THE 28TH ASIA-PACIFIC SOFTWARE ENGINEERING CONFERENCE

6th - 9th December 2021 - Virtual
(originally Taipei, Taiwan)

APSEC 2021 Program

(Time Zone: UTC+8, Taipei Time)
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<tr>
<td>09:00 - 12:00</td>
<td><strong>Microsoft Teams Testing</strong></td>
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<td>14:00 - 17:00</td>
<td><strong>Microsoft Teams Testing</strong></td>
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<td>02:30 - 05:30</td>
<td><strong>QuASoQ 2021</strong></td>
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<td>18:00 - 20:00</td>
<td><strong>Steering Committee Meeting</strong></td>
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| 09:20 - 09:40 | **Opening Ceremony**  
Host: Prof. Nien-Lin Hsueh, Feng Chia University, Taiwan |
| 09:40 - 10:00 | **Memorial Ceremony for Prof. Aoyama**  
Host: Prof. Katsuhisa Maruyama, Ritsumeikan University, Japan |
| 10:00 - 11:00 | **Keynote 1: “Software Engineering for Human-on-the-loop Cyber-Physical Systems”**  
*Speaker: Jane Cleland-Huang, University of Notre Dame in Indiana, USA*  
Host: Prof. Chun-Feng Liao, National Chengchi University, Taiwan |
| 11:00 - 11:10 | **Break** |
| 11:10 - 12:20 | **Session 1A: Software Architecture, Modelling and Design**  
Chair: Alan Liu, National Chung Cheng University, Taiwan  
**Session 1B: Human Factors and Social Aspects of Software Engineering**  
Chair: Subhajit Datta, Singapore Management University, Singapore  
**Session 1C: Security, Reliability, and Privacy**  
Chair: Yoshiki Higo, Osaka University, Japan |
| 12:40 – 14:00 | **Break** |
| 14:00 – 15:30 | **Session 2A: Software Engineering in Practices-1**  
Chair: Fang Yu, National Chengchi University, Taiwan  
**Session 2B: Software Repository Mining and Data Analytics-1**  
Chair: Yung-Chun Chang, Taipei Medical University, Taiwan |
| 15:30 – 15:50 | **Break** |
| 15:50 – 17:00 | **Session 3A: Software Engineering in Practices-2**  
Chair: Shahida Sulaiman, Universiti Teknologi Malaysia, Malaysia  
**Session 3B: AI for Software Engineering**  
Chair: Konstantin Kobylkin, Russian Academy of Sciences, Russia  
**Session 3C: Empirical Software Engineering**  
Chair: Jingyue Li, Norwegian University of Science and Technology, Norway |

Day 2: 7th December 2021 (Tue.)
### Day 3: 8th December 2021 (Wed.)

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<td><strong>Awards Announcement</strong>&lt;br&gt;Host: Prof. Shang-Pin Ma, National Taiwan Ocean University, Taiwan</td>
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<td><strong>Keynote 2: “Quantitative Symbolic Analysis for Software Security and Dependability”</strong>&lt;br&gt;<strong>Speaker:</strong> Tevfik Bultan, University of California, USA&lt;br&gt;Host: Prof. Deron Liang, National Central University, Taiwan</td>
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<td><strong>Session 4A: Testing, Verification, and Validation-1</strong>&lt;br&gt;Chair: Chien-Hung Liu, National Taipei University of Technology, Taiwan</td>
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<td><strong>Session 5A: Testing, Verification, and Validation-2</strong>&lt;br&gt;Chair: Jessica Turner, University of Waikato, New Zealand</td>
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<td><strong>Session 6A: Requirement Engineering and Model-driven Engineering</strong>&lt;br&gt;Chair: Pinjia He, Chinese University of Hong Kong, China</td>
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<td>Chair: Cuiyun Gao, Harbin Institute of Technology, China</td>
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<td>Chair: Kuo-Hsun Hsu, National Taichung University of Education, Taiwan</td>
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<td>Chair: YungYu Zhuang, National Central University, Taiwan</td>
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Chair: Alan Liu, National Chung Cheng University, Taiwan
- 58 Akira Mizutani, Masami Noro and Atsushi Sawada. Design of Software Architecture for Neural Network Cooperation: Case of Forgery Detection

Session 1B: Human Factors and Social Aspects of Software Engineering
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Chair: Subhajit Datta, Singapore Management University, Singapore
- 41 Lingjia Li, Jian Cao and Qin Qi. Monitoring Negative Sentiment-Related Events in Open Source Software Projects
- 73 Xin Huang, He Zhang, Xin Zhou, Dong Shao and Letizia Jaccheri. A Research Landscape of Software Engineering Education
- 258 Ishita Bardhan, Subhajit Datta and Subhashis Majumder. Degree doesn't Matter: Identifying the Drivers of Interaction in Software Development Ecosystems (India, 8:40-9:50)

Session 1C: Security, Reliability, and Privacy
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- 19 Asma Razgallah and Raphaël Khoury. Behavioral classification of Android applications using system calls (Canada, 23:10-00:20)
- 78 Yuxuan Li, Ruitao Feng, Sen Chen, Qianyu Guo, Lingling Fan and Xiaohong Li. IconChecker: Anomaly Detection of Icon-Behaviors for Android Apps
- 266 Guangwei Li, Ting Yuan, Jie Lu, Lian Li, Xiaobin Zhang, Xu Song and Kejun Zhang. Exposing Vulnerable Paths: Enhance Static Analysis with Lightweight Symbolic Execution
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- 40 Hongbing Wang and Qi Li. Effective Bug Triage Based on a Hybrid Neural Network
- 267 Pouya Ataei and Alan Litchfield. NeoMycelia: A software reference architecture for big data systems (New Zealand: 19:00-20:30)
- 268 Aiswarya Raj Munappy, Jan Bosch, Helena Holmström Olsson and Anders Jansson. On the Impact of ML use cases on Industrial Data Pipelines (Sweden, 07:00-08:30)
- 277 Liming Dong, He Zhang, Lanxin Yang, Zhiluo Weng and Xin Zhou. Survey on Pains and Best Practices of Code Review

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Chair: Yung-Chun Chang, Taipei Medical University, Taiwan

- 16 Kejun Li, Taiming Wang and Hui Liu. NameChecker: Detecting Inconsistency between Method Names and Method Bodies
- 30 Yoshiki Higo, Junnosuke Matsumoto and Shinji Kusumoto. Tree-based Mining of Fine-grained Code Changes to Detect Unknown Change Patterns
- 75 Siyuan Liu, Jingxuan Zhang, Jiahui Liang, Junpeng Luo, Yong Xu and Chenxing Sun. CHIS: A Novel Hybrid Granularity Identifier Splitting Approach
- 81 Guang Yang, Yanlin Zhou, Xiang Chen and Chi Yu. Fine-grained Pseudo-code Generation Method via Code Feature Extraction and Transformer
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Chair: Shahida Sulaiman, Universiti Teknologi Malaysia, Malaysia

- 84 Yuchu Liu, David Issa Mattos, Jan Bosch, Helena Holmström Olsson and Jonn Lantz. Bayesian propensity score matching in automotive embedded software engineering (Sweden, 08:50-10:00)
- 88: Anas Dakkak, Hongyi Zhang, David Issa Mattos, Jan Bosch and Helena Hölmstrom Olsson. Towards Continuous Data Collection from In-service Products: Exploring the Relation Between Data Dimensions and Collection Challenges (Sweden, 08:50-10:00)
- 275 Chi Li, Yuexing Wang, Min Zhou and Ming Gu. Scalable Fault Detection Based on Precise Access Path

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Chair: Konstantin Kobylkin, Russian Academy of Sciences, Russia

- 53 Zhifang Liao, Wenlong Li, Yan Zhang and Song Yu. Detecting Duplicate Questions in Stack Overflow via Semantic and Relevance Approaches
- 116 Kien-Tuan Ngo, Dinh-Truong Do, Thu-Trang Nguyen and Hieu Vo Dinh. Ranking Warnings of Static Analysis Tools Using Representation Learning

Session 3C: Empirical Software Engineering
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Chair: Jingyue Li, Norwegian University of Science and Technology, Norway

- 98 Sindre Beba, Magnus Melseth Karlsen, Jingyue Li and Bing Zhang. Critical Understanding of Security Vulnerability Detection Plugin Evaluation Reports (Norway, 07:50-09:00)
- 103 Benjamin Koh, Mojtaba Shahin, Annette Ong, Soo Ying Yeap, Priyanka Saxena, Manvendra Singh and Chunyang Chen. Pandemic Software Development: The Student Experiences from Developing a COVID-19 Information Dashboard (Australia, 17:50-19:00)
- 254 Nataliya Berbyuk Lindstrom, Dina Koutsikouri, Miroslaw Staron, Wilhelm Meding and Ola Söder. Understanding Metrics Team-Stakeholder Communication in Agile Metrics Service Delivery (Sweden, 07:50-09:00)
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● 262 Yizheng Chen, Ninad Chaudhari and Mei-Hwa Chen. Context-Aware Regression Test Selection (USA, 23:10-00:20)

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● 11 Aiping Zhang, Kui Liu, Liming Fang, Qianjun Liu, Xinyu Yun and Shouling Ji. Learn To Align: A Code Alignment Network For Code Clone Detection
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● 125 Yusuke Shinyama, Yoshitaka Arahori and Katsuhiko Gondow. How Do Programmers Express High-Level Concepts using Primitive Data Types?
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- 66 Weigang He, Xia Mao, Ting Su, Yanhong Huang and Jianqi Shi. Data Flow Testing for PLC Programs via Dynamic Symbolic Execution
- 92 Xiang Du, Liangze Yin, Haining Feng and Wei Dong. Program Verification Enhanced Precise Analysis of Interrupt-Driven Program Vulnerabilities
- 115 Wenjie Li, Yanyan Jiang, Jun Ma and Chang Xu. Automatic Performance Testing for Image Displaying in Android Apps
- 121 Azeem Ahmad, Francisco Gomes de Oliveira Neto, Zhizhang Shi, Kristian Sandahl and Ola Leifler. A Multi-factor Approach for Flaky Test Detection and Automated Root Cause Analysis (Sweden, 07:00-08:30)

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- 21 Yu Wang, Huaxiao Liu, Shanquan Gao and Shujia Li. Categorizing npm Packages by Analyzing the Text Information in Software Repositories
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- 71 Jingxuan Zhang, Weiqin Zou and Zhiqiu Huang. An Empirical Study on the Usage and Evolution of Identifier Styles in Practice
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- 12 Mouna Hammoudi, Christoph Mayr-Dorn, Atif Mashkoor and Alexander Egyed. TraceRefiner: An Automated Technique for Refining Coarse-Grained Requirement-to-Class Traces (Austria, 08:50-10:20)
- 113 Selin Aydin, Andreas Steffens and Horst Lichter. Automated Construction of Continuous Delivery Pipelines from Architecture Models (Germany, 08:50-10:20)
- 260 Stefan Fischer, Lukas Linsbauer and Rudolf Ramler. Comparing Automated Reuse of Scripted Tests and Model-Based Tests for Configurable Software (Austria, 08:50-10:20)

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- 17 Stefan Schulz, Emanuel Herrendorf and Christoph Bockisch. Thread-Sensitive Data Race Detection for Java (Germany, 08:50-10:20)
- 68 Hushuang Zeng, Jingxin Chen, Beijun Shen and Hao Zhong. Mining API Constraints from Library and Client to Detect API Misuses
- 123 Lwin Khin Shar, Nguyen Binh Duong Ta and David Lo. Empirical Evaluation of Minority Oversampling Techniques in the Context of Android Malware Detection
- 244 Wangshu Liu, Yongteng Zhu, Xiang Chen, Qing Gu, Xingya Wang and Shenkai Gu. S2LMMD: Cross-Project Software Defect Prediction via Statement Semantic Learning and Maximum Mean Discrepancy
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- 295 Humphrey O. Obie, Mojtaba Shahin, John Grundy, Burak Turhan, Li Li, Waqar Hussain and Jon Whittle. Does Domain Change the Opinion of Individuals on Human Values? A Preliminary Investigation on eHealth Apps End-users
- 305 Scott Lupton, Hironori Washizaki, Nobukazu Yoshioka and Yoshiaki Fukazawa. Literature Review on Log Anomaly Detection Approaches Utilizing Online Parsing Methodology

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- 314 Aki Hongo and Naoya Nitta. Towards a Dynamic Visualization of Complex Reverse-Engineered Object Collaboration
- 319 Shaikh Mostafa and Xiaoyin Wang. An Exploration Study On the Dependency Among Vulnerabilities and Bugs (USA, 21:30-22:40)
- 320 Chu-Ti Lin, Sheng-Hsiang Yuan and Jutarporn Intasara. A Learning-to-Rank Based Approach for Improving Regression Test Case Prioritization
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- 284 Puneet Bhateja. Probabilistic testing of asynchronously communicating systems (India, 08:10-09:30)
- 300 Kapil Singi, Kanchanjot Kaur Phokela, Narendranath Sukhavasi and Vikrant Kaulgud. Framework for Recommending Data Residency Compliant Application Architecture (India, 08:10-09:30)
- 283 Yoriyuki Yamagata, Fabien Hervé, Yuji Fujiwara and Katsuro Inoue. Finding repeated strings in code repositories and its applications to code-clone detection
- 286 Hiroto Watanabe, Shinsuke Matsumoto, Yoshiki Higo, Shinji Kusumoto, Toshiyuki Kurabayashi, Hiroyuki Kirinuki and Haruto Tanno. Applying Multi-Objective Genetic Algorithm for Efficient Selection on Program Generation
- 303 Akira Fujimoto, Yoshiki Higo and Shinji Kusumoto. Towards Accurate File Tracking Based on AST Differences
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● 282 Cuong Tran Manh, Kien Tran Trung, Tan M. Nguyen, Thu-Trang Nguyen, Son Nguyen and Hieu Vo Dinh. API parameter recommendation based on language model and program analysis

● 285 Rakshit Mittal, Dominique Blouin and Soumyadip Bandyopadhyay. PNPEq: Verification of Scheduled Conditional Behavior in Embedded Software using Petri Nets (France, 07:00-08:10)

● 299 Yuwei Wang, Denis Conan, Sophie Chabridon, Kavoos Bojnourdi and Jingxuan Ma. Runtime models and evolution graphs for the version management of microservice architectures (France, 07:00-08:10)

● 301 Anton V. Uzunov, Matthew Brennan, Mohan Baruwal Chhetri, Bao Vo, Ryszard Kowalczyk and John Wondoh. AWaRE2-MM: A Meta-Model for Goal-Driven, Contract-Mediated, Team-Centric Autonomous Middleware Frameworks for Antifragility (Australia, 17:00-18:10)

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● 312 Yi-Chun Yen, Bing-Yun Wang, Xin-Zhe Zhong, Wei-Yi Chiang, Chin-Yun Hsieh and Yu Chin Cheng. Applying Problem Frames in Behavior-Driven Development for Smart Cone System

● 315 Dongwook Choi, Jinseok Heo and Eunseok Lee. Automated Feedback Generation for Multiple Function Programs

● 316 Norihiro Yoshida, Takahiro Shimizu, Ryota Yamamoto and Hiroaki Takada. Extracting a Micro State Transition Table Using the KLEE Symbolic Execution Engine

● 321 Hasnaa El Jihad, Morayo Adedjouma and Matteo Morelli. Automated Fault Tree generation in Open-PSA from UML Models (France, 07:00-08:10)

● 324 Liqian Chen, Taoqing Chen, Guangsheng Fan and Banghu Yin. Static Analysis of Resource Usage Bounds for Imperative Programs
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