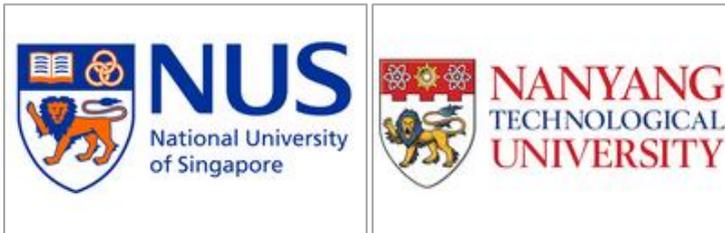


Program of the
18th International Conference
on **Complex Computer System**
(ICECCS 2013)

July 15- 21, 2013, Singapore



Message from the Chairs

The engineering of complex computer systems has brought to the frontline the urgent need to investigate the theories, methods, and tools that can construct high quality software for complex systems.

Welcome to ICECCS 2013, the Eighteenth International Conference on Engineering of Complex Computer Systems and welcome to Singapore! ICECCS 2013 aims to continue the tradition to advance the understanding and expertise in the following areas:

- System Modeling and Verification
- System Evaluation
- Real-time, Hybrid and Embedded systems
- Validation, Verification, and Testing
- Metrics, Measurements, and Analysis
- Methods and Theories
- Automation and Tools

This year's conference has a strong technical program. In addition to 3 keynote addresses by Jifeng He, Shinichi Honiden and Cliff Jones, it also includes a selection of rigorously refereed papers presented in the regular paper sessions and short paper sessions. The Program Committee has received 102 submissions from 34 countries and each paper was reviewed by at least 3 referees. We choose 21 full papers and 15 short papers as the result of intensive discussions held among the PC members.

There are three co-located workshops: Workshop on Combinatorial Testing for Complex Computer Systems,

French Singaporean Workshop in Formal Methods and Applications and Asia Workshop on Advanced Software Engineering.

We would like to thank National University of Singapore, Nanyang Technological University, Singapore University of Technology & Design and IPAL lab as co-organisations. Special thanks go to many individuals who have contributed to the success of this conference. We thank the authors for sharing their ideas with us, the reviewers for providing valuable feedback, and all the PC members for taking time from their busy schedules to support this conference. We would like to thank Mike Hinchey and Isabelle Perseil who have provided excellent help in organising this conference and also thank Boo Cheong Khoo and Daniel Racoceanu for their invaluable support. Special thanks also go to various organization committee members/chairs and special guests: Étienne André, Christine Choppy, Laurent Fribourg, Zhenjiang Hu, Zhi Jin, Raghu Kacker, Rick Kuhn, Jeff Yu Lei, Yuan Fang Li, Yan Liu, Hong Mei, Jun Pang, Isabelle Perseil, Shangwei Lin, Manchun Zheng, Jianqi Shi, Ling Shi, Zhenchang Xing, Tanabe Yoshinori, Shaojie Zhang, and Xian Zhang.

Thank you for attending ICECCS 2013. We hope that you enjoy the program and have a great stay in Singapore!

Yang Liu and Andrew Martin
Program Co-Chairs

Jin Song Dong and Jun Sun
General Co-Chairs

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ICECCS 2013 Agenda

Monday, July 15- Tuesday, July 16	Pre Conference: 1st French Singaporean Workshop in Formal Methods and Applications
Tuesday, July 16	Pre Conference: Workshop on Combinatorial Testing for Complex Computer Systems
Tuesday, July 16	ICECCS Conference Reception & Workshops Banquet, 18:00 Sakura Restaurant
Wednesday, July 17- Friday, July 19	Main Conference: 18th International Conference On Engineering for Complex Computer Systems
Thursday, July 18	Main Conference Banquet, 18:30, Todai
Saturday, July 20 - Sunday, July 21	Post Conference: 3rd Asian Workshop on Advanced Software Engineering

Conference Web Site: <http://www.comp.nus.edu.sg/~pat/iceccs2013/>

Wireless Internet

Open SSID: NUS

We have provided the username and password in another separate document, which can be found in the conference package.

ICECCS Conference Location

Main Conference

Location: School of Computing (SoC), National University of Singapore, at **Seminar Room 1 (SR1, at COM1-206)** and **Seminar Room 3 (SR3, at COM1-212)**

SoC Map inside NUS:



Transportation

FROM AIRPORT TO NUS

1.From the airport, take MRT Green Line towards the Joo Koon station. Alight at the Clementi station.

2.Take bus service no. 96 at Clementi Bus Interchange. Alight at Kent Ridge Crescent - NUS Raffles Hall. (bus stop number: 16169).

From HOTEL (YORK HOTEL) to School of Computing, NUS

Round trip shuttle bus from York Hotel to NUS will be provided during the main conference period **(from July 17 to July 19)**.

Each day shuttle bus leaves from York Hotel at 8 am to School of Computing, and leaves at School of Computing bus stop at 6pm to return to York Hotel.

If you miss the shuttle bus, you can also use public transportation.

Take the bus No. 143 from Tang Plaza (bus stop number: 09047), alight at Opp Heng Mui Keng Terr (bus stop number: 16061). Then walk to School of Computing referred to the map in next page.

Come to SoC, NUS

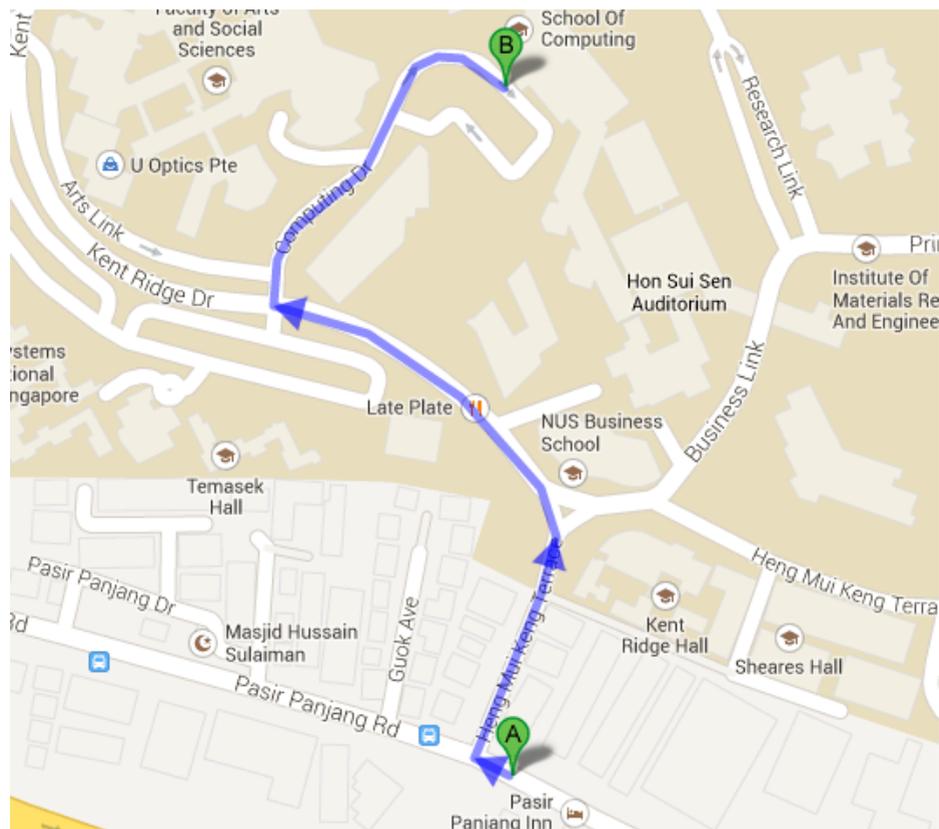
Please refer to <http://www.comp.nus.edu.sg/maps/location.html>

Come to T-Lab, NUS

Please refer to the detailed instruction page in the registration package.

NUS Internal Shuttle Bus (Free of Charge)

You can take shuttle bus **B** at bus stop to travel between SoC and Tlab



Taxi Information

Taxi is cheap in Singapore and you can easily find one along the road. Alternatively, you can call a taxi in urgent case.

To come to conference place, you can tell the taxi driver to go to NUS and then go to School of Computing, Building Com 1.

Check following page for more details.

<http://www.comp.nus.edu.sg/maps/location.html>

You can call taxi using the following numbers:

Cab Comfort: 65521111

Cab SMRT: 65558888

Banquet & Reception Info

Conference Banquet

Date: 18:30pm, July 18, 2013

Location: TODAI at Marina Bay Sands

Address: #B2-01 The Shoppes, Marina Bay Sands, 2 Bayfront Ave, Singapore 018972.

Transportation: Shuttle bus will leave at 6:00pm from conference place to Todai restaurant. After banquet, we will walk to Gardens by the bay for sightseeing. The returning bus back to York Hotel will leave at Gardens by the bay at 9:30pm.

Please refer to the walking direction map to guide your walk from Todai to *Garden by the bay*.

Workshops Banquet & Conference Reception

Date: 18:00pm, July 16, 2013

Location: Sakura Clementi branch

Address: 93A Clementi Rd, Singapore 129781.

Transportation: After workshop, we will walk from TLab to Sakura, which is around 15min walk.

For conference participants, please take a taxi to the restaurant since there is no bus available.

ICECCS 2013 Program

Wednesday, July 17

Registration & Briefing: 08:00-09:00

Keynote

09:00-10:00, Location: SR1, Chair: Andrew Martin

Expressive of Notations for Reasoning about Concurrency.

Speaker:Cliff Jones

Coffee and tea break: 10:00-10:30

System Modeling and Verification 1

10:30-12:15, Location: SR1, Chair: Yang Liu

Modeling and Verification of Component-based Systems with Data Passing using BIP. Chen Su, Min Zhou, Liangze Yin, Hai Wan and Ming Gu

Modeling and Verifying Real-time Properties of Reactive Systems. Fenglin Han, Peter Herrmann and Hien Le

Knowledge-based verification of service compositions - An SMT approach. Sven Walther and Heike Wehrheim

CosyVerif: An Open Source Extensible Verification Environment (short paper). Étienne André, Lom Messan Hillah, Francis Hulin-Hubard, Fabrice Kordon, Yousra Lembachar, Alban Linard and Laure Petrucci

Lunch

12:15-14:00

System Evaluation

14:00-15:30, Location: SR1, Chair: Gillian Dobbie

Measurements for Adaptation Level and Efficiency of Adaptive Software Systems. Wenpin Jiao

Network Performance Evaluation for Distributed Embedded Systems Using Feature Models. Martin Manderscheid and Christian Prehofer

A Model-Driven Approach for Evaluating System of Systems. Xiaokai Xia, Ji Wu, Chao Liu and Luo Xu

Coffee and tea break: 15:30-16:00

Logic And Algorithm

16:00-17:30, Location: SR1, Chair: Jing Sun

An adequate logic for heterogeneous systems. Aiguier Marc, Golden Boris and Krob Daniel

A Refinement Calculus for Promela. Asankhaya Sharma

Reusing Search Tree for Incremental SAT Solving of Temporal Induction. Liangze Yin, Fei He, Min Zhou and Ming Gu

Thursday, July 18

Keynote

09:00-10:00, Location: SR1, Chair: Dong Jin Song

Hybrid Relation Calculus.

Speaker: JiFeng He

Coffee and tea break: 10:00-10:30

System Modeling and Verification 2

10:30-12:15, Location: SR1, Chair: Étienne André

Formal Modelling and Analysis of AODV. Xiaofeng Wu, J.W. Sanders and Huibiao Zhu

Spatio-Temporal Properties Analysis for Cyber-Physical Systems. Zhucheng Shao and Jing Liu

Using Bounded Fairness to Specify and Verify Ordered Asynchronous Multi-agent Systems. Qin Li and Graeme Smith

Verifying TiMo systems in PAT - Automatic Analysis of TiMo Systems in PAT (short paper). Gabriel Ciobanu and Manchun Zheng

Lunch: 12:15-14:00

Real-Time System

14:00-15:45, Location: SR1, Chair: Jun Sun

Observer Patterns for Real-Time Systems. Étienne André

Model-based Verification of Energy-aware Real-Time Automotive Systems. Eun-Young Kang, Gilles Perrouin and Pierre-Yves Schobbens

Tool Support for the Analysis of TADL2 Timing Constraints using TimeSquare.

Arda Goknil, Julien Deantoni, Marie-Agnes Peraldi-Frati and Frederic Mallet

Model-driven performance prediction of distributed real-time embedded defence systems (short paper).

Katrina Falkner, Vanea Chiprianov, Nickolas Falkner, Claudia Szabo, James Hill, Gavin Puddy, Daniel Fraser, Adrian Johnston, Marianne Rieckmann and Andrew Wallis.

Coffee and tea break 15:45-16:15

Short Papers Session 1

16:15-17:30, Location: SR1, Chair: Raghu Kacker

Web Services Testing via Goal and Mutatio. M Shaban Jokhio, Gillian Dobbie, Jing Sun and Tianming Hu

GUI Ferret: GUI Test Tool to Analyze Complex Behavior of Multi-Window Applications. Hajime Nakajima, Takeshi Masuda and Ikuya Takahashi

Merging Test Models. Mohamed Mussa and Ferhat Khendek

History-based Test Case Prioritization with Software Version Awareness. Chu-Ti Lin, Cheng-Ding Chen, Chang-Shi Tsai and Gregory M. Kapfhammer

Exploiting concurrency for the ESB architecture. Ridha Benosman, Kamel Barkaoui and Yves Albrieux

BANQUET

18:00

Our banquet will be held at **TODAI** in Marina Bay Sands.

Friday, July 19

Keynote

09:00-10:00, Location: SR1, Chair: Zhenjiang Hu

GOAL MODEL ELABORATION FOR SOFTWARE EVOLUTION

Speaker: Shinichi Honiden

Coffee and tea break: 10:00-10:30

Non-Functional Property Analysis: Security and Reliability

10:30-12:15, Location: SR1, Chair: Andrew Martin

A Comprehensive Client-side Behavior Model for Diagnosing Attacks in Ajax Applications. Xinshu Dong, Kailas Patil, Jian Mao and Zhenkai Liang

Protecting Web Browser Extensions from JavaScript Injection Attacks.

Anton Barua, Mohammad Zulkernine and Komminist Weldemariam

Automated Analysis of Reliability Architectures. Marco Bozzano, Alessandro Cimatti and Cristian Mattarei

A Software Environment for Confining Malicious Android Applications via Resource Virtualization (short paper). Xiaolei Li, Guangdong Bai, Zhenkai

Liang and Heng Yin

Lunch: 12:15-14:00

Software Engineering

14:00-15:45, Location: SR1, Chair: Zhenchang Xing

How Do Developers Use APIs? A Case Study in Concurrency. Stefan Blom, Joseph Kiniry and Marieke Huisman

Software Internationalization and Localization: An Industrial Experience. Xin Xia, David Lo, Feng Zhu, Xinyu Wang and Bo Zhou

Runtime Prediction of Failure Modes from System Error Log. Atef Shalan and Mohammad Zulkernine

Orion: A Software Project Search Engine with Integrated Diverse Software Artifacts (short paper). Tegawendé F. Bissyandé, Ferdian Thung, David Lo, Lingxiao Jiang and Laurent Réveillère

Coffee and tea break: 15:45-16:15

Short Papers Session 2

16:15-17:30, Location: SR1, Chair: TianHuat Tan and Songzheng Song

Rigorous Analysis of Temporal Access Control Properties in Mobile System. Mustafa Al Lail, Ramadan Abdunabi, Robert France and Indrakshi Ray

CARE: a platform for reliable Comparison and Analysis of Reverse-Engineering Techniques. Sylvain Lamprier, Nicolas Baskiotis, Tewfik Ziadi and Lom Messan Hillah

Resilient Architecture for Complex Computing System. Ichiro Satoh

Linking Algebraic Semantics and Operational Semantics for Web Services using Maude. Peng Liu, Huibiao Zhu, Shengchao Qin and Phillip Brooke

Game-based Monitors for Scenario-based Specification. Pengcheng Zhang, Jun Yu and Wenrui Li

End of the Conference

FSFMA 2013 Program

Location: Room 8D-2, Level, Temasek Labs, NUS

Monday, July 15

Welcome Lunch: 12:00-13:30

Invited Talk 1

13:30-14:30, Chair: Sun Jun

Specification, Verification and Inference.

Speaker: Chin Wei Ngan

Round table 1: Opportunities of Singapore-French collaboration

14:30-15:30, Moderator: Étienne André

Grégoire Follain, from the Institut Français (French Institute in Singapore)

Daniel Racoceanu, Professor at UPMC, Senior Research Fellow at CNRS, Head of ipal Lab

A member of a "Merlion PhD" program

Coffee and tea break: 15:30-16:00

PhD Session 1

16:00-17:30, Chair: Liu Yang

An Improved Construction of Petri Net Unfoldings. César Rodríguez and Stefan Schwoon

Constructing Attractors of Nonlinear Dynamical Systems by State Space Decomposition. Laurent Fribourg, Ulrich Kühne and Romain Soulat

Safety of unmanned aircraft systems facing multiple breakdowns. Ariane Piel, Christine Choppy, Romain Cyril Kervarc and Carle Patrice.

FSFMA workshop dinner: 18:30

Tuesday, July 16

Invited Talk 2

09:00-10:00, Chair: Christine Choppy

Control of Switching Systems by Invariance Analysis.

Speaker: Laurent Fribourg

Coffee and tea break: 10:00-10:30

Regular Paper

10:30-12:00, Chair: Laurent Fribourg

Analysis of Two-Layer Protocols: DCCP Simultaneous-Open and Hole-Punching Procedures. Somsak Vanit-Anunchai

Dynamic Clock Elimination in Parametric Timed Automata. Étienne André

On the Determinism of Multi-core Processors. Vladimir-Alexandru Paun, Bruno Monsuez and Philippe Baufreton.

Lunch: 12:00-13:30

PhD Session 2

13:30-14:30, Chair: Étienne André

Illustrating the Mezzo programming language. Jonathan Protzenko

Improving System-Level Verification of SystemC Models with SPIN. Martin Elshuber, Susanne Kandl and Peter Puschner

Round table 2: Formal methods and applications

14:30-15:30, Moderator: Christine Choppy

Jin Song Dong, Associate Professor in NUS

Yang Liu, Assistant Professor in NTU

Laure Petrucci, Professor in Paris 13, Head of LIPN

Ariane Piel, PhD student at LIPN and ONERA

Coffee and tea break 15:30-16:00

PhD Session 3

16:00-17:00, Chair: Dong Jin Song

Modelling and Reasoning about Dynamic Networks as Concurrent Systems.

Yanti Rusmawati and David Rydeheard

Formal Modelling and Verification of Pervasive Computing Systems. Yan Liu

FSFMA workshop Banquet: 18:00 at Sakura Restaurant

Location: Sakura Clementi branch

Address: 93A Clementi Rd, Singapore 129781.

We will walk to the restaurant from TLab

AWCTCCS 2013 Program

Tuesday, July 16

Location: Room 8D-2, Level, Temasek Labs, NUS

Session 1

09:00-10:00, Chair: Raghu Kacker

Combinatorial test methods and applications, Yu Lei

Coffee and tea break 10:00-10:30

Session 2

10:30-12:00, Chair: Keizo Tatsumi

Deriving combinatorial test design model form UML activity diagram. Preeti Satish, Sheeba K, and Krishnan Rangarajan

A method of making scenario tests based on combinatorial testing. Noriaki Ichida, Takeshi Sumi, and Hideto Ogasawara

Compare random testing, adaptive random testing , and combinatorial testing. Changhai Nie

Lunch 12:00-13:30

Session 3

13:30-15:30, Chair: Changhai Nie

Combinatorial testing in Japan. Keizo Tatsumi

Constraints t-way testing strategy with modified condition decision coverage. Kamal Zamli

***Discussion:* Opportunities and challenges in practical use of combinatorial testing**

Coffee and tea break 15:30-16:00

AWCTCCS Workshop Banquet: 18:00 at Sakura Restaurant

Location: Sakura Clementi branch

Address: 93A Clementi Rd, Singapore 129781.

We will walk to the restaurant from TLab

AWASE 2013 Program

Location: Room 8D-1, Level, Temasek Labs, NUS

Saturday, July 20

Welcome Lunch 12:00-14:00

Keynote Speech

14:00-14:50

Programming Bidirectional Transformation Robustly and Intentionally.

Speaker: Zhenjiang Hu

Section 1: Internet System

15:00-16:00, Chair: Jun Sun

Query Reformulation in XML Data Integration Systems. Hiroyuki Kato

Analyzing Software: A New Perspective from Complex Network. Lin Chen

Recommending Web Service Based on User Relationships and Preferences.

Lei Xu and Yanhui Li

Coffee and tea break 16:00-16:30

Section 2: Methodology

16:30-17:30, Chair: Yang Liu

Towards an interoperable bidirectional graph transformation system.

Soichiro Hidaka

Speeding up Flow-Sensitive Points-to Analysis via Parallelization. Jianjun

Zhao

Modelling and Reasoning about Dynamic Networks as Concurrent Systems.

Yanti Rusmawati and David Rydeheard

18:00-20:00 Dinner

20:30-21:30 Singapore Flyer

Sunday, July 21

Keynote Speech

09:00-10:00

Speaker: Hong Mei

Coffee and tea break 10:00-10:30

Section 3: Model Checking

10:30-11:50, Chair: Dong Jin Song

State space reduction in software model checking using cut-off policies.

Yoshinori Tanabe

Formal Modelling and Verification of Pervasive Computing Systems. Liu

Yang

Toward Systematic Planning of Event-B Refinement. Fuyuki Ishikawa

Combining Model Checking and Testing with an Application to Reliability

Prediction and Distribution. Jun Sun

Lunch 12:00-14:00

Section 4: Software Analysis

14:00-15:00, Chair: Yoshinori Tanabe

Supporting Multi-Level Design Changes in Adaptive Software Maintenance.

Kenji Tei

Static Program Analysis and Test Data Generation. Jian Zhang

Automation of Software Testing: Academy vs. Industry. Zhenyu Chen

Coffee and tea break 15:00-15:30

Section 5: System

15:30-16:50, Chair: LIN Shang-Wei

Adaptation to Security and Privacy Changes. Nobukazu Yoshioka

Human Factors in Self-Adaptive Systems: A Requirements-Driven Perspective. Xin Peng

Automatic Multi-agent Coordination based on Values Driven Self-organization. Wenpin Jiao

Construction of Traceability between Feature Model and Use Case: A language-based Approach. Haiyan Zhao

Web Service Network. Zhiyong Feng