

# ISSRE 2022 Preliminary Program

## On-site program

### Monday October 31

Local Time (EDT)	Room 1	Room 2	Room 3	Room 4
	New Faculty Symposium	1st Workshop on Assured Autonomy, Artificial Intelligence and Machine Learning (WAAM)	7th Workshop on Resiliency, Security, Defenses and Attacks (RSDA)	12th Workshop on Software Certification (WoSoCer)
8:25 - 8:30	Welcome & Introduction			
8:30 - 10:00	NFS 1	WAAM 1	RSDA 1: Keynote	WoSoCer 1: Keynote
10:00 - 10:30	Coffee Break			
10:30 - 11:00	NFS 2	WAAM 2	RSDA 2	WoSoCer 2
12:00 - 13:30	Lunch			
13:30 - 15:00	NFS 3	WAAM 3	RSDA 3	WoSoCer 3
15:00 - 15:30	Coffee Break			
15:30 - 17:00		WAAM 4		
18:00 - 20:00	Reception			

### Tuesday November 1

Local Time (EDT)	Room 1	Room 2		
8:30 - 9:00	Welcome & Opening			
9:00 - 10:00	Keynote 1: Tim Menzies			
10:00 - 10:30	Coffee Break			
10:30 - 12:00	Research Track: Best Paper Candidates			
12:00 - 13:30	Lunch			
13:30 - 15:00	Research Track 1: Autonomous Systems	Industry Track 1: Security and Vulnerability Analysis		
15:00 - 15:30	Coffee Break			
15:30 - 17:00	Research Track 2: Machine Learning for Security	Research Track 3: Error Handling & Fast Abstract		
18:00 - 20:00	Reception (Test-of-Time Award)			

### Wednesday November 2

Local Time (EDT)	Room 1	Room 2		
9:00 - 10:00	Keynote 2			
10:00 - 10:30	Coffee Break			
10:30 - 12:00	Industry Track: Best Paper Candidates			
12:00 - 13:30	Lunch			
13:30 - 15:00	Research Track 4: Autonomous Systems 2	Industry Track 2: Software Quality Improvement		
15:00 - 15:30	Coffee Break			
15:30 - 17:00	Research Track 5: Functional and Security Testing	Tutorial: Pete Rotella		
18:00 - 20:00	Banquet			

### Thursday November 3

Local Time (EDT)	Room 1	Room 2		
9:00 - 10:00	Keynote 3			
10:00 - 10:30	Coffee Break			
10:30 - 12:00	Research Track 6: Models and Analysis	Industry Track 3: Cloud and DevOps		
12:00 - 13:30	Lunch			
13:30 - 15:00	Closing & Business Meeting			

## Online program

### Sunday October 30

Local Time (EDT)	CST (UTC+8)	CET (UTC+1)			
			2nd Workshop on Reliability of Autonomous Intelligent Systems (RAIS)		
20:40 - 21:00	8:40 - 9:00	1:40 - 2:00	RAIS Opening		
21:00 - 24:00	9:00 - 12:00	2:00 - 5:00	RAIS 1		
2:00 - 6:00	14:00 - 18:00	7:00 - 11:00	RAIS 2		

### Monday October 31

Local Time (EDT)	CST (UTC+8)	CET (UTC+1)				
			Doctoral Symposium	14th Workshop on Software Aging and Rejuvenation (WoSAR)	6th Workshop on Software Faults & 4th Workshop on Software Hardware Interaction Faults (IWSF&SHIFT)	2nd Workshop on Safety and Security of Software Using Machine Learning in Cyber-physics System (SSSML)
8:30 -	20:30 -	13:30 -	8:30 - 9:30 Opening & Keynote 9:30 - 10:30 Student Presentations 10:45 - 12:10 Panel & Networking	8:50 - 9:40 Opening & Keynote 9:40 - 10:40 Paper presentations 10:40 - 11:20 Keynote 11:20 - 13:00 Paper presentations	9:00 - 9:55 Opening & Keynote 9:55 - 13:00 Paper sessions	8:30 - 10:00 Paper presentations

### Tuesday November 1

Local Time (EDT)	CST (UTC+8)	CET (UTC+1)				
20:00 - 21:00	8:00 - 9:00	1:00 - 2:00	Research Track 7: Fault Injection	Research Track 8: Software Evolution and Re-engineering	Fast Abstract 1: System Security and Reliability	
21:00 - 22:00	9:00 - 10:00	2:00 - 3:00	Research Track 9: Anomaly Detection and Data generation	Research Track 10: Program Analysis		
22:00 - 23:00	10:00 - 11:00	3:00 - 4:00	Research Track 11: Software Testing 1	Industry Track 4: Security and Vulnerability Analysis 2		

### Wednesday November 2

Local Time (EDT)	CST (UTC+8)	CET (UTC+1)				
20:00 - 21:00	8:00 - 9:00	1:00 - 2:00	Research Track 12: Software Testing 2	Research Track 13: Software Aging and Monitoring	Fast Abstract 2: Testing, Fuzzing and Others	
21:00 - 22:00	9:00 - 10:00	2:00 - 3:00	Research Track 14: Fault Localization and Root Cause Analysis	Research Track 15: Reliability of AI-based Software		

### Thursday November 3

Local Time (EDT)	CST (UTC+8)	CET (UTC+1)				
10:30 - 12:00	22:30 - 24:00	15:30 - 17:00	Industry Track 5: Cloud and DevOps 2	J1C2 & Test-of-Time Award Runners-Up		

## Keynote talks

<b>Keynote 1</b>	<b>Nov 1 - 9:00-10:00</b>
AI software is software and we, as software engineers, have to understand how to use and refactor and modify it <i>Tim Menzies</i>	
<b>Keynote 2</b>	<b>Nov 2 - 9:00-10:00</b>
TBD	
<b>Keynote 3</b>	<b>Nov 3 - 9:00-10:00</b>
TBD	

## Tutorial

<b>Tutorial</b>	<b>Nov 1 - 15:30-17:00</b>
Improving Software Reliability in a Changing Industry <i>Pete Rotella</i>	

## Test-of-Time Award and J1C2

<b>Test-of-Time Award</b>	<b>Nov 1 - 18:00-20:00 (in reception)</b>
An Empirical Study of Bugs in Machine Learning Systems <i>Ferdian Thung, Shaowei Wang, David Lo, Lingxiao Jiang</i>	
<b>J1C2 &amp; Test-of-Time Award Runners-up</b>	<b>Nov 3 - 10:30-11:00</b>
(J1C2) ThorFI: A Novel Approach for Network Fault Injection as a Service <i>Domenico Cotroneo, Luigi De Simone and Roberto Natella</i> (ToT Runners-up) Shared Execution for Efficiently Testing Product Lines <i>Chang Hwan Peter Kim, Sarfraz Khurshid, Don Batory</i> (ToT Runners-up) Data Loss Prevention Based on Data-Driven Usage Control <i>Tobias Wüchner, Alexander Pretschner</i>	

## Research Track

<b>Research Track: Best Paper Candidates</b>	<b>Nov 1 - 10:30-12:00</b>
TaintSQL: Dynamically Tracking Fine-Grained Implicit Flows for SQL Statements <i>Wei Lin, Lu Zhang, Haotian Zhang, Kailai Shao, Mingming Zhang and Tao Xie</i> Minimizing Link Generation in Constraint Checking for Context Inconsistency Detection <i>Chuyang Chen, Huiyan Wang, Lingyu Zhang, Chang Xu and Ping Yu</i> Share or Not Share? Towards the Practicability of Deep Models for Unsupervised Anomaly Detection in Modern Online Systems <i>Zilong He, Pengfei Chen and Tao Huang</i>	
<b>Research Track 1: Autonomous Systems</b>	<b>Nov 1 - 13:30-15:00</b>
StellaUAV: A Tool for Testing the Safe Behavior of UAVs with Scenario-Based Testing (TAR) <i>Tabea Schmidt and Alexander Pretschner</i> What to Check: Systematic Selection of Transformations for Analyzing Reliability of Machine Vision Components <i>Boyue Caroline Hu, Lina Marusso, Krzysztof Czarnecki and Marsha Chechik</i> Verifiable Obstacle Detection <i>Ayoosh Bansal, Hunmin Kim, Simon Yu, Bo Li, Naira Hovakimyan, Marco Caccamo and Lui Sha</i>	
<b>Research Track 2: Machine Learning for Security</b>	<b>Nov 1 - 15:30-17:00</b>
Explainable AI for Android Malware Detection: Towards Understanding Why the Models Perform So Well? <i>Yue Liu, Chakkrit Tantithamthavorn, Li Li and Yepang Liu</i> Automatic Mapping of Unstructured Cyber Threat Intelligence: An Experimental Study (PER) <i>Vittorio Orbinato, Mariarosaria Barbaraci, Roberto Natella and Domenico Cotroneo</i> Federated Learning on Tabular Data: Exploring Potential Privacy Risk <i>Han Wu, Zilong Zhao, Lydia Chen and Aad van Moorsel</i>	
<b>Research Track 3: Error Handling &amp; Fast Abstract</b>	<b>Nov 1 - 15:30-17:00</b>
Graceful ECC-uncorrectable Error Handling in the Operating System Kernel <i>Takumi Iguchi and Hiroshi Yamada</i> Going through the Life Cycle of Faults in Clouds: Guidelines on Fault Handling <i>Xiaoyun Li, Guangba Yu, Pengfei Chen, Hongyang Chen and Zhekang Chen</i> (Fast Abstract) LogVM: Variable Semantics Miner for Log Messages <i>Yintong Huo, Yuxin Su and Michael Lyu</i>	
<b>Research Track 4: Autonomous Systems 2</b>	<b>Nov 2 - 13:30 - 15:00</b>
A Framework for Trusted and Resilient Autonomous Vehicles (PER) <i>Kevin Leach, Christopher S. Timperley, Kevin Angstadt, Anh Nguyen-Tuong, Jason Hiser, Aaron Paulos, Partha Pal, Patrick Hurley, Carl Thomas, Jack W. Davidson, Stephanie Forrest, Claire Le Goues and Westley Weimer</i> BRAUM: Analyzing and Protecting Autonomous Machine Software Stack <i>Yiming Gan, Paul Whatmough, Jingwen Leng, Bo Yu, Shaoshan Liu and Yuhao Zhu</i> Bootstrapping Confidence in Future Safety based on Past Safe Operation <i>Peter Bishop, Andrey Povyakalo and Lorenzo Strigini</i>	
<b>Research Track 5: Functional and Security Testing</b>	<b>Nov 2 - 15:30 - 17:00</b>
CEMENT: On the use of Evolutionary Coupling between tests and code units. A case study on fault localization <i>Jeongju Sohn and Mike Papadakis</i> Search-based Testing for Accurate Fault Localization in CPS <i>Ezio Bartocci, Leonardo Mariani, Dejan Nickovic and Drishti Yadav</i> Covariate Software Vulnerability Discovery Model to Support Cybersecurity Test & Evaluation (PER) <i>Julia Sorrentino, Priscila Silva, Gaspard Baye, Gokhan Kul and Lance Fiondella</i>	
<b>Research Track 6: Models and Analysis</b>	<b>Nov 3 - 10:30 - 12:00</b>
Software Rejuvenation Meets Moving Target Defense: Modeling of Time-Based Virtual Machine Migration Approach <i>Matheus Torquato, Paulo Maciel and Marco Vieira</i> An Empirical Analysis of Compatibility Issues for Industrial Mobile Games (PER) <i>Zihe Song, Yingfeng Chen, Lei Ma, Shangjie Lu, Honglei Lin, Changjie Fan and Wei Yang</i> REACH: Refining Alloy Scenarios by Size (TAR) <i>Ana Jovanovic and Allison Sullivan</i>	
<b>Research Track 7: Fault Injection</b>	<b>Nov 1 - 20:00-21:00</b>
SlowCoach: Mutating Code to Simulate Performance Bugs <i>Yiqun Chen, Oliver Schwahn, Roberto Natella, Matthew Bradbury and Neeraj Suri</i> LLTFI: Framework Agnostic Fault Injection for Machine Learning Applications (TAR) <i>Udit Agarwal, Abraham Chan and Karthik Pattabiraman</i> VECROsim: A Versatile Metric-oriented Microservice Fault Simulation System (TAR) <i>Tingzhu Bi, Yicheng Pan, Xinrui Jiang, Meng Ma and Ping Wang</i>	
<b>Research Track 8: Software Evolution and Re-engineering</b>	<b>Nov 1 - 20:00-21:00</b>
Enhancing Traceability Link Recovery with Unlabeled Data <i>Jianfei Zhu, Guanping Xiao, Zheng Zheng and Yulei Sui</i>	

Detecting and Refactoring Feature Envy Based on Graph Neural Network <i>Dongjin Yu, Yihang Xu, Lehui Weng, Jie Chen, Xin Chen and Quanxin Yang</i> AexPy: Detecting API-breaking Changes in Python Packages <i>Xingliang Du and Jun Ma</i>	
<b>Research Track 9: Anomaly Detection and Data generation</b>	<b>Nov 1 - 21:00-22:00</b>
PUTraceAD: Trace Anomaly Detection with Partial Labels based on GNN and PU Learning <i>Ke Zhang, Chenxi Zhang, Xin Peng and Chaofeng Sha</i> String Test Data Generation for Java Programs <i>Miaomiao Wang, Baoquan Cui, Jiwei Yan, Jun Yan and Jian Zhang</i> A Novel Counterexample-Guided Inductive Synthesis Framework for Barrier Certificate Generation <i>Mi Ding, Kaipeng Lin, Wang Lin and Zuohua Ding</i>	
<b>Research Track 10: Program Analysis</b>	<b>Nov 1 - 21:00-22:00</b>
A Naming Pattern-based Approach for Method Name Recommendation <i>Yanping Yang, Ling Xu, Meng Yan, Zhou Xu and Zhongyang Deng</i> A Sanitizer-centric Analysis to Detect Cross-Site Scripting in PHP Programs <i>He Su, Lili Xu, Huina Chao, Feng Li, Zimu Yuan, Jianhua Zhou and Wei Huo</i> Identifying Erroneous Software Changes through Self-Supervised Contrastive Learning on Time Series Data <i>Xuanrun Wang, Kanglin Yin, Qianyu Ouyang, Xidao Wen, Shenglin Zhang, Wenchi Zhang, Li Cao, Jiuxue Han, Xing Jin and Dan Pei</i>	
<b>Research Track 11: Software Testing 1</b>	<b>Nov 1 - 22:00-23:00</b>
DALT: Deep Activity Launching Test via Intent-constraint Extraction <i>Ao Liu, Chenkai Guo, Naipeng Dong, Yinjie Wang and Jing Xu</i> Learning to Prune Infeasible Paths in Generalized Symbolic Execution <i>Facundo Molina, Pablo Ponzio, Nazareno Aguirre and Marcelo Frias</i> Feedback-Driven Incremental Symbolic Execution <i>Qiuping Yi and Guowei Yang</i>	
<b>Research Track 12: Software Testing 2</b>	<b>Nov 2 - 20:00-21:00</b>
Failure Classification For System-Level Testing Using Only Test Step Results <i>Claudius Jordan, Philipp Foth, Matthias Fruth and Alexander Pretschner</i> RemGen: Remanufacturing A Random Program Generator for Compiler Testing <i>Haoxin Tu, He Jiang, Xiaochen Li, Zhilei Ren, Zhide Zhou and Lingxiao Jiang</i> Multi-Objective Metamorphic Test Case Selection: an Industrial Case Study (PER) <i>Jon Ayerdi, Aitor Arrieta, Ernest Pobee and Maite Arratibel</i>	
<b>Research Track 13: Software Aging and Monitoring</b>	<b>Nov 2 - 20:00-21:00</b>
Unifying Evaluation of Machine Learning Safety Monitors <i>Joris Guerin, Raul Sena Ferreira, Kevin Delmas and Jérémie Guiochet</i> Taxonomy of Aging-related Bugs in Deep Learning Libraries <i>Zhihao Liu, Xiaoting Du, Yang Zheng, Zheng Hu, Yanming Miao, Zheng Zheng and Wenjie Ding</i> The Impact of Software Aging and Rejuvenation on the User Experience for Android System <i>Kai Jia, Xiao Yu, Chen Zhang, Wenhua Hu, Dongdong Zhao and Jianwen Xiang</i>	
<b>Research Track 14: Fault Localization and Root Cause Analysis</b>	<b>Nov 2 - 21:00-22:00</b>
Improving the Performance of Mutation-based Fault Localization via Mutant Bias <i>Bin Du, Yuxiaoyang Cai, Haifeng Wang, Yong Liu and Xiang Chen</i> Effective Attribute Selection for Multi-dimensional Root Cause Analysis <i>Yiran Cheng, Bo Cheng, Pengxiang Jin, Yongqian Sun, Xiaohui Nie, Nengwen Zhao, Zhang Shenglin and Dan Pei</i> MC-FLoc: Learning from Traces to Locate Fault in Petri Net Model Checking <i>Ning Ge and Yuchen Liu</i>	
<b>Research Track 15: Reliability of AI-based Software</b>	<b>Nov 2 - 21:00-22:00</b>
Resilient Mechanism Against Byzantine Failure for Distributed Deep Reinforcement Learning <i>Mingyue Zhang, Zhi Jin, Jian Hou and Renwei Luo</i> Adversarial Input Detection Based on Critical Transformation Robustness <i>Jing Su, Zhen Zhang, Peng Wu, Xuran Li and Jian Zhang</i> Towards the Robustness of Multiple Object Tracking Systems <i>Xiaoyuan Xie, Ying Duan, Songqiang Chen and Jifeng Xuan</i>	

## Industry Track

<b>Industry Track: Best Paper Candidates</b>		<b>Nov 2 - 10:30-12:00</b>
Cache Antagonists Identification: A Practice from Alibaba Colocation Datacenter <i>Kangjin Wang, Chuanjia Hou, Ying Li, Yaoyong Dou, Cheng Wang, Yang Wen, Jie Yao and Liping Zhang</i>		
An unsupervised approach to discover filtering rules from diagnostic logs <i>Marcello Cinque, Raffaele Della Corte, Giorgio Farina and Stefano Rosiello</i>		
A Page-mapping Consistency Protecting Method for Soft Error Damage in Flash-based Storage <i>Jung-Hoon Kim and Young-Sik Lee</i>		
<b>Industry Track 1: Security and Vulnerability Analysis</b>		<b>Nov 1 - 13:30-15:00</b>
An Automated Approach to Re-Hosting Embedded Firmware by Removing Hardware Dependencies <i>Austin Ketterer, Asha Shekar, Edgardo Barsallo Yi, Saurabh Bagchi and Abraham Clements</i>		
Autonomic ZTA-based Network Management Engine (AZNME) <i>Cihan Tunc, James Durlinger, Charif Mahmoudi and Valerio Formicola</i>		
When malloc() Never Returns NULL-Reliability as an Illusion <i>Gunnar Kudrjavets, Jeff Thomas, Aditya Kumar, Nachiappan Nagappan and Ayushi Rastogi</i>		
<b>Industry Track 2: Software Quality Improvement</b>		<b>Nov 2 - 13:30-15:00</b>
Early Software Defect Prediction: Right-Shifting Software Effort Data into a Defect Curve <i>Kazuhira Okumoto</i>		
Fast Analysis of Evolving Software Systems <i>Anushri Jana, Bharti Chimdyalwar, Shrawan Kumar and Venkatesh R</i>		
Using Complexity Metrics with Hotspot Analysis to Support Software Sustainability <i>James Willenbring and Gursimran Walia</i>		
<b>Industry Track 3: Cloud and DevOps</b>		<b>Nov 3 - 10:30-12:00</b>
Automated Validation of Insurance Applications against Calculation Specifications <i>Advaita Datar, Amey Zare, Asia A, R Venkatesh, Dr. Shrawan Kumar and Ulka Shrotri</i>		
Prevalence of continuous integration failures in industrial systems with hardware-in-the-loop testing <i>Han Fu, Sigrid Eldh, Kristian Wiklund, Andreas Ermedahl and Cyrille Artho</i>		
Managing Service Dependency for Cloud Reliability: The Industrial Practice <i>Tianyi Yang, Baitong Li, Jiacheng Shen, Yuxin Su, Yongqiang Yang and Michael Lyu</i>		
<b>Industry Track 4: Security and Vulnerability Analysis 2</b>		<b>Nov 1 - 22:00-23:00</b>
Characterizing Python Method Evolution with PyMevol: An Essential Step Towards Enabling Reliable Software Systems <i>Haowei Quan, Jiawei Wang, Bo Li, Xiaoning Du, Kui Liu and Li Li</i>		
Detecting and Defending CSRF at API-Level <i>Shun Wang, Chao Ni, Jianbo Wang and Changhai Nie</i>		
VulDeBERT: A Vulnerability Detection System Using BERT <i>Soolin Kim, Jusop Choi, Muhammad Ejaz Ahmed, Surya Nepal and Hyounghshick Kim</i>		
<b>Industry Track 5: Cloud and DevOps 2</b>		<b>Nov 3 - 10:30-12:00</b>
A Method for Component Evaluation for Live Testing of Cloud Systems <i>Oussama Jebbar, Ferhat Khendek and Maria Toeroe</i>		
Automated Dependability Assessment in DevOps Environments <i>James Cusick, Alberto Avritzer, Allen Tse and Andrea Janes</i>		
Code Quality Prediction Under Super Extreme Class Imbalance <i>Noah Lee, Rui Abreu and Nachiappan Nagappan</i>		

## Fast Abstracts

### Fast Abstract 1: System Security and Reliability

November 1 - 20:00-21:00

LegoAI: Towards Building Reliable AI Software for Real-world Applications

*Mengyuan Hou and Hui Xu*

LogVM: Variable Semantics Miner for Log Messages

*Yintong Huo, Yuxin Su and Michael Lyu*

DNA-based Secret Sharing and Hiding in Dispersed Computing

Marek Ogiela and Urszula Ogiela

Towards Continuous and Data-driven Specification and Verification of Resilience Scenarios

*Sebastian Frank, Alireza Hakamian, Lion Wagner, Joakim von Kistowski and André van Hoor*

### Fast Abstract 2: Testing, Fuzzing and Others

November 2 - 20:00-21:00

Towards Effective Performance Fuzzing

*Yiqun Chen, Matthew Bradbury and Neeraj Suri*

A Disjoint-Partitioning Approach to Enhancing Metamorphic Testing of DBMS

Matthew Siu-Hin Tang, T.H. Tse and Zhi Quan Zhou

Improving Fuzzing Coverage with Execution Path Length Selection

*Wenxi Zhang, Kazunori Sakamoto, Hironori Washizaki and Yoshiaki Fukazawa*

RunPHI: Enabling Mixed-criticality Containers via Partitioning Hypervisors in Industry 4.0

*Marco Barletta, Marcello Cinque, Luigi De Simone, Raffaele Della Corte, Giorgio Farina and Daniele Ottaviano*

## New Faculty Symposium

<b>NFS1</b>	<b>October 31 - 8:30-10:00</b>
Training and Preparing PhD Students Toward Successful Post-PhD Careers <i>Tao Xie (Peking University)</i> Everything your PhD Students Always Wanted to Know About Research* (*But Were Afraid to Ask) <i>Paulo Esteves-Verissimo (KAUST)</i>	
<b>NFS2</b>	<b>October 31 - 10:30-12:00</b>
How to have a Terrific or a Terrible Life During Your First Three Years as Faculty <i>Saurabh Bagchi (Purdue University)</i> Secrets of the Tenured Professor <i>Tim Menzies (NC State University)</i>	
<b>NFS3</b>	<b>October 31 - 13:30-15:00</b>
Building a Collaborative Research Network <i>Myra Cohen (Iowa State University)</i> Do I Have to Stop Programming? The Plight of the "Hackademic" <i>Brendan Dolan-Gavitt (NYU Tandon)</i>	

## Doctoral Symposium

<b>Doctoral Symposium Keynote</b>	<b>Nov 1 - 8:30-9:30</b>
From Padawan to Jedi Knight: The Nine Trials of a PhD Student <i>Karthik Pattabiraman</i>	
<b>Doctoral Symposium Student Presentations</b>	<b>Nov 1 - 9:30-10:30</b>
Green Resilience of Cyber-Physical Systems <i>Diaeddin Rimawi</i> AgentFuzz: Fuzzing for Deep Reinforcement Learning Systems Tiancheng Li A Stochastic Petri net Model of Continuous Integration and Continuous Delivery Sushovan Bhadra Towards automatic validation of composite heterogeneous systems in edge situations Lukáš Černý	
<b>Doctoral Symposium Panel</b>	<b>Nov 1 - 10:45-11:30</b>
Moderator: <i>Hadi Hemmati</i> - Associate Professor York University, Canada <i>Foutse Khomh</i> , Professor, <i>École Polytechnique de Montréal, Canada</i> <i>Fuqun Huang</i> , PhD, Researcher at Centre for Informatics and Systems, University of Coimbra, Portugal <i>Jianwen Xiang</i> , Professor, Wuhan University of Technology, China <i>Lei Ma</i> , Associate Professor, University of Alberta, Canada <i>Zheng Zheng</i> , Professor, Beihang University, China	



## 2nd Workshop on Reliability of Autonomous Intelligent Systems (RAIS)

<b>RAIS1: Keynote talks</b>	<b>October 30 - 21:00-24:00</b>
Software and Hardware Reliability of Autonomous Systems <i>Min Xie</i>	
Commercialization and Operation Promotion of Large-Scale Simulation Test for Autonomous Driving Cars <i>Zi-Jiang Yang</i>	
<b>RAIS2: All in One</b>	<b>October 31 - 2:00-6:00</b>
Safety Assessment: From Black-Box to White-Box <i>Iwo Kurzidem, Adam Misik, Philipp Schleiss and Simon Burton</i>	
A Survey on Autonomous Driving System Simulators <i>Jixiang Zhou, Yi Zhang, Shengjian Guo and Yan Guo</i>	
Arguing safety of an improved autonomous vehicle from safe operation before the change: new results <i>Robab Aghazadeh Chakherlou, Kizito Salako and Lorenzo Strigini</i>	
Colour Space Defence: Simple, Intuitive, but Effective <i>Pei Yang, Jing Wang and Huan Wang</i>	
A systematic approach to develop an autopilot sensor monitoring system for autonomous delivery vehicle based on STPA method <i>Guangshuang Ge, Yan-Fu Li and Liangliang Sun</i>	
Disclosing the Fragility Problem of Virtual Safety Testing for Autonomous Driving Systems <i>Zhisheng Hu and Shengjian Guo</i>	
A simulation study of UAS risk-aware path planning in mitigating third-party risks considering flight volume <i>Xinyu He, Chengper Jiang, Lishuai Li and Henk A. P. Blom</i>	
Biologically Plausible Spiking Neural Network for Fault Diagnosis of Intelligent Autonomous Systems <i>Huan Wang and Yan-Fu Li</i>	
Joint optimization of production lot sizing and preventive maintenance threshold based on nonlinear degradation <i>Li Qu, Junli Liao, Kaiye Gao and Li Yang</i>	
Remaining useful lifetime analysis based on functional variance process <i>Linjie Qin and Yan Shen</i>	
Disclosing the Pringles Syndrome in Tesla FSD Vehicles <i>Shengjian Guo and Zhisheng Hu</i>	
A Spiral-FMEA approach for continuous reliability enhancement of autonomous delivery vehicle (ADv) <i>Liangliang Sun and Yan-Fu Li</i>	

## 1st Workshop on Assured Autonomy, Artificial Intelligence and Machine Learning (WAAM)

<b>WAAM1</b>	<b>October 31 - 8:00-10:00</b>
Assuring Safety-Critical Machine Learning Enabled Systems: Challenges and Promise <i>Alwyn Goodloe</i>	
Machine-Learned Specifications for the Verification and Validation of Autonomous Cyberphysical Systems <i>Matthew Litton, Doron Drusinsky and James Michael</i>	
<b>WAAM2</b>	<b>October 31 - 10:30-12:00</b>
Assurance Guidance for Machine Learning in a Safety-Critical System <i>Martin Feather, Philip Slingerland, Steven Guerrini and Max Spolaor</i>	
A Taxonomy of Critical AI System Characteristics for Use in Proxy System Testing <i>Joanna DeFranco, Mohamad Kassab and Phillip Laplante</i>	
AI and Stochastic Terrorism Should it be done? <i>Bart Kemper</i>	
<b>WAAM3</b>	<b>October 31 - 13:30-15:00</b>
Combinatorial Coverage for Assured Autonomy <i>Rick Kuhn, M. S. Raunak and Raghu Kacker</i>	
XAI for Communication Networks <i>Joanna DeFranco, Mohamad Kassab and Phillip Laplante</i>	
Investigating Bugs in AI-Infused Systems: Analysis and Proposed Taxonomy <i>Bart Kemper</i>	
<b>WAAM4</b>	<b>October 31 - 15:30-17:00</b>
Safety-Critical Adaptation in Self-Adaptive Systems <i>Simon Diemert and Jens Weber</i>	
Evaluating Human Locomotion Safety in Mobile Robots Populated Environments <i>Boyi Hu, Yue Luo and Yuhao Chen</i>	
Classification Analysis of Bearing Contrived Dataset under Different Levels of Contamination <i>Shamanth Manjunath, Ethan Wescoat, Vinita Gangaram Jansari, Matthew Krugh and Laine Mears</i>	



## 7th Workshop on Resiliency, Security, Defenses and Attacks (RSDA)

<b>RSDA Keynote</b>	<b>October 31 - 8:45-10:00</b>
Moving Target Defense (MTD): Recent Advances and Future Research Challenges <i>Dongseong Dan Kim</i>	
<b>RSDA2: Dependability of Machine Learning and Security-related Practices</b>	<b>October 31 - 10:30-12:00</b>
TENSORFI+: A Scalable Fault Injection Framework for Modern Deep Learning Neural Networks <i>Sabuj Laskar, Md Hasanur Rahman and Guanpeng Li</i>	
Sentinel: A Multi-institution Enterprise Scale Platform for Data-driven Cybersecurity Research <i>Alastair Nottingham, Molly Buchanan, Mark Gardner, Jason Hiser and Jack Davidson</i>	
(Invited Talk) SECOM: Towards a convention for security commit messages <i>Rui Abreu</i>	
<b>RSDA3: Artificial Intelligence for Testing and Monitoring</b>	<b>October 31 - 13:30-15:00</b>
Automated Test Case Generation from Input Specification in Natural Language <i>Tianyu Li, Xiuwen Lu and Hui Xu</i>	
D2MON: Detecting and Mitigating Real-Time Safety Violations in Autonomous Driving Systems <i>Bohan Zhang, Yafan Huang, Rachael Chen and Guanpeng Li</i>	
The AID4TRAIN project and Closing Remarks <i>Raffaele Della Corte, Marta Catillo, João F. Ferreira and Guanpeng (Justin) Li</i>	

## 12th Workshop on Software Certification (WoSoCer)

<b>WoSoCer Keynote</b>	<b>October 31 - 9:00-10:00</b>
How Safe Is Safe Enough for Autonomous Vehicles? <i>Philip Koopman</i>	
<b>WoSoCer3: Performance, Safety/Security, and Machine Learning Assessment</b>	<b>October 31 - 10:30-11:50</b>
Towards Assessing Isolation Properties in Partitioning Hypervisors <i>Carmine Cesarano, Domenico Cotroneo and Luigi De Simone</i>	
Continuous Verification of Open Source Components in a World of Weak Links <i>Thomas Hastings and Kristen Walcott</i>	
Performance Bottleneck Analysis of Drone Computation Offloading to a Shared Fog Node <i>Qingyang Zhang, Fumio Machida and Ermeson Andrade</i>	
Towards the Quantitative Verification of Deep Learning for Safe Perception <i>Philipp Schleiss, Yuki Hagiwara, Iwo Kurzidem and Francesco Carella</i>	
<b>WoSoCer2: Safety in Avionic Domain</b>	<b>October 31 - 13:30-15:00</b>
Improving Documentation Agility in Safety-Critical Software Systems Development For Aerospace <i>Joaquim Rodrigues, Eduardo Ribeiro and Ademar Aguiar</i>	
Programming Language Evaluation Criteria for Safety-Critical Software in the Air Domain <i>Rob Ashmore, Andrew Howe, Rhiannon Chilton and Shamal Faily</i>	
A Domain Specific Language for the ARINC 653 Specification <i>Ikram Darif, Cristiano Politowski, Ghizlane El Boussaidi and Sègla Kpodjedo</i>	
Closing Remarks + Discussion	

## 6th Workshop on Software Faults & 4th Workshop on Software Hardware Interaction Faults (IWSF&SHIFT)

<b>IWSF &amp; SHIFT1</b>	<b>October 31 - 10:00-11:15</b>
(Keynote) Model-based Network Fault Injection for IoT Protocols <i>Cyrille Artho</i>	
Improve Counterexample Quality for Failed Program Verification <i>Li Huang, Bertrand Meyer and Manuel Oriol</i>	
<b>IWSF &amp; SHIFT2</b>	<b>October 31 - 11:30-12:15</b>
Correlating Test Events With Monitoring Logs For Test Log Reduction And Anomaly Prediction <i>Bahareh Afshinpour, Roland Groz and Massih-Reza Amini</i>	
(Keynote) Explainable Vulnerabilities Descriptions with NIST BF <i>Irena Bojanova</i>	
<b>IWSF &amp; SHIFT3</b>	<b>October 31 - 12:30-13:00</b>
Improving Flexibility in Embedded System Runtime Verification with Python <i>Wanjin Zhou, Feifei Hu and Junyan Ma</i>	
Closing	

## 14th Workshop on Software Aging and Rejuvenation (WoSAR)

### WoSAR1: Software Rejuvenation Models

October 31 - 9:00-10:40

(Keynote) Rejuvenation On-The-Go: Addressing Software Aging in Android Mobile Systems

*Roberto Natella*

A Markov Regenerative Model of Software Rejuvenation Beyond the Enabling Restriction

*Laura Carnevali, Marco Paolieri, Riccardo Reali, Leonardo Scommegna and Enrico Vicario*

Sequential Performance Analysis of Systems that Age and Rejuvenate

*Leonardo Nascimento, Cabral Lima, Daniel Menasché and Guilherme Domingues*

Towards Making Unikernels Rejuvenatable

*Takeru Wada and Hiroshi Yamada*

### WoSAR2: Software Rejuvenation and Runtime Models

October 31 - 10:40-11:40

(Keynote) Software Rejuvenation and Cybersecurity Issues in Model Predictive Control

*Jose Maria Maestre Torreblanca*

Software rejuvenation and runtime reliability monitoring

*Alessandro Fantechi, Gloria Gori and Marco Papini*

### WoSAR3: Software Aging Models

October 31 - 11:40-12:40

Analysis of Software Aging in a Blockchain Platform

*Douglas Dias, Fumio Machida and Ermeson Andrade*

Crash Injection to Persistent Memory for Recovery Code Validation

*Soichiro Sakamoto, Keita Suzuki and Kenji Kono*

A Software Aging-Related Bug Prediction Framework Based on Deep Learning and Weakly Supervised Oversampling

*Yancai Zhou, Jianwen Xiang and Chen Zhang*

## 2nd Workshop on Safety and Security of Software Using Machine Learning in Cyber-physics System (SSSML)

### SSSML

October 31 - 8:30-9:30

Software Supply Chain Attacks: Investigating Novel Approaches to Mitigate SSC Threats

*Md Jobair Hossain FaruK, Masrura Tasnim, Shahriar Hossain, Akond Rahman, Fan Wu and Maria Valero*

Homomorphic multi-label classification of virus strains

*Junwei Zhou, Botian Lei and Lang Huile*