SOMET 2021
The 20th International Conference on Intelligent Software Methodologies, Tools and Techniques

Conference Program

Sept. 21(TUE)-23(THU), 2021
City of Cancun, Mexico
https://atenea.esimecu.ipn.mx/

Due to the influence of COVID-19, SOMET 2021 will be held by Online. Most of speaker will use Zoom from a remote location. It doesn't matter which one you participate in if you wish.

Time of regular paper presentation is 25 minutes and + 5 minutes for questions. The time of short paper presentation is 15 minutes for a paper + 5 minutes for questions.

All times indicate Mexico Cancun Time (UTC-5, JST-14)*. If you attend a web conference in your place, please adjust to your local time.

*UTC: Universal Time Coordinated = GMT: Greenwich Mean Time, JST: Japan Standard Time

Sept. 21, Tuesday

< Room A>

Mexico Cancun Time (UTC-5, JST-14)
PM 7:00-7:30 (UTC: AM 0:00-0:30 Sept.22, JST: AM 9:00-9:30, Sept.22)
Opening

General Chairs: Hamido Fujita and Hector Manuel Perez-Meana
(Organizing Committee)

PM 7:30-8:30 (UTC: AM 0:30-1:30 Sept.22, JST: AM 9:30-10:30, Sept.22)
Keynote Speech I

Session Chair: Prof. FUJITA Hamido
“Recent Research on Detection of Vulnerable Plaque in Virtual Histology Intravascular Ultrasound Images”
Prof. Ali Selamat

PM 8:30-10:00 (UTC: AM 1:30-3:00 Sept.22, JST: AM 10:30-12:00, Sept.22)
Software Systems Security and techniques

Session Chair: Prof. Manuel Cedillo-Hernandez

(Paper ID #2): Protecting the sharing and distribution of color images hosted in cloud storage services
Manuel Cedillo-Hernandez (INSTITUTO POLITECNICO NACIONAL)*; David Mata-Mendoza (INSTITUTO POLITECNICO NACIONAL); Diana Nuñez-Ramirez (INSTITUTO POLITECNICO NACIONAL); Elizabeth Compos-Ponce (INSTITUTO POLITECNICO NACIONAL); Eduardo Fragoso-Navarro (INSTITUTO POLITECNICO NACIONAL); MARIKO Nakano-Miyatake (INSTITUTO POLITECNICO NACIONAL); Hector Perez-Meana (INSTITUTO POLITECNICO NACIONAL)

(Paper ID #7): Formal and Automatic Security Policy Enforcement on Android Applications by Rewriting
Marwa Ziadia (Laval University); Mohamed Mejri (Laval University); Jaouhar Fattahi (Université Laval)*
< Room B >

Mexico Cancun Time (UTC-5, JST-14)
PM 8:30-10:00  (UTC: AM 1:30-3:00 Sept.22, JST: AM 10:30-12:00, Sept.22)

Session Chair: Prof. MARIKO Nakano-Miyatake

Applied intelligence in Software
(Paper ID #10): LSTM-based mosquito genus classification using their wingbeat sound
Edmundo Toledo (Instituto Politecnico Nacional); José Álvaro Luna-González (INSTITUTO POLITECNICO NACIONAL); MARIKO Nakano-Miyatake (INSTITUTO POLITECNICO NACIONAL)*; Daniel Robles-Camarillo (Universidad Politécnica de Pachuca); Adrian Hernandez (Microsoft Mexico); Hector Perez-Meana (INSTITUTO POLITECNICO NACIONAL); Humberto Lanz-Mendoza (Instituto Nacional de Salud Pública); Jorge Cime (Instituto Nacional de Salud Pública)

Intelligent Decision Support Systems
(Paper ID #11): Acoustic Scenery Recognition Using CWT and Deep Neural Network
Francisco Mondragon (Instituto Politécnico Nacional); Jonathan Jimenez (Instituto Politécnico Nacional); MARIKO Nakano-Miyatake (INSTITUTO POLITECNICO NACIONAL); Toru Nakashika (The University of Electro-Communications, Tokyo); Hector Perez-Meana (INSTITUTO POLITECNICO NACIONAL)*

Sept. 22, Wednesday

< Room A >

Mexico Cancun Time (UTC-5, JST-14)
AM 2:30-4:00  (UTC: AM 7:30-9:00 Sept.22, JST: PM 4:30-6:00, Sept.22)

Software System with Intelligent Design
(Paper ID #51) Short paper: Feature Reuse Across Software Releases during Software Evolution
Cezary Boldak (Bialystok University of Technology)*; Stan Jarzabek (Technical University of Bialystok); Junling SEOW (National University of Singapore)

(Paper ID #3) Short Paper: Protection of Mathematical Formulas using Function Invariants
Arkadiusz Liber (Wroclaw University of Science and Technology)*

(Paper ID #4) Short paper: Software Protection of Smart Household Appliances Against Over-exploitation
Arkadiusz Liber (Wroclaw University of Science and Technology)*

AM 4:00-5:30  (UTC: AM 9:00-10:30 Sept.22, JST: PM6:00-7:30, Sept.22)

Session Chair: Dr. Arkadiusz Liber

(Paper ID #5): Algorithmic Methods of Hidden Communication Through Buy Orders and Sales on International Stock Exchanges
Arkadiusz Liber (Wroclaw University of Science and Technology)*
(Paper ID #17) Short paper: SELM: Software Engineering of Machine Learning Models
Nafiseh Jafari (Malek Ashtar University of Technology); Mohammad Reza Besharati (Sharif University of Technology)*; Mohammad Izadi (Sharif University of Technology); Maryam Hoorali (Malek Ashtar University of Technology)

(Paper ID #1): Generating program identifier dictionary for maintaining legacy systems
Ryo Soga (Hitachi, Ltd.)*; Genta KOREKI (Hitachi, Ltd.)*; Hideyuki Kanuka (Hitachi, Ltd.) Akira IOKU (Hitachi, Ltd.)*; Jun MAEOKA (Hitachi, Ltd.)*

Mexico Cancun Time (UTC-5, JST-14)
PM 7:00-8:00 (UTC: AM 0:00-1:00 Sept.23, JST: AM 9:00-10:00, Sept.23)

Keynote Speech II
Session Chair: Prof. Hector Perez-Meana
“Investigating and Mitigating the Bias in Textual Datasets for Causal Learning”
Prof. Wang Yinglin

PM 8:00-9:30 (UTC: AM 1:00-2:30 Sept.23, JST: AM 10:00-11:30, Sept.23)

Session Chair: Mr. Haonan Mao

Machine learning in Systems Software
(Paper ID #41): The Construction and Application of Online Programming Learning System With Interactive Video Based on Semantic Web
kaiyu dai (Fudan University)*; Haonan Mao (Fudan University); Zhang Rui (Fudan University)

(Paper ID #55): Similarity Learning for CNN-based ASL Alphabet Recognition
Atoany Nazareth Fierro Radilla (Universidad Panamericana); Karina Ruby PEREZ DANIEL (Universidad Panamericana); Gibran Benitez-Garcia (The University of Electro-Communications)*; Pedro NAJERA GARCIA (Tecnologico de Monterrey); Ramona FUENTES VALDEZ (Tecnologico de Monterrey)

(Paper ID #56): Fingerprint Recognition System Based on Bifrcation Minutiae
Alberto A Vargas-Mata (Instituto Politécnico Nacional)*; Jesus Olivares-Mercado (INSTITUTO POLITECNICO NACIONAL); Karina Toscano-Medina (INSTITUTO POLITECNICO NACIONAL); Gabriel Sanchez (Instituto Politécnico Nacional); Hector Perez-Meana (INSTITUTO POLITECNICO NACIONAL)

< Room B>

Mexico Cancun Time (UTC-5, JST-14)
AM 2:30-4:00 (UTC: AM 7:30-9:00 Sept.22, JST: PM 4:30-6:00, Sept.22)

Session Chair: Prof. Igor Kotenko

Software System with Intelligent Design
(Paper ID #30): The Bane of Generate-and-Validate Program Repair: Too Much Generation, Too Little Validation
Besma Khairedinne (University of Tunis); Aleksandr Zakharchenko (New Jersey Institute of Technology (NJIT)); Ali Mili (New Jersey Institute of Technology, Newark NJ USA)*

(Paper ID #34): LSTM Neural Networks for Detecting Anomalies caused by Web Application Cyber Attacks
Igor Kotenko (St. Petersburg Federal Research Center of the Russian Academy of Sciences (SPC RAS))*; Oleg Lauta (The Admiral Makarov State University of Maritime and Inland Shipping); Kseniya Kribel (Saint-Petersburg Signal Academy); Igor Saenko (St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences (SPIIRAS))

Formal Techniques for System Software and Quality assessment
(Paper ID #71): Engineering Platform as Integrated Software for Model Mediated Research
Horvath Laszlo (Obuda University)*

AM 4:00-5:30 (UTC: AM 9:00-10:30 Sept.22, JST: PM 6:00-7:30, Sept.22)

Session Chair: Prof. Jun Sasaki
**Applied intelligence in Software**  
(Paper ID #8): Introducing Interactivity in Disaster Recovery Simulations  
Mina Abadeer (University of Muenster)*; Sameh Magharious (Dell Technologies); Sergei Gorlatch (University of Muenster)

(Paper ID #9): An ontology for modeling Vehicle Routing Problems  
sirine belguith (IsitCom hamem sousse)*; Soulef khalfallah (isgSousse); Ouajdi KORBAA (ISITCOM)

(Paper ID #44): A Deep Transfer Learning Approach for Flow-based Intrusion Detection in SDN-enabled Network  
The Duy Phan (University of Information Technology)*; Hoang Khoa Nghi (Information Security Laboratory, University of Information Technology, VNU-HCM); Hiep Hoang (Information Security Laboratory, University of Information Technology, VNU-HCM); Ba Tuan Nguyen (Information Security Laboratory, University of Information Technology, VNU-HCM); Thi Hien Do Thi (Information Security Laboratory, University of Information Technology, VNU-HCM); Van-Hau Pham (Information Security Laboratory, University of Information Technology, VNU-HCM)

Mexico Cancun Time (UTC-5, JST-14)  
PM 8:00-9:30 (UTC: AM 1:00-2:30 Sept.23, JST: AM 10:00-11:30, Sept.23)  
**Session Chair: Dr. Jaouhar Fattahi**

**Software System with Intelligent Design**  
(Paper ID #62): A massively parallel approach to automated software correctness enhancement in Java  
Aleksandr Zakharchenko (New Jersey Institute of Technology (NJIT))*; Besma Khaireddine (University of Tunis); Ali Mili (New Jersey Institute of Technology, Newark NJ USA)

(Paper ID #64): Cyber Racism Detection Using Bidirectional Gated Recurrent Units and Word Embeddings  
Jaouhar Fattahi (Université Laval)*; Marwa Ziadia (Laval University); Mohamed Mejri (Laval University)

**Formal Techniques for System Software and Quality assessment**  
(Paper ID #66)  
**Toward the formalization of Business Process Model and Notation**  
Honore Hounwanou (Laval University)*; Laila Boumlik (Laval University); Mohamed Mejri (Laval University)

Mexico Cancun Time (UTC-5, JST-14)  
AM 2:30-4:00 (UTC: AM 7:30-9:00 Sept.22, JST: PM 4:30-6:00, Sept.22)  
**Session Chair: Dr. Ghassen Hamdi**

**Formal Techniques for System Software and Quality assessment**  
(Paper ID #13): Building Normalized Systems from Domain Models in Ecore  
Marek Suchánek (Czech Technical University in Prague)*; Herwig Mannaeert (University of Antwerp); Peter Uhňák (NSX bvba); Robert Pergl (Czech Technical University in Prague)

(Paper ID #14): New Model for Handling Inconsistency Issues in DL-Lite Knowledge Bases  
Ghassen Hamdi (MARS Research Laboratory, University of Sousse, Tunisia)*; Mohamed Nazih Omni (University of Sousse)

(Paper ID #27): Formal Event-8 Modeling of the MICONIC Application  
Sabrine Ammar (MIRACL, The Faculty of Economics and Management of Sfax)*; Mohamed Tahar BHIRI (MIRACL, Faculty of Science of Sfax)

AM 4:00-5:30 (UTC: AM9:00-10:30 Sept.22, JST: PM6:00-7:30, Sept.22)  
**Session Chair: Dr. Andres Hernandez-Matamoros**

(Paper ID #31): Integrating Quality Assessment through Metrics into Scrum Software Development  
Sirine Zaouali (Higher Institute of Computer Science and Communication Techniques of Hammam Sousse)*; Sonia Ayachi Ghannouchi (ISG Sousse,RIADI Laboratory ENSI Manouba)
(Paper ID #57): Effort estimation in agile software development: A systematic mapping study
Nour elhouda Farih (Ibnt tofail University)*; Khalid Nafil (University Mohammed V in Rabat); Rochdi Messoussi (Ibn tofail university in Kenitra)

Knowledge Science and Intelligent Computing
(Paper ID #52): Incorporating Attention Mechanism in Enhancing Classification of Alzheimer’s Disease
Nur Amira Abd Hamid (MIIT)*; Mohd. Shapiai (Universiti Teknologi Malaysia (UTM)); Uzma Batool (Universiti Teknologi Malaysia)

Sept. 23, Thursday

Mexico Cancun Time (UTC-5, JST-14)
AM 2:30-4:00 (UTC: AM 7:30-9:00 Sept.23, JST: PM 4:30-6:00, Sept.23)  
Session Chair: Dr. Wided Ben Abid

Ontology in data and software
(Paper ID #60) Short paper: A BPM-based agile approach to ensure adaptive learning
Nisseb Bergaoui (High Institute of Applied Sciences and Technology of Sousse- University of Sousse); Sonia Ayechi Ghannouchi (High Institute of Management of Sousse-University of Sousse, Tunisia Laboratory RIADI-GDL-University of Manouba)

(Paper ID #68): Semantics-Based Scheduling Approach of Ontology-Based Real-Time DBMS
Fehima Achour (MIRACL Laboratory, the Higher Institute of Computer Science and Multimedia)*; Wassim JAZIRI (The College of Computer Science and Engineering, Taibah University); Emna BOUAZIZI (College of Computer Science and Engineering, University of Jeddah)

(Paper ID #69): Ontological Data Replication in a Distributed Real-Time Database System
Wided Ben Abid (University of Sfax, Laboratory MIRACL, the Higher Institute of Computer Science and Multimedia)*; Mohamed BEN AHMED MHIRI (University of Sfax, Laboratory MIRACL, the Higher Institute of Computer Science and Multimedia); Emna BOUAZIZI (College of Computer Science and Engineering, Jeddah University); Faiez GARGOURI (University of Sfax, Laboratory MIRACL, the Higher Institute of Computer Science and Multimedia)

AM 4:00-5:30 (UTC: AM 9:00-10:30 Sept.23, JST: PM 6:00-7:30, Sept.23)  
Session Chair: Prof. Guido Guizzi

(Paper ID #70): A performance-based dispatching rule for decentralised manufacturing planning and production control system
Maria Grazia MARCHESANO (Università degli Studi di Napoli Federico II)*; Silvestro VESPOLI (Università degli Studi di Napoli Federico II); Guido Guizzi (Università degli Studi di Napoli Federico II); Valentina POPOLO (Università degli Studi di Napoli Federico II), Andrea GRASS (Università degli Studi di Napoli Federico II)

(Paper ID #48): An Efficient Cloud Framework for Multi-robot System Management
Raihan Kabir (Department of Computer Science and Engineering, University of Aizu)*; Yutaka Watanobe (The University of Aizu); Keita Nakamura (The University of Aizu); Dr. Md. Rasheedul Islam (University of Asia Pacific)

(Paper ID #49): Vietnamese Complaint Detection on E-Commerce Websites
Nhung Thi Hong Nguyen (University of Information Technology, VNU-HCM)*; Phuong Dieu Ha (University of Information Technology, VNU-HCM); Luan Thanh Nguyen (University of Information Technology, VNU-HCM); Kiet Van Nguyen (University of Information Technology, VNU-HCM); Nguyen Luu Thuy Nguyen (Ho Chi Minh City University of Information Technology)

PM 7:00-8:30 (UTC: AM 0:00-1:30 Sept.24, JST: AM 9:00-10:30, Sept.24)  
Session Chair: Dr. Arvind Dhaka

Knowledge Science and Intelligent Computing
(Paper ID #54): Brain Tumor Classification using Modified VGG model-based Transfer Learning Approach
Arvind Dhaka (Manipal University Jaipur); Arpit Kumar Sharma (Manipal University Jaipur); Amita Nandal (Manipal University Jaipur); Liang Zhou (Center for Medicine Intelligent and Development, China Hospital Development Institute, Shanghai Jiao Tong University, Shanghai, China); Tao Wu (Shanghai University of Medicine and Health Sciences, Shanghai, China)

(Paper ID #72): Complementary Object Tracking using Average Peak-to-Correlation Energy
Kosuke Honda (Iwate Prefectural University), Hamido Fujita (Iwate Prefectural University)

(Paper ID #73): Experiment of OCITN: Considering appropriate goal images and metric for One-class Image Transformation Network
Toshitaka Hayashi (Iwate Prefectural University), Hamido Fujita (Iwate Prefectural University)

PM 8:30-9:00 (UTC: AM 1:30-2:00 Sept.24, JST: AM 10:30-11:00, Sept.24)
Session Chair: Prof. FUJITA Hamido

Closing
- Best Paper Awards Ceremony
- Announcement of the next SOMET 2022

< Room B>

Mexico Cancun Time (UTC-5, JST-14)
AM 2:30-4:00 (UTC: AM 7:30-9:00 Sept.23, JST: PM 4:30-6:00, Sept.23)
Session Chair: Prof. Xing Wu

Applied intelligence in Software
(Paper ID #12): Towards a new approach for Intelligent BPM based on Technologies 4.0
Sarra MEJRI (Higher Institute of Computer and Communication Technologies)*; Sonia Ayachi Ghannouchi (ISG Sousse, RIADI Laboratory ENSI Manouba)

Intelligent Decision Support Systems
(Paper ID #40): Improving Euclidean’s consensus degrees in group decision making problems through a Uniform extension
Juan Miguel Tapia (University of Granada)*; Maria Jose Del Moral Avila (UGR); Francisco Chiclana (De Montfort University, UK); Enrique Herrera-Viedma (University of Granada)

Xing Wu (Shanghai University); Feixiang Liu (Shanghai University)*; Yue Zhao (Northwest University of Technology); Ming Zhao (CSSC Ocean Exploration Technology Institute Co., Ltd.)

AM 4:00-5:30 (UTC: AM 9:00-10:30 Sept.23, JST: PM 6:00-7:30, Sept.23)
Session Chair: Prof. Jun Sasaki

Intelligent Decision Support Systems
(Paper ID #35): An Empirical Investigation of Online News Classification on an Open-domain, Large-scale and High-quality Dataset in Vietnamese
Khanh Quoc Tran (University of Information Technology, VNU-HCM)*; Phap Ngoc Trinh (University of Information Technology, VNU-HCM); Khoo Nguyen-Anh Tran (University of Information Technology, VNU-HCM); Le Hoai Tran An (HCM VNU - UIT); Luân Văn Hà (University of Information Technology, VNU-HCM)

(Paper ID #38) Short paper: Proctors Assignment at the University of Information Technology - VNU HCM
Y Thiên Huynh (University of Information Technology, Vietnam National University)*; Son-Lam NGUYEN (University of Information Technology, Vietnam National University); Hoang-Long NGUYEN (University of Information Technology, Vietnam National University); Trong-Ho Do (University of Information Technology, Vietnam National University); Thanh Binh NGUYEN (University of Information Technology, Vietnam National University)

(Paper ID #53): Skeleton-based Action Recognition with Joint Coordinates as Feature using Neural Oblivious Decision Ensembles
Mexico Cancun Time (UTC-5, JST-14)
AM 2:30-4:00 (UTC: AM 7:30-9:00 Sept.23, JST: PM 4:30-6:00, Sept.23)

Knowledge Science and Intelligent Computing
(Paper ID #45): A Deep Local and Global Scene-Graph Matching for Image-Text Retrieval
Manh-Duy Nguyen (Dublin City University)*; Thanh Binh Nguyen (University of Science); Cathal Gurrin (Dublin City University)

(Paper ID #46): Analysing the Performance of Stress Detection Models on Consumer-Grade Wearable Devices
Tu Van Ninh (DCU)*; Sinead Smyth (Dublin City University); Minh-Triet Tran (University of Science, VNU-HCM); Cathal Gurrin (Dublin City University)

Machine learning in Systems Software
(Paper ID #58): Problem of Inconsistency and Default Consistency Rules
David Šenkýř (Faculty of Information Technology, CTU in Prague)*; Petr Kroha (Faculty of Information Technology, CTU in Prague)

AM 4:00-5:30 (UTC: AM 9:00-10:30 Sept.23, JST: PM6:00-7:30, Sept.23)

Document analytics based Systems
(Paper ID #39): An Effective AQI Estimation Using Sensor Data and Stacking Mechanism
Thanh Binh Nguyen (University of Science)*; Minh-Son Dao (National Institute of Information and Communications Technology); Hien D. Nguyen (University of Information Technology); Minh Quang Le (University of Science, Ho Chi Minh City); Tan Loc Nguyen Tai (University of Information Technology, Ho Chi Minh City)

(Paper ID #50): Cavitation Flow Simulation and Experiment Research in Inducer
Liang Zhou (Center for Medicine Intelligent and Development, China Hospital Development Institute, Shanghai Jiao Tong University); Longxian Li (Beijing Aerospace Propulsion Institute); Kexin Li (Center for Medicine Intelligent and Development, China Hospital Development Institute, Shanghai Jiao Tong University) *

Mexico Cancun Time (UTC-5, JST-14)
PM 7:00-8:30 (UTC: AM 0:00-1:30 Sept.24, JST: AM 9:00-10:30, Sept.24)

Session Chair: Dr. Thi-Mai-Anh Bui

(Paper ID #61): Adaptive Ranking Relevant Source Files for Bug Reports Using Genetic Algorithm
Thi-Mai-Anh Bui (SOICT, HUST)*; Nguyen Nhat Hai (SOICT, HUST)

(Paper ID #67): Multi-level Sentiment Analysis of Product Reviews based on Grammar Rules of Language
Hien D. Nguyen (University of Information Technology)*; Thanh Le (University of Information Technology, VNU-HCM); Khiem Tran (University of Information Technology, VNU-HCM); Son Loo (University of Information Technology, VNU-HCM); Suong Hoang (Olli Technology); Hieu Phan (University of Information Technology, VNU-HCM)

Knowledge Science and Intelligent Computing
(Paper ID #42): Emotion Regulation Music Recommendation based on Feature Selection
Xiaoliang Gong (Tongji University); Ruiyi Yuan (Tongji University); Hui Qian (Tongji university); Yufei Chen (Tongji University)*; Anthony G Cohn (University of Leeds)