SnT Centre, University of Luxembourg, Luxembourg</i> Smita S. Ghaisas, <i>Tata Consultancy Services, India</i> |
| RE@Next! Co-Chairs | Martin Glinz, <i>University of Zurich, Switzerland</i> Daniel Méndez, <i>Technical University of Munich, Germany</i> |
| Data Co-Chairs | Tim Menzies, <i>NC State University, USA</i> Maleknaz Nayebi, <i>University of Toronto, Canada</i> |
| Workshop Co-Chairs | Birgit Penzenstadler, <i>California State University Long Beach, USA</i> Norbert Seyff, <i>FHNW & University of Zurich, Switzerland</i> |
| Tutorials Co-Chairs | Sarah C. Gregory, <i>Intel Corporation, USA</i> Gunter Mussbacher, <i>McGill University, Canada</i> |
| Industry Day Co-Chairs | Chris Carlson, <i>Brightsquid, Canada</i> Prashanth Southeikal, <i>Catyeus Inc., Canada</i> |
| Posters / Tool Demonstrations Co-Chairs | Muneera Bano, <i>Swinburne University of Technology, Australia</i> Maria Lencastre, <i>State University of Pernambuco, Brazil</i> |
| Doctoral Symposium Co-Chairs | Annie I. Antón, <i>Georgia Institute of Technology, USA</i> Yijun Yu, <i>The Open University, UK</i> |
| Volunteers Co-Chairs | Pradeep K. Murukannaiah, <i>Rochester Institute of Technology, USA</i> Mostafa Hamza Sayed, <i>University of Calgary, Canada</i> |
| Proceedings Co-Chairs | Sepideh Ghanavati, <i>Texas Tech University, USA</i> Federica Sarro, <i>University College London, UK</i> |
| Communications/Media Co-Chairs | Fabiano Dalpiaz, <i>Utrecht University, Netherlands</i> Samuel Fricker, <i>FHNW, Switzerland & Blekinge Institute of Technology, Sweden</i> |
| Web Co-Chairs | Kornelia Streb, <i>University of Calgary, Canada</i> Christoph Stanik, <i>University of Hamburg, Germany</i> |
| Finance Chair | Mahmood Moussavi, <i>University of Calgary, Canada</i> |
| Local Organizing Chair | Mohammad Moshirpour, <i>University of Calgary, Canada</i> |

Disruptive Change in Requirements Engineering Research

Wednesday, August 22nd, 2018 - 8:45



Dr. Jane Cleland-Huang will address the challenges and opportunities introduced by disruptive change in the current requirements engineering landscape. Sea changes in the way practitioners develop software, along with advances in Artificial Intelligence algorithms and the ubiquity of social media environments have created a goldilocks opportunity for innovative creativity that potentially touches every aspect of requirements engineering research. Coupled with passion and vision, these advances revitalize our ability to address open requirements challenges in new and meaningful ways.

Beyond DevOps: Finding Value through Requirements

Thursday, August 23rd, 2018 - 9:00



Dr. Gail Murphy. The DevOps movement enables the more frequent delivery of changes to a software system. Adopting DevOps practices is seen as enabling the ability to get more done. But is the more that is getting done actually of value to the end user or to the producing organization? In this talk, I will explore how the ideas of value streams are being applied to software development and how the requirements community is key to enabling an increased focus on the delivery of value.

Requirements Engineering in the Age of Societal-Scale Cyber-Physical Systems: The Case of Automated Driving

Friday, August 24th, 2018 - 11:00



Dr. Krzysztof Czarnecki. Societal-scale cyber-physical systems (S-CPS) are computer systems controlling physical entities using sensors and actuators, with intelligence provided by software and data, and deployed at a large scale. Over the next few decades, these systems are poised to transform entire sectors of our life, including energy, healthcare, and transportation. Automated vehicles are a prime example of such systems: they are computers on wheels that run on data while communicating with smart infrastructure and each other.

Requirements engineering (RE) has a key role to play in this transformation and in achieving the positive effects S-CPS. I will argue that RE for S-CPS should be data-driven, continuous, and values-based. While these directions have already been identified in the RE field, this talk will exemplify their role for automated driving and point to open questions and future research opportunities. An important theme throughout this talk will be safety assurance, which is an immediate major challenge for engineering of these systems, and RE has also a key role to play in addressing it.

PROGRAM OVERVIEW

Legend:

- (R) Research
- (I) Industry
- (JF) Journal First
- (D) Data
- (N) RE@Next!
- (PTD) Posters and Tool Demos



Best Paper Award

| Monday | Tuesday | Wednesday | Thursday | Friday |
|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07:30-17:30 Registration - Room: KC 204 | | | | |
| Industry Day | Doctoral Symposium | Main Conference | | |
| Workshops | | | | |
| WS01 ESPRES'18 WS03 RESACS'18 WS06 D4RE'18 WS09 MoDRE'18 WS11 RE4SUSY'18 WS12 EmpirRE'18 | WS02 AffectRE'18 WS04 AIRE'18 WS05 REET'18 WS07 QuaRAP'18 WS10 EARS'18 WS13 RE Cares'18 | 08:45-09:15 Opening 09:15-10:30 Keynote Jane Cleland-Huang 10:30-11:00 Network Break 11:00-12:30 • RE and Management • Evolution and Tracing • RE@Next!: Towards Better Requirements | 09:00-09:15 Awards 09:15-10:30 Keynote Gail Murphy 11:00-12:30 • Elicitation and Interviews • User- and Feedback-Driven RE • RE@Next!: Specification and Modeling in RE | 09:00-10:30 • Smart Cities & Systems of Systems • <i>Legal Requirements</i> • RE@NEXT!: New Directions in RE 11:00-12:15 Keynote Krzysztof Czarnecki 12:15-12:45 Closing and Outlook to RE'19 |
| Tutorials | | 12:30-14:00 Lunch Break (Vistas Dining Room) | | 12:45-14:00 Lunch Break (Vistas Dining Room) |
| T04 T06 T02 | T01 T05 T03 | 14:00-15:30 • Negotiation and Conflicts • Adaption and Feature Interactions • Panel: RE Cares 15:30-16:00 Network Break and Poster Booth 16:00-17:30 • Agile RE • Mining Product Data • Posters and Tools Demos | 14:00-15:30 • Understanding and Visualization • Requirements Quality • Data Showcase and Data Challenge 16:00-17:00 • User and Market Analysis • Most Influential Paper – 10 Years After • Panel: Data-Driven Requirements Engineering | 14:00-16:00 Open Space |

PROGRAM OVERVIEW

| Social Events | | | | |
|----------------------------|---------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------|--------|
| Monday | Tuesday | Wednesday | Thursday | Friday |
| Time: 18:00 | Time: 18:00 | | Time: 17:45 | |
| Industry Day Dinner | Reception at The Banff Centre | | Busses depart from the Banff Centre (in front of the Professional Development Centre) | |
| Room: KC 105 | Room: KC 103 (first floor at the Kinnear Centre) | | Time: 19:30 | |
| | | | Dinner and Community Awards at the Fairmont Chateau Lake Louise | |

Lunch Break:

Please Note:

Lunch in the Vistas Dining Room will be provided up to 13:30 during all days of the conference week!

WORKSHOPS

| Time | | Event | Room |
|-------------|---------------------------|---------------------------------------------------------------------------------------------------------------------|--------|
| 09:00-17:30 | WS01 ESPRE 2018 | 5th International Workshop on Evolving Security & Privacy Requirements Engineering | KC 308 |
| 09:00-17:30 | WS03 RESACS'18 | 4th International Workshop on Requirements Engineering for Self-Adaptive, Collaborative, and Cyber Physical Systems | KC 301 |
| 09:00-17:30 | WS06 D4RE'18 | 1st International Workshop on Learning from other Disciplines for Requirements Engineering | KC 203 |
| 09:00-17:30 | WS09 MoDRE'18 | 8th International Model-Driven Requirements Engineering Workshop | KC 201 |
| 09:00-17:30 | WS11 RE4SUSY'18 | 7th International Workshop on Requirements Engineering for Sustainable Systems | KC 302 |
| 09:00-17:30 | WS12 EmpirRE'18 | 7th Workshop on Empirical Requirements Engineering | KC 210 |

TUTORIALS

| Time | | Event | Room |
|-------------|-----|-------------------------------------------------------------------------|--------|
| 09:00-12:30 | T04 | DT4RE: Design Thinking for Requirements Engineering | KC 303 |
| 09:00-12:30 | T06 | Agile Requirements Engineering with User Stories | KC 305 |
| 14:00-17:30 | T02 | Reconciling Requirements and Continuous Integration in an Agile Context | KC 303 |

INDUSTRY DAY

Room: KC 205

| Time | Session | Presentation Title |
|--------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 09:00-09:30 | Opening and Speed Networking Co-Chairs: Chris Carlsson and Prashanth Southekal | |
| 09:30-10:30 | Keynote Travis Stevens , Orpyx | Navigating Requirements Ambiguity and Volatility - One Step at a Time |
| 10:30-11:00 | Network Break | |
| 11:00-12:00 | RE Tutorial Karl Wiegiers | Requirements Engineering: Precepts, Practices, and Cosmic Truths |
| 12:00-13:00 | Catered Lunch Break and Networking | |
| 13:00-13:30 | Industry Presentation Simon Orrell , snowdolphin inc. | Agility in Requirements in an Increasingly Complex World |
| 13:30-14:00 | Industry Presentation Chris Lambert Cortex | Minimum Viable Product - How to Stack the Requirements Deck in your Favor |
| 14:00-14:30 | Tool Experience Elena Gallego The Reuse Company | Enhancing SE Activities with a Global KM Approach |
| 14:30-15:00 | Industry Presentation Rahul Joshi and Mary Fifield , Microsoft | Microsoft's Datacenter Community Development Initiative: How Does Shared Value Create Shared Benefits? Gathering Requirements for Community and Business Outcomes |
| 15:00-15:30 | Network Break | |
| 15:30-15:45 | Survey Results Xavier Franch | Practitioners' Perception of RE Research Relevance |
| 15:45-16:15 | Industry Presentation Geoffrey Cann | Blockchain in Oil and Gas |
| 16:15-16:45 | Industry Presentation Barb Peace and Lauren Johnston , WestJet | A Picture is Worth a Thousand Words |
| 16:45-18:00 | RE Tutorial Falk Uebernickel, Daniel Mendez and Jennifer Hehn | Design Thinking for Requirements Engineering |
| 18:00 | Dinner – Room: KC 105 | |

WORKSHOPS

| Time | | Event | Room |
|-------------|----------------------------|------------------------------------------------------------------------------------------|--------|
| 09:00-17:30 | WS02 AffectRE'18 | 1st International Workshop on Affective Computing for Requirements Engineering | KC 210 |
| 09:00-17:30 | WS04 AIRE'18 | 5th International Workshop on Artificial Intelligence for Requirements Engineering | KC 203 |
| 09:00-17:30 | WS05 REET'18 | 8th International Workshop on Requirements Engineering Education and Training | KC 201 |
| 09:00-17:30 | WS07 QuaRAP'18 | 1st International Workshop on Quality Requirements in Agile Projects | KC 205 |
| 09:00-17:30 | WS10 EARS'18 | 1st International Workshop on Easy Approach to Requirements Syntax | KC 206 |
| 09:00-17:30 | WS13 RE Cares'18 | RE Cares about giving back to Society: Employing RE Techniques and Hackathon for Alberta | KC 301 |

TUTORIALS

| Time | | Event | Room |
|-------------|-----|----------------------------------------------------------------------------------------|--------|
| 09:00-12:30 | T01 | Writing Good Requirements | KC 303 |
| 09:00-12:30 | T05 | Requirements Reuse and Reusability: Product Lines, Cases and Feature-Similarity Models | KC 305 |
| 14:00-17:30 | T03 | On Tap: Writing Requirements for Molecular Programs | KC 303 |

DOCTORAL SYMPOSIUM

Room: KC 302

Organizers: **Annie Antón**, Georgia Institute of Technology, USA
Yijun Yu, The Open University, UK


Panel Members: **Daniel M. Berry**, University of Waterloo, Canada
Jane Cleland-Huang, University of Notre Dame, USA
Eric Knauss, Calmer University, Sweden


| Time | Session |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 09:00-09:30 | Welcome and Introduction |
| 09:30-10:00 | Cross-functional Teams That Grok It: The Collective Empathic Understanding of Product Requirements. Rob Fuller, University of British Columbia, Canada |
| 10:00-10:30 | Decision Support for Smart Ecosystem Evolution. Matthias Koch, Fraunhofer IESE, Germany |
| 10:30-11:00 | Network Break |
| 11:00-11:30 | Assessing Security Risk and Requirements for Systems of Systems. Duncan Ki-Aries, Bournemouth University, UK |
| 11:30-12:00 | Modeling Adaptive Socio-Cyber-Physical Systems with Goals and SysML. Amal Anda, University of Ottawa, Canada |
| 12:00-12:30 | An Ontology Based Collaborative Recommender System for Security Requirements Elicitation. Imano Williams, North Carolina A&T State University, USA |
| 12:30-14:00 | Lunch Break (Vistas Dining Room) |
| 14:00-14:30 | Towards a Security Requirements Management Framework for Open-Source Software. Wentao Wang, University of Cincinnati, USA |
| 14:30-15:00 | Towards Goal-oriented Process Mining. Mahdi Ghasemi, University of Ottawa, Canada |
| 15:00-15:30 | Automated Validation of Requirement Reviews: A Machine Learning Approach. Maninder Singh, North Dakota State University, USA |
| 15:30-16:00 | Network Break |
| 16:00-17:00 | Keynote Requirements of PhD. Daniel Berry, University of Waterloo, Canada |


| Time | Session | | |
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| 08:45 - 09:15 | <p>Opening Room: KC 203</p> | | |
| 09:15 - 10:30 | <p>Keynote Disruptive Change in Requirements Engineering Research Jane Cleland-Huang, University of Notre Dame</p> <p>Room: KC 203 Chair: Daniel Amyot</p> | | |
| 10:30 - 11:00 | <p>Networking Break</p> | | |
| 11:00 - 12:30 | <p>RE and Management</p> <p>Room: KC 301 Chair: Andreas Vogelsang</p> | <p>Evolution and Tracing</p> <p>Room: KC 303 Chair: Anas Mahmoud</p> | <p>RE@Next!: Towards Better Requirements Room: KC 305 Chair: Norbert Seyff</p> |
| | <p>(R) The Next Release Problem Revisited: A New Avenue for Goal Models. Fatma Başak Aydemir, Fabiano Dalpiaz, Sjaak Brinkkemper, Paolo Giorgini and John Mylopoulos</p> | <p>(R) A Qualitative Study on Using GuideGen to Keep Requirements and Acceptance Tests Aligned. Sofija Hotomski and Martin Glinz</p> | <p>(N) Assessment of Safety Processes in Requirements Engineering. Jéssyka Vilela, Jaelson Castro, Luiz Eduardo Galvão Martins and Tony Gorschek</p> |
| | <p>(R) The Manager Perspective on Requirements Impact on Automotive Systems Development Speed. Magnus Ågren, Eric Knauss, Rogardt Heldal, Patrizio Pelliccione, Gösta Malmqvist and Jonas Bodén</p> <p>(JF) A Requirements Engineering Methodology for Knowledge Management Solutions: Integrating Technical and Social Aspects. Maira Levy, Irit Hadar, and Itzhak Aviv</p> | <p>(R) Enhancing Automated Requirements Traceability by Resolving Polysemy. Wentao Wang, Nan Niu, Hui Liu and Zhendong Niu</p> <p>(R) Vetting Automatically Generated Traceability Links: What Information is Useful to Human Analysts? Salome Maro, Jan-Philipp Steghöfer, Jane Huffman Hayes, Jane Cleland-Huang and Miroslaw Staron</p> | <p>(N) Software Transparency as a Key Requirement for Self-Driving Cars. Luiz Marcio Cysneiros, Majid Raffi and Julio Cesar Sampaio Do Prado Leite</p> <p>(N) Towards Utility-based Prioritization of Requirements in Open Source Environments. Alexander Felfernig, Martin Stettinger, Müslüm Atas, Ralph Samer, Jennifer Nerlich, Simon Scholz, Juha Tiihonen and Mikko Raatikainen</p> |

| Time | Session | | |
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| 12:30 - 14:00 | Lunch Break (Vistas Dining Room) | | |
| 14:00 - 15:30 | Negotiation and Conflicts Room: KC 301 Chair: Eero Uusitalo | Adaptation and Feature Room: KC 303 Chair: Seok-Won Lee | Panel: RE Cares Room: KC 305 Chair: Jane Hayes |
| | (I) Tailoring Requirements Negotiation to Sustainability. Norbert Seyff, Stefanie Betz, Leticia Duboc, Christoph Becker, Ruzanna Chitchyan, Birgit Penzenstadler, Colin C. Venters and Markus Noebauer (I) Requirements Engineering for Consensus-Oriented Written Technical Specifications. Martin Krammer, Nadja Marko and Martin Benedikt (JF) Value-based Requirements Engineering: Method and Experience. Sarah Thew and Alistair Sutcliffe | (I) Supporting Diagnosis of Requirements Violations in Systems of Systems. Michael Vierhauser, Jane Cleland-Huang, Rick Rabiser, Thomas Krismayer and Paul Grünbacher (JF) ACon: A Learning-based Approach to Deal with Uncertainty in Contextual Requirements at Runtime. Alessia Knauss, Daniela Damian, Xavier Franch, Angela Rook, Hause A. Müller, and Alex Thomo (R) Morse: Reducing the Feature Interaction Explosion Problem Using Subject Matter Knowledge as Abstract Requirements. Laure Millet, Nancy A Day and Jeffrey J Joyce | About giving back to Society: Employing RE Techniques and Hackathon for Alberta Panelists: Jane Hayes Barbara Paech Maleknaz Nayebi |
| 15:30 - 16:00 | Networking Break with Poster Booth | | |

| Time | Session | | |
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| | Agile RE | Mining Product Data | Posters and Tools Demos |
| | Room: KC 301 Chair: Jennifer Horkoff | Room: KC 303 Chair: Fabiano Dalpiaz | Room: KC 305 Chair: Muneera Bano |
| 16:00 - 17:30 | <p>(I) Integrating Requirements Specification and Model-Based Testing in Agile Development. Dalton Jorge, Patricia Machado, Everton Alves and Wilkerson L. Andrade</p> | <p>(R) Mining Android App Description for Permission Requirements Recommendation. Xueqing Liu, Yue Leng, Wei Yang, Chengxiang Zhai and Tao Xie</p> | <p>(PTD) SuSoftPro: Profiling for Sustainability Software. Ahmed Alharthi, Maria Spichkova and Margaret Hamilton</p> <p>(PTD) Multi-user Input in Determining Answer Sets (MIDAS). Albert Kalim, Satrio Husodo, Jane Huffman Hayes and Erin Combs</p> |
| | <p>(R) Discovering, Analyzing, and Managing Safety Stories in Agile Projects. Jane Cleland-Huang and Michael Vierhauser</p> | <p>(R) Semantic Incompleteness in Privacy Policy Goals.  Jaspreet Bhatia and Travis Breaux</p> | <p>(PTD) BloomingLeaf: A Formal Tool for Requirements Evolution over Time. Alicia M. Grubb and Marsha Chechik</p> |
| | <p>(R) Understanding Challenging Situations in Agile Quality Requirements Engineering and their Solution Strategies: Insights from a Case Study. Wasim Alsaqaf, Maya Daneva and Roel Wieringa</p> | <p>(R) App Review Analysis via Active Learning: Reducing Supervision Effort without Compromising Classification Accuracy. Venkatesh Thimma Dhinakaran, Raseshwari Pulle, Nirav Ajmeri and Pradeep Kumar Murukannaiah</p> | <p>(PTD) FlexiView Experimental Tool: Fair and Detailed Usability Tests for Requirements Modeling Tools. Parisa Ghazi and Martin Glinz</p> <p>(PTD) piStar Tool – A Pluggable Online Tool for Goal Modeling. João Pimentel and Jaelson Castro</p> <p>(PTD) Dynamic Visual Analytics for Elicitation Meetings with ELICA. Zahra Shakeri, Munib Rahman, Abdullah Cheema, Vincenzo Gervasi, Didar Zowghi and Ken Barker</p> <p>(PTD) T-Req: Tool Support for Managing Requirements in Large-Scale Agile System Development. Eric Knauss, Grischa Liebel, Jennifer Horkoff, Rebekka Wohlrab, Rashidah Kasauli, Filip Lange and Pierre Gildert</p> |

| Time | Session | | |
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| 09:00 - 09:15 | <p>Awards Room: KC 203</p> | | |
| 09:15 - 10:30 | <p>Keynote Beyond DevOps: Finding Value through Requirements Gail Murphy, University of British Columbia</p> <p>Room: KC 203 Chair: Walid Maalej</p> | | |
| 10:30 - 11:00 | <p>Networking Break</p> | | |
| | <p>Elicitation and Interviews</p> <p>Room: KC 301 Chair: Michael Panis</p> | <p>User- and Feedback-Driven RE</p> <p>Room: KC 303 Chair: Irit Hadar</p> | <p>RE@Next!: Specification and Modeling in RE</p> <p>Room: KC 305 Chair: Birgit Penzenstadler</p> |
| 11:00 - 12:30 | <p>(R) Learning from Mistakes: An Empirical Study of Elicitation Interviews performed by Novices. </p> <p>Muneera Bano, Didar Zowghi, Alessio Ferrari, Paola Spoletini and Beatrice Donati</p> <p>(JF) Effect of Domain Knowledge on Elicitation Effectiveness: An Internally Replicated Controlled Experiment.</p> <p>Alejandrina M. Aranda, Oscar Dieste, and Natalia Juristo</p> <p>(R) Efficiency and Effectiveness of Requirements Elicitation Techniques for Children.</p> <p>Jennifer Horkoff, Jerker Ersare, Jonas Kahler, Thorsteinn Jorundsson and Imed Hammouda</p> | <p>(R) Towards Ubiquitous RE: A Perspective on Requirements Engineering in the Era of Digital Transformation.</p> <p>Karina Villela, Anne Hess, Matthias Koch, Rodrigo Falcao, Eduard Groen, Joerg Doerr, Carol Valero and Achim Ebert</p> <p>(I) Focusing Requirements Elicitation by Using a UX Measurement Method.</p> <p>Kyoko Ohashi, Asako Katayama, Naoki Hasegawa, Hidetoshi Kurihara, Rieko Yamamoto, Joerg Doerr and Dominik Pascal Magin</p> <p>(R) FAME: Supporting Continuous Requirements Elicitation by Combining User Feedback and Monitoring.</p> <p>Marc Oriol Hilari, Melanie Stade, Farnaz Fotrousi, Sergi Nadal, Jovan Varga, Norbert Seyff, Alberto Abello, Xavier Franch, Jordi Marco and Oleg Schmidt</p> | <p>(N) Reflection on Evolutionary Decision Making with Goal Modeling via Empirical Studies.</p> <p>Alicia M. Grubb</p> <p>(N) The Ability of an Engineer to Extract Requirements from Models.</p> <p>Ronald Giachetti, Karen Holness and Mollie McGuire</p> <p>(N) CaRE: A Refinement Calculus for Requirements Engineering Based on Argumentation Semantics.</p> <p>Yehia Elrakaiby, Alessio Ferrari and John Mylopoulos</p> |

| Time | Session | | |
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| 12:30 - 14:00 | Lunch Break (Vistas Dining Room) | | |
| 14:00 - 15:30 | Understanding and Visualization Room: KC 301 Chair: Jaelson Castro | Requirements Quality Room: KC 303 Chair: Mehrdad Sabetzadeh | Data Showcase and Data Challenge Room: KC 305 Chair: Maleknaz Nayeibi |
| | <p>(R) On the Impact of Semantic Transparency on Understanding and Reviewing Social Goal Models. Mafalda Santos, Catarina Gralha, Miguel Goulão, João Araújo and Ana Moreira</p> <p>(JF) The Role of Distances in Requirements Communication: A Case Study. Elizabeth Bjarnason, and Helen Sharp</p> <p>(R) An Experimental Comparison of Two Navigation Techniques for Requirements Modeling Tools. Parisa Ghazi and Martin Glinz</p> | <p>I) Towards Development of Complete and Conflict-Free Requirements.  Abha Moitra, Kit Siu, Andrew Crapo, Harsh Chamarthi, Michael Durling, Meng Li, Han Yu, Panagiotis Manolios and Michael Meiners</p> <p>(I) Industrial Requirements Classification for Redundancy and Inconsistency Detection in SEMIOS. Manel Mezghani, Juyeon Kang and Florence Sedes</p> | <p>(D) Utilizing Product Usage Data for Evaluating Requirement Offerings, Data Show Case. Ashkan Hemmati, S M Didar Al Alam and Chris Carlson</p> <p>(D) Requirement Engineering of Software Product Lines: Extracting Variability using NLP, Data Challenge. Alessandro Fantechi, Alessio Ferrari, Stefania Gnesi and Laura Semini</p> <p>(D) The REquirements TRacing On target (RETRO).NET Dataset, Data Show Case. Jane Hayes, Jared Payne, and Alexander Dekhtyar</p> <p>(D) Automatic Glossary Term Extraction from Large-Scale Requirements Specifications, Data Challenge. Tim Gemkow, Miro Conzelmann, Kerstin Hartig and Andreas Vogelsang</p> <p>(D) Towards a Corpus of Requirements Documents Enriched with Semantic Frame Annotations, Data Show Case. Waad Alhoshan, Riza Batista-Navarro and Liping Zhao</p> |
| 15:30 - 16:00 | Networking Break with Poster Booth | | |

| Time | Session | | |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>User and Market Analysis</p> <p>Room: KC 301 Chair: Liliana Pasquale</p> | <p>Most Influential Paper – 10 Years After</p> <p>Room: KC 303 Chair: Xavier Franch</p> | <p>Panel: Data Driven Requirements Engineering: Implications and Challenges for the Community</p> <p>Room: KC 305 Chair: Maleknaz Nayebi</p> |
| <p>16:00 - 17:00</p> | <p>(R) Modeling User Concerns in the App Store: A Case Study on the Rise and Fall of Yik Yak. Grant Williams and Anas Mahmoud</p> | <p>Extracting and Modeling Product Line Functional Requirements.  Nan Niu, Steve Easterbrook</p> | <p>Organizer:</p> <ul style="list-style-type: none"> • Maleknaz Nayebi <p>Panelists:</p> <ul style="list-style-type: none"> • Alessio Ferrari • Daniel Mendez • Shiva Nejati • David Callele • Seok-Won Lee • Anna Perini |
| | <p>(R) Customer Rating Reactions Can Be Predicted Purely Using App Features. Federica Sarro, Mark Harman, Yue Jia, Yuanyuan Zhang</p> | | |
| <p>17:45</p> | <p>Busses depart from the Banff Centre in front of the Professional Development Centre</p> | | |
| <p>19:30 - 23:00</p> | <p>Dinner, Community Awards at the Fairmont Chateau Lake Louise</p> | | |

| Time | Session | | |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Smart Cities & System of Systems Room: KC 301 Chair: Didar Zhougi | Legal Requirements Room: KC 303 Chair: John Mylopoulos | RE@Next!: New Directions in RE Room: KC 305 Chair: Xavier Franch |
| 09:00 - 10:30 | <p>(R) Catalog of Invisibility Requirements for UbiComp and IoT Applications. Rainara Carvalho, Rossana Andrade, Kathia Oliveira and Christophe Kolski</p> <p>(R) RE and Society - a Perspective on RE in Times of Smart Cities and Smart Rural Areas. Joerg Doerr, Anne Hess and Matthias Koch</p> <p>(R) On Systems of Systems Engineering: a Requirements Engineering Perspective and Research Agenda. Cornelius Ncube and Soo Ling Lim</p> | <p>(R) Automated Extraction of Semantic Legal Metadata Using Natural Language Processing. Amin Sleimi, Nicolas Sannier, Mehrdad Sabetzadeh, Lionel Briand and John Dann</p> <p>(R) “The Grace Period Has Ended”: An Approach to Operationalize GDPR Requirements. Vanessa Ayala- Rivera and Liliana Pasquale</p> <p>(JF) Modeling Security and Privacy Requirements: A Use Case-Driven Approach. P.X. Mai, A. Goknil, L.K. Shar, F. Pastore, L.C. Briand, and S. Shaame</p> | <p>(N) Speculative Requirements: Design Fiction and RE. Andy Darby, Emmanuel Tseklevs and Pete Sawyer</p> <p>(N) The Use of Design Thinking for Requirements Engineering - An Ongoing Case Study in the Field of Innovative Software-Intensive Systems. Jennifer Hehn and Falk Uebernickel</p> <p>(N) Crowd Focused Semi-Automated Requirements Engineering for Evolution Towards Sustainability. Norbert Seyff, Stefanie Betz, Iris Groher, Melanie Stade, Ruzanna Chitchyan, Letícia Duboc, Birgit Penzenstadler, Colin Venters and Christoph Becker</p> |
| 10:30 - 11:00 | Networking Break | | |

| Time | Session |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:00 – 12:15 | <p data-bbox="536 159 614 180">Keynote</p> <p data-bbox="181 185 969 233">Requirements Engineering in the Age of Societal-Scale Cyber-Physical Systems: The Case of Automated Driving</p> <p data-bbox="375 240 775 261">Krzysztof Czarnecki, University of Waterloo</p> <p data-bbox="509 297 641 318">Room: KC 203</p> <p data-bbox="474 323 676 344">Chair: Guenther Ruhe</p> |
| 12:15 – 12:45 | <p data-bbox="442 394 710 415">Closing and Outlook to RE19</p> <p data-bbox="509 420 641 441">Room: KC 203</p> |
| 12:45 – 14:00 | <p data-bbox="419 492 734 513">Lunch Break (Vistas Dining Room)</p> |
| 14:00- 16:00 | <p data-bbox="520 561 632 583">Open Space</p> |

SOCIAL ACTIVITIES

Mon, Aug 20 18:00 **Industry Day Dinner**
Room: KC 305

RECEPTION

at the Banff Centre

Tue, Aug 21 18:00 **Room: KC 103**
(first floor at the
Kinnear Centre)



STEVE POINTMEIER

BANQUET

at the Fairmont Chateau Lake Louise

Thu, Aug 23, 2018 17:45 **Busses depart from the Banff Centre**
(in front of the Professional Development Centre)

19:30 **Dinner and Community Awards**



HARP ANGEL
DEBORAH NYACK

Have Questions or Need Help?



Please Contact Our

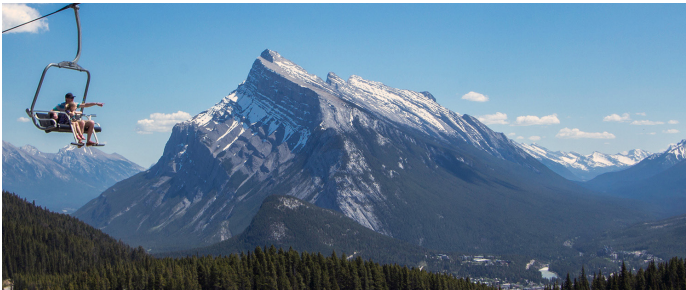
**RED CAPS:
Student Volunteers -
Eager to Assist You!**

Whitewater Rafting

<https://www.banffadventures.com/Things-To-Do/Summer-Activities/Whitewater-Rafting>



SIGHTSEEING GONDOLAS & CHAIRLIFTS



CANOE & KAYAK RENTALS & TOURS

<https://www.banffadventures.com/Things-To-Do/Summer-Activities/Canoe-Kayak-Rentals-Tours>

BANFF HORSEBACK RIDING

<https://www.banffadventures.com/Things-To-Do/Summer-Activities/Banff-Horseback-Riding>

HELICOPTER FLIGHTS

<https://www.banffadventures.com/Things-To-Do/Summer-Activities/Helicopter-Flights>

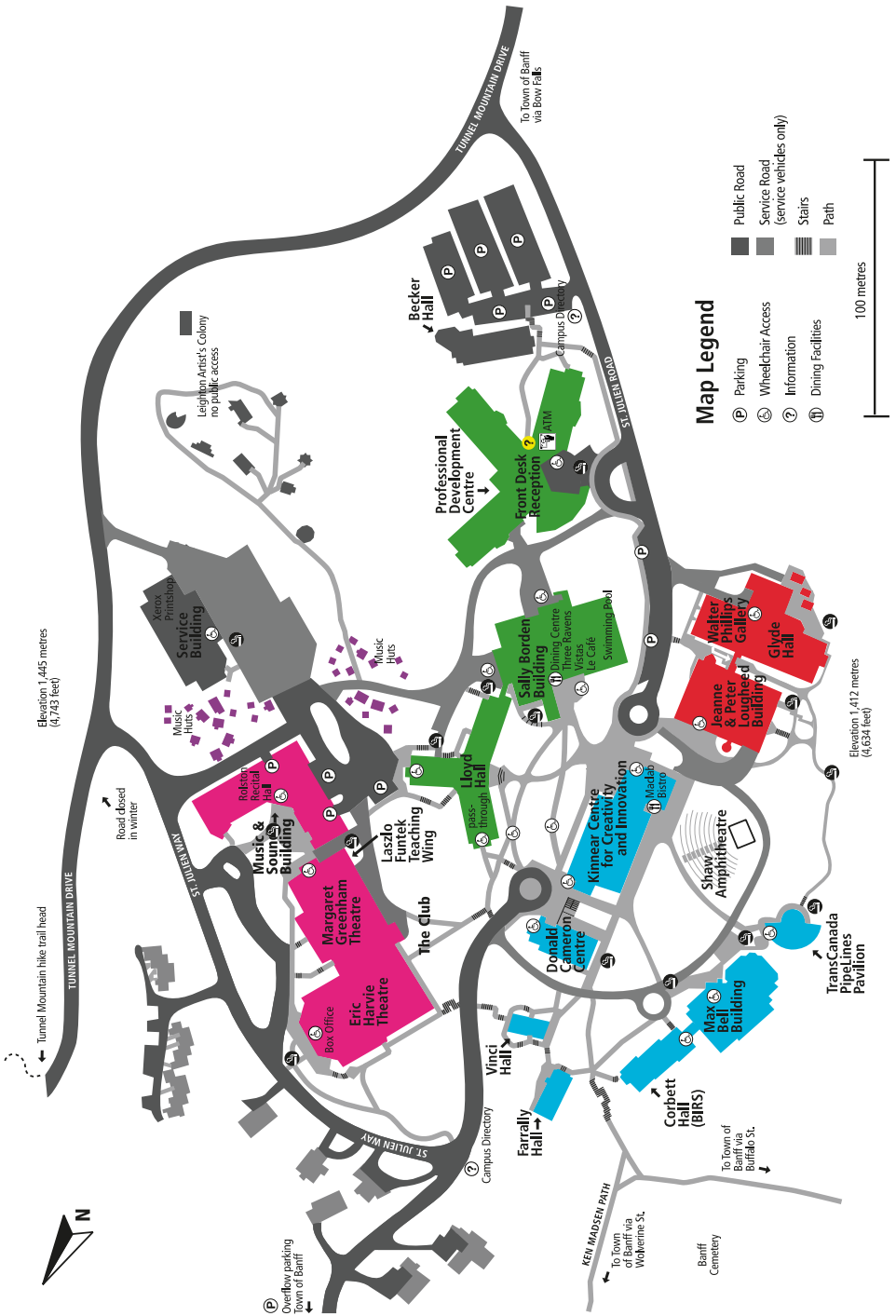
WILDLIFE TOURS

<https://www.banffadventures.com/Things-To-Do/Summer-Activities/Wildlife-Tours>

HIKING TOURS

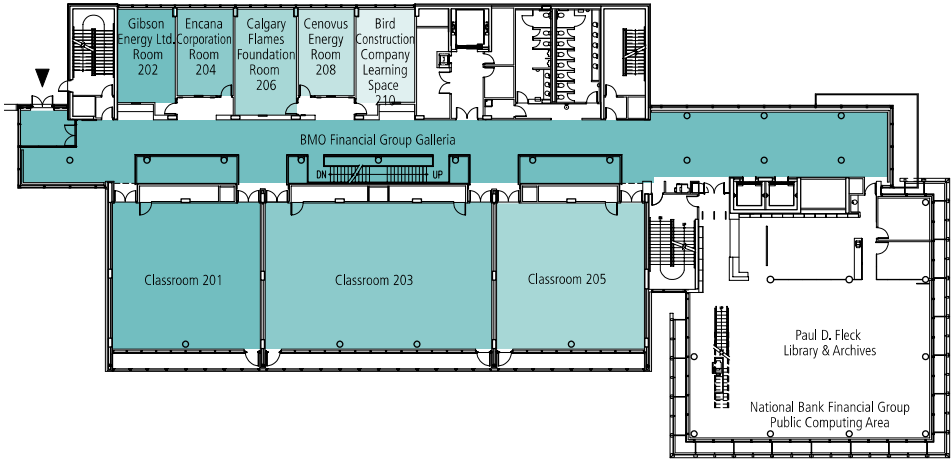
<https://www.banffadventures.com/Things-To-Do/Summer-Activities/Hiking-Tours>

MAP – Banff Centre Campus Maps

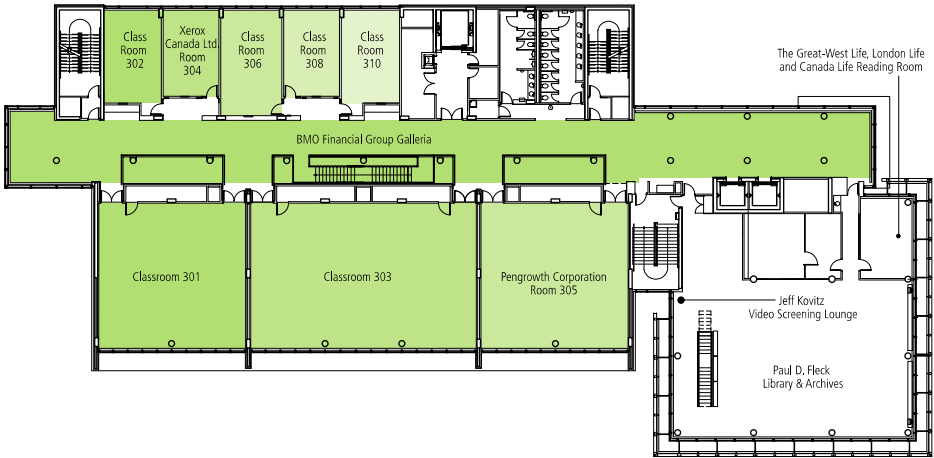


MAP – Floor Plan

Kinncar Centre Second Floor



Kinncar Centre Third Floor



Towards RE'19



Theme: RE and Collective Intelligence in the Days of AI



Feb 25 Workshop Proposals

Apr 1 Paper Abstracts

Apr 7 Full Papers

Apr 29 RE Next

May 10 Tutorial Proposals

May 13 Doctoral Symposium

Seok-Won Lee in his role as a General Chair, the two Program Co-Chairs **Daniela Damian** and **Anna Perini** and the whole RE'19 team extend a warm invitation to next year's edition of the RE conference!



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