Message from the General Chair
ASWEC 2015

Welcome to the 24th edition of the Australasian Software Engineering Conference 2015 (ASWEC 2015) in Adelaide, Australia. Since its inception in 1986, ASWEC is considered one of the leading forums for presenting software engineering research and development results and experiences from the Australasian region and beyond.

We have particularly focused on providing the delegates with several opportunities to gain a rich and rewarding experience of participating in several research, industrial, and social events. To that goal, we decided to organise ASWEC 2015 along with several other events that would make up the Australasian Software Week (ASW) in Adelaide. We are pleased to have a number of presenters and participants from industry and government agencies. We hope that the collocation of several research and industrial events will help bring together researchers and practitioners to facilitate extensive and fruitful discussions on a wide variety of topics of software engineering research and practice.

The planned opportunities are expected to increase a common understanding of researchers’ and practitioners’ perspectives on key software engineering problems and help identify the areas of collaborations for developing and validating methods and tools for engineering software intensive systems. The conference theme reflects the current and emerging challenges for software engineering discipline.

“Engineering Software for Innovation, Security, and Sustainability”

The conference has been organised with strong support from many people, who deserve a sincerely note of thank:

- The ASWEC 2015 organizing committee.
- The conference sponsors and supporters, who made cash and/or in-kind contributions.
- The keynote and invited speakers for all the events.
- The members of the program committees of different events during ASWEC 2015.
- The tutorial presenters and doctoral symposium organizers.
- The student volunteers.
- The Australian Computer Society and Engineers Australia for supporting the event.

The Steering Committee for accepting the proposal to organise ASWEE 2015 in Adelaide, after almost 18 years.

Last but not the least, I would also like to thank the participants of all the events during the ASWEC 2015. We hope that you find the conference intellectually stimulating and socially interactive. For those who came outside of Adelaide, we hope that you would find time to enjoy some of the many attractions that Adelaide has to offer.

M. Ali Babar, University of Adelaide, Australia
ASWEC 2015 General Chair
Message from the Invited Speakers Co-chairs
ASWEC 2015

It is a common requirement in academic software engineering conferences that all submissions are original and have not been published or presented previously. This has the unfortunate side-effect that even the best work in software engineering research gets presented only once, unless the presenters are invited subsequently to present the same work as part of a keynote or invited presentation.

Inspired by the Computer Science Education Conventions in Australia, it was decided to add an invited paper track to ASWEC 2015 in which prominent Australasian researchers who published major works in top international software engineering venues in the past 1-2 years to present that work again at ASWEC. As a result, the workload for the authors, presenters, and track chairs is relatively lightweight, but we hope and believe that there will be significant benefits to both the presenters and the conference audience. We hope you enjoy the presentations in this track and welcome your feedback.

Paul Strooper, Queenland University, Australia
Liming Zhu, NICTA, Australia
ASWEC 2015 Invited Speakers Co-chairs
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ASWEC 2015

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Matt Selway, *University of South Australia, Australia*
Huai Liu, *RMIT University, Australia*
Keynote I

Security and Privacy in Blended Systems

Professor Awais Rashid
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Abstract
Future software systems and services will see hitherto unprecedented connectivity. Innovations such as smart cities, Internet of Things (IoT), body-area networks, smart grids and wearable sensors will lead to software becoming socially embedded in the everyday lives of individuals, communities and organisations. Future environments will, therefore, be hyper-connected, highly open and regularly collect, process or disseminate massive amounts of data. The scale of connectivity and openness of future software systems and services would mean that system edges will not just bleed into each other but blend together in ways that can neither be established nor anticipated a-priori. In this talk, I will discuss the security and privacy challenges arising from such blended settings, their implications for future software systems and how software engineering research and practice can effectively respond to such challenges.

Speaker’s Bio
Professor Awais Rashid is Director of Security Lancaster Research Centre, one of the UK’s Academic Centres of Excellence in Cyber Security Research. He possesses an extensive multi-disciplinary background having worked at the boundary of computer science, social science and psychology for several years. He is particularly focused on sense-making of large, heterogeneous data sources and human factors in order to unravel impacts on cyber resilience of individuals, organisations and infrastructures. He developed novel digital persona analysis techniques to unravel the deception tactics deployed by sophisticated cyber criminals online. This work was selected as one of the 100 Big Ideas of the Future by Research Councils UK and Universities UK, influenced UK and European policy frameworks, is used in law enforcement applications and underpins commercial products through a spin-out company. He has also conducted research on analysis of large-scale networks including Internet-scale systems, techniques for open-source intelligence (OSINT) and the security and privacy issues pertaining to OSINT. He also researches novel techniques for detecting sophisticated social engineering attacks and socio-technical factors underpinning online group formation and behaviours. He also currently leads a project as part of the UK Research Institute on Trustworthy Industrial Control Systems – researching novel socio-technical metrics for studying and articulating cyber security risks in such environments.
Keynote II

The Nexus of Data Quality and Business Value

Professor Shazia Sadiq

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Abstract
The prevalence of large volumes of accessible data is profoundly changing the way business, government and individuals approach decision making. In spite of significant advances in storage and compute facilitates, the acceleration of time to value in big data projects often remains unacceptable due to the quality of the underlying data sets. Poor data quality is being termed as the dark side of big data, inhibiting the discovery and trust of new insights and foresights. In this talk I will discuss the changing nature of the data lifecycle and its implications for data quality management. I will also outline the research opportunities ahead that can enable effective use of big data in the presence of data quality issues.

Speaker’s Bio
Shazia Sadiq is currently working in the School of Information Technology and Electrical Engineering at The University of Queensland, Brisbane, Australia. She is part of the Data and Knowledge Engineering (DKE) research group and is involved in teaching and research in databases and information systems. Shazia holds a PhD from The University of Queensland in Information Systems and a Masters degree in Computer Science from the Asian Institute of Technology, Bangkok, Thailand. Her main research interests are innovative solutions for Business Information Systems that span several areas including business process management, governance, risk and compliance, and information quality and use. She has published over 100 peer-reviewed publications in high ranking journals such Information Systems Journal, VLDBJ, TKDE, as well as major conferences such as SIGMOD, ICDE, ER, BPM, ICIS and CAiSE. She has attracted in excess of $3.5million from the Australian Research Council and Industry in the past 10 years. Her influential works on declarative modelling of business processes are some of the highest cited works in the area and include an industry patent. Shazia is currently a board member of the International Association for Information and Data Quality Asia Pacific chapter, convener of the Queensland Data Quality Roundtable, Deputy chair of the National Committee on Information and Communication Sciences at the Australian Academy of Science, and a University of Queensland Teaching Excellence Award Winner.
Keynote III

Big Data Disrupts, Except When It Doesn’t

Professor Babar Jan-Haleem
APAC Director
Big Data & Analytics Specialist Team, Oracle

Abstract
You could say that big data is nothing more than the capture and use of data in daily activities. So, given this mundane description, why is big data such a big deal? Behind this simple description is a much larger economic story: the rise of ‘data capital’. This term isn’t a metaphor. Data capital is as vital as financial capital to the development of new products and services. And like the power of financial capital, data capital both boosts and disrupts, and often not in the way you would have expected it to, as we have seen by the rise of the likes of Amazon, and more recently Uber. So does this mean a corporate apocalypse and the demise of the world’s largest enterprises? No. While data capital disrupts, it also doesn’t.

This talk will look at how to create a successful big data strategy, understand Big Data fundamentals and the essential elements needed in terms of people, processes and technologies, to datafy or digitize your business to get to where the real value is; data capital!

Speaker’s Bio
Babar Jan-Haleem heads the APAC Big Data & Analytics Specialist Team responsible for driving Oracle Big Data Solution initiatives across Asia-Pacific region. His professional experience is in Data-warehousing & Analytics field for over 17 years in United States of America & Asia-Pacific and has a working knowledge of a broad range of Analytics solution offerings, both Oracle and non Oracle. Prior to joining Oracle, Babar provided technical consulting expertise to fortune 40 accounts in the US in Data-warehousing & Analytics arena thus has a deep technical architecture background with focus on the business outcome. He is passionate about Big Data & Data-warehousing initiatives and sees immense value they bring to all organizations. His undergraduate and MBA studies in the US are in Information Systems and Mathematics.

In his role, Babar maintains a close working relationship with Oracle HQ development & product management organizations giving him direct insight into Oracle’s product roadmap & strategy and inner workings of Oracle solutions. He is a strategic thinker with the ability to clearly articulate long term strategies for organizations embarking on strategic BIDW & Big Data initiatives while overcoming mission critical challenges.
Invited Speaker

Developing and Evaluating Software Engineering Process Theories

Paul Ralph
University of Auckland, New Zealand

Paper from Proceedings of
2015 IEEE/ACM 37th IEEE International Conference on Software Engineering,
Florence, Italy, IEEE, Volume 1, pp. 20-31

Abstract
A process theory is an explanation of how an entity changes and develops. While software engineering is fundamentally concerned with how software artifacts change and develop, little research explicitly builds and empirically evaluates software engineering process theories. This lack of theory obstructs scientific consensus by focusing the academic community on methods. Methods inevitably oversimplify and over-rationalize reality, obfuscating crucial phenomena including uncertainty, problem framing and illusory requirements. Better process theories are therefore needed to ground software engineering in empirical reality. However, poor understanding of process theory issues impedes research and publication. This paper therefore attempts to clarify the nature and types of process theories, explore their development and provide specific guidance for their empirically evaluation.

Speaker’s Bio
Dr. Paul Ralph is an author, scientist, consultant and computer science lecturer at The University of Auckland. His research centers on the theoretical and empirical study of software and game development, including projects, processes, practices, tools and developer cognition, socialization, productivity, creativity, wellbeing and effectiveness. His research has been published in premier software engineering and information systems outlets, including the International Conference on Software Engineering (ICSE), the International Conference on Information Systems (ICIS), the Journal of the Association for Information Systems (JAIS) and Information and Software Technology. Additionally, he has written editorials on technology, education and design for influential outlets including Business Insider, Lifehacker and The Conversation. Paul co-founded the AIS Special Interest Group for Game Design and Research (SIGGAME) and chaired the 4th International Workshop on General Theories of Software Engineering (GTSE). Paul holds a PhD in information systems from the University of British Columbia. Previously he was a lecturer at the Lancaster University Management School, the highest rated management research institution in the United Kingdom.