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COMPSAC 2024
Digital Development for a Better Future
Osaka, Japan | July 2-4

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COMPSAC 2024 will be hosted at Osaka University. It is one of Japan’s former Imperial Universities and a Designated National University[6] listed as a “Top Type” university in the Top Global University Project. The university is often ranked among the top three public universities in Japan, along with the University of Tokyo and Kyoto University. It is ranked third overall among Japanese universities and 75th worldwide in the 2022 QS World University Rankings.

Osaka University was one of the earliest modern universities in Japan at its founding in 1931. The history of the institution includes much older predecessors in Osaka such as the Kaitokudō founded in 1724 and the Tekijuku founded in 1838. In 2007, it merged with Osaka University of Foreign Studies and became the largest national university in Japan.

Osaka University is one of the most productive research institutions in Japan. Numerous prominent scholars and scientists have attended or worked at Osaka University, such as Nobel Laureate in Physics Hideki Yukawa, manga artist Osamu Tezuka, Lasker Award winner Hidesaburō Hanafusa, author Ryōtarō Shiba, and discoverer of regulatory T cells Shimon Sakaguchi.

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Welcome to Osaka, Japan, and COMPSAC 2024. After more than four years of “turmoil,” we are all delighted to once again be back to a fully in-person conference. While most of that turmoil has been pandemic-induced, there have also been international disruptions. Many COMPSAC volunteers wondered how all this turmoil would manifest itself in terms of this year’s registrations. I, as usual, worried about the worst case. After all, in addition to conducting a very high-quality conference, I also feel the burden of ensuring that COMPSAC is a financial success for the IEEE Computer Society. Over the years, we’ve managed to do both. And it appears that this year, while all the numbers aren’t in as I write this, we have continued that trend. In fact, I have been pleased and amazed at the number of high-quality submissions we have received.

In early planning for the worst case, we decided this year to adopt last year’s 3-day conference format in which we schedule about eight parallel sessions each day. Plenary keynote speakers and panelists replace some of those sessions. This year, to accommodate the increased submission rate (with no change in acceptance rates) and to maintain that 3-day format, we now have 10+ parallel sessions. Next year we are planning a 4-day conference to give you more time to attend more sessions.

This year’s parallel sessions are held at the Nakanoshima Center of Osaka University, with plenary sessions immediately next door at the Osaka Nakanoshima Museum of Art. These sites were carefully chosen to provide attendees with a convenient introduction to the history of Japanese institutions of higher learning as well as a sense of contemporary Japanese Culture. The University’s history goes back to 1724, and the Museum opened in 2022 – almost 300 years later!

Over the last few years, I’ve documented the volume of emails I receive regarding COMPSAC, illustrative of the incredible work our tireless volunteers do to make this a successful conference. And this year is no different. As of today, I have received almost 4000 emails related to COMPSAC 2024. These started to arrive in May 2023, before the start of last year’s Turin conference! Emails regarding 2025 and even 2026 have already begun flowing. But more about 2025 later.

Last year, IEEE ITPro magazine held its first mini editorial board (EB) meeting at COMPSAC in Turin. That resulted in a subsequent “full” EB meeting in Washington, DC, in December. Unfortunately, despite having traveled to DC to that meeting, I was forced to attend from my hotel room, having contracted COVID while there! But through the year, ITPro’s Editor-in-Chief (EIC) and chair of the ITiP symposium, Charalampos Z. Patrikakis (Babis), worked with our Proceedings/Publications Chair, Hessain Shahriar, to select and coordinate four ITiP-accepted papers for inclusion in upcoming issues of ITPro. Those papers will be referenced in COMPSAC’s 2024 proceedings but archived in IEEE Xplore as part of the magazine’s portfolio. This activity stemmed directly from our JC/CJ Program - “Special Opportunity for Authors,” shown on our conference’s homepage and led by our dedicated volunteers, Atilia Elci and Hasan Kalyoncu.

COMPSAC has continued over its almost 50-year history to be recognized as a high-quality conference with a submission acceptance rate under 25%. Every submitted article receives at least three reviews - more than many other articles archived in IEEE Xplore. The coordination of the intense and extensive review process, for which we all owe a debt of gratitude is the result of the hard work of our General Chairs (Ali Hurson, Shinji Shimojo), Program Chairs in Chief (Hiroyuki Ohsaki, Moushumi Sharmin, Dave Towey), Workshop Chairs (AKM Jahangir Alam Majumder, Yoshiaki Hori, Ji-Jiang Yang), Fast Abstract Chairs (Michiharu Takemoto, Nazmus Sakib), Student Research Symposium Chairs (Teodoro Montanaro, Ryohei Banno, Ryo Nakamura), and Conference Technical Chairs (Golam Mushih Tanimul Ahsan, Paramita Basak Upama).

Over the last few months, we all have received “a few” email reminders about COMPSAC’s (ever-changing) submission deadlines, etc. For those and other publicity-related matters that have resulted in our great success this year, we can thank our Social Media Chair (Tashaffi Samin Yeasar), Publicity Chairs (Maria Valero, Paramita Basak Upama), and our longstanding and (usually) ever-patient webmaster, Laurel Ming.

An annual highlight of COMPSAC is our plenary keynote speakers and panels. While we have a compressed 3-day format this year, we continue to highlight very special keynote speakers every day of the conference. The esteem in which others hold COMPSAC is again reflected in the quality of our keynoters: Tom Coughlin (2024 IEEE President & CEO) and Computer Society Presidents Emeriti, Jean-Luc Gaudiot (2016), and Hironori Kasahara (2018).

For the past few years, including before and through the pandemic, a conference highlight has been the IEEE Future Directions Committee’s plenary panel on a contemporary tech topic. This year, again, our very good friend Kathy Grise, IEEE Senior Program Director (and Data Sciences, Analytics, and Technologies symposium chair), brought together...
subject matter experts Carolyn McGregor, Nicholas Napp, Louis Nisiotis, and our longstanding friend May Wang, for the very timely panel, “Highlighting Public Safety Technologies and its Applications for a Better Future.”

Last but not least is a special plenary session, whose importance and relevance are so essential these days that we worked assiduously to fit it into our bulging and compressed schedule. “Building an Inclusive Metaverse: Opportunities, Challenges, and Strategies for Diversity, Equity, and Inclusion (DEI)” organized by Panel Moderator Jeewika Ranaweera, with panelists Tom Coughlin, Kathy Grise, Hironori Washizaki (Computer Society President-Elect), and Yoshiko Yasuda, is being shepherded (chaired) by Jean-Luc Gaudiot.

There are some folks and supporters without whom we would have difficulty bringing you this year’s conference. We owe great thanks to our sponsors, all listed on our website homepage and via the Sponsor tab there. I owe a special thanks to Esther Bai, the IEEE CS staff liaison, and to my two Standing Committee Vice Chairs, Sheikh Iqbal Ahamed and Mohammad Zulkernine – all of whom bring voices of reason to this event. Finally, there is someone whose outstanding work this year has been essential for making COMPSAC 2024 a reality: our Location Chair, Tomoki Yoshihisa. There are not enough words for me to describe his leadership, coordination, and dedication, which have enabled us to hold the conference at Osaka University. Be sure to thank him and show your appreciation for his contributions when you see him at the conference. I certainly will. At the same time, we must also acknowledge our gratitude to Osaka University for hosting COMPSAC 2024 and our years-long support from the Information Processing Society of Japan (IPSJ) whose award ceremony we host at our Wednesday evening banquet.

Returning to an in-person conference has many, many benefits. In the NY Times article “My Secret to Creative Rejuvenation? Conferences” (May 21, 2024), Julia Cho describes the value of escaping the boredom of our day-to-day responsibilities and rejuvenating by attending conferences. And Elizabeth George cites “10 Benefits of Attending Academic Conferences” (https://researcher.life/blog/article/benefits-of-attending-academic-conferences/), almost none of which can be realized through virtual attendance. Most of our Osaka attendees seem to understand those benefits without reading those articles! But read them anyway and find out how smart you are about meeting us in Osaka this year.

But what about next year? COMPSAC 2025 will be a 4-day conference, in-person only, and hosted by York University in Toronto, Canada – my own “home and native land” and also my hometown. So, start planning to visit a great university in a great city in a great country in the second week of July 2025. In the meantime, enjoy Osaka. Learn a lot and have fun.

Sorel Reisman
COMPSAC Steering Committee Chair
Message from the Standing Committee Vice Chairs
Sheikh Iqbal Ahamed & Mohammad Zulkernine

On behalf of the COMPSAC 2024 organization we would like to welcome you to the 48th Annual IEEE International Computers, Software, and Applications Conference (COMPSAC 2024), July 2-July 4, 2024. COMPSAC, the IEEE Computer Society Signature Conference on Computers, Software, and Applications, was first held in 1977 in Chicago. In the years since its founding, it has become one of the major international forums for academia, industry, and government to discuss research results, advancements and future trends in computer and software technologies and applications.

The technical program includes research papers, research and industry panel discussions, fast abstracts, student research symposiums, and workshops on emerging important topics. It now alternates its meeting among sites in Asia, Europe, and North America. Over the years, its meetings have advanced the major topics in computing and software development. But, during 2020-2022, we had COMPSAC virtually due to the global COVID-19 pandemic, while in 2023 we organized it as hybrid. We have this 2024 edition in person. The theme of COMPSAC 2024 is “Resilient Computing and Computing for Resilience in a Sustainable Cyber-Physical World”. It supports research and development of general methodology for data driven intelligence, digital transformation and a consideration of emerging applications for deployment, including Smart Health devices, networked healthcare, wearable computing, internet-of-things, cyber-physical systems, smart cities, and smart planet.

COMPSAC is a premier global forum for crosscutting computing research, practice and education. In its long history with the Computer Society, COMPSAC has established a strong reputation as a meeting with high quality technical content and wide-ranging discussion of technical issues. It is also known as a well-planned, well-organized, well-attended, and well-managed event. The COMPSAC conference program is supported by several international societies including the Information Processing Society of Japan (IPSJ), and China Computer Federation (CCF), and several special technical communities such as Big Data from the IEEE Computer Society.

As a result, the conference will host 13 symposiums, 30+ workshops, including a major workshop on Big Data and Artificial Intelligence, Fast Abstract, and Student Research Symposium. In addition, it will present plenary panel on future trends that will provide an international perspective on the conference theme. Finally, it will also bring together funding agency and industry representatives from across the globe to address their vision for Digital Development for a Better Future. Digital Development at COMPSAC 2024 will focus on research and development of computing technologies for their eventual integration into all aspects of society. COMPSAC 2024 will bring together researchers, developers, practitioners, and policymakers worldwide to discuss their latest advances in their fields and the challenges they face.

COMPSAC received outstanding support from organizing committee and program committee members. Local arrangement committee has done an excellent job. Thank you to all volunteers for their work! We will continue to have COMPSAC in person in 2025!

Sheikh Iqbal Ahamed, Marquette University, USA
Mohammad Zulkernine, Queen’s University, Canada
COMPSAC Standing Committee Vice Chairs
Welcome to COMPSAC 2024, the 48th IEEE Computer Society International Conference on Computers, Software & Applications. Our theme for this year is “Digital Development for a Better Future.” Digital Development at COMPSAC 2024 focuses on the research and development of computing technologies for their eventual integration into all aspects of society. COMPSAC 2024 brings together researchers, developers, practitioners, and policymakers from all around the world to discuss the latest advances in their fields and the challenges that they face.

Examples of those fields include but are not limited to, content in the Symposia tracks: computer architectures and platforms, computing education and learning technologies, data sciences, analytics and technologies, emerging advances in technologies and applications, human computing and social computing, IT in practice, mobile, wearable and ubiquitous computing, networks, communications, internet and web technologies, smart and connected health, security, privacy and trust in computing, software engineering technologies and applications, and smart IOT systems and applications. This year, we have organized a tightly integrated union of 13 symposia, each dedicated to a specific technical segment. Additionally, we will have keynote addresses, fast abstract sessions, workshops, and a student research symposium, all of which foster discourse and enhance our understanding of the challenges we face, thereby contributing to the advancement of computing systems.

We received 296 submissions this year. For the symposia, each submission underwent double-blind review by at least three members of the Technical Program Committee. Symposia Chairs then recommended to the entire Program Committee which papers to accept as regular or short papers. At the Program Committee meeting in April, we accepted 71 full papers (24.0%), and 85 short papers. Of the 296 submissions to the Symposia, 45 papers that received favorable reviews (but were not accepted in the main conference) were transferred to COMPSAC workshops. Yet another 10 papers were recommended for publication as fast abstracts or student research symposium papers.

We extend our heartfelt gratitude to the authors of each submission, to the dedicated members of the Organizing Committee, and to the Program Committee Members who volunteered their time, expertise, and effort to peer-review each paper. Special thanks are due to those members who attended the virtual Program Committee meeting. We are grateful to the Workshop Chairs, AKM Jahangir Alam Majumder, Yoshiaki Hori, and Ji-Jiang Yang, who have done an outstanding job coordinating 31 workshops this year. We would also like to thank the General Chairs, Ali Hurson and Shinji Shimojo, for their support and encouragement; and the Special Advisor, Yuichi Teranishi for all his excellent help. Last, but not least, we are grateful for the leadership, guidance, and tireless support of our Standing Committee Chair, Sorel Reisman and our Standing Committee Vice Chairs, Sheikh Iqbal Ahamed and Mohammad Zulkernine. Decades of their effort have left an indelible imprint on COMPSAC as a conference, and on us as members of the COMPSAC community.

Hiroyuki Ohsaki, Kwansei Gakuin University, Japan
Moushumi Sharmin, Western Washington University, USA
Dave Towey, University of Nottingham Ningbo China, China
It is our great pleasure to welcome you to the workshops of the 48th IEEE International Conference on Computers, Software, and Applications (COMPSAC 2024), which is held in the Osaka, Japan, on July 2 – 4, 2024. The theme of COMPSAC 2024 is “Digital Development for a Better Future”. The IEEE COMPSAC is well established in its 48th edition as a highly reputed conference in the field of computer software and applications. Digital development at COMPSAC 2024 will focus on research and development of computing technologies for their eventual integration into all aspects of society.

The goal of this conference is to identify challenging problems, and to shape future research directions through the publication of high quality, theoretical and applied research outcomes. Also, COMPSAC 2024 will bring together researchers, developers, practitioners, and policymakers worldwide to discuss their latest advances in their fields and the challenges they face. IEEE COMPSAC 2024 highlights the advances in the frontiers and applications of wide-ranging areas such as computer software applications, wireless and sensor networks, mobile and distributed computing, embedded systems, big data analytics, cybersecurity, cyber-physical systems (CPS) security, and Internet of Things (IoT) security. COMPSAC is uniquely placed to deliver fresh perspectives on software applications and systems.

This year the COMPSAC conference includes 31 workshops covering different aspects of developing computer software applications. The workshops nicely complement the main conference and they together create an exciting scientific program for 3 days. According to the COMPSAC tradition, workshops are held during the three days of conference during which researchers and practitioners will interact and address the challenges of, find potential solutions for, and share experiences with the development, release, and testing of robust software for applications and systems. It will also help to build connections among various communities.

The Lion’s Share of contribution to the workshops comes from the linkage with the main research focus of COMPSAC, especially along the software engineering and development aspect. There are four related workshops, namely, “Quality Oriented Reuse of Software (QUORS)”, “Security Aspects in Processes and Services Engineering (SAPSE)”, “Software Test Automation (STA)”, and “Security, Trust, and Privacy for Software Applications (STPSA)”.

In response to the smart computing theme this year, i.e., resilient computing and computing for resilience in a sustainable cyber-physical world, there are three related workshops: “Deep Analysis of Data-Driven Applications (DADA)”, “Workshop on Medical Computing (MediComp)”, Workshop on “Intelligent Robotics and IoT for Next-Gen Healthcare (IRINH)”, and “Workshop on Digital and Public Health (DIGI-HEALTH)”. The workshops with related scope such as “Advances in AI and Machine Learning: Research & Practice (AIML)”, “Smart Computing & Applications (SCA)” also successfully contributed to the sessions in the workshops.

Emerging technologies, networking, and applications form the third pillar in COMPSAC tradition with more than half of the contributions. We are pleased to report that the workshops in COMPSAC 2024 are well-balanced as well as highly interesting. We believe that the topics covered by the workshops are closely related to those contained in the main conference. We hope COMPSAC to be a highly stimulating event to foster interesting conference as well as useful interaction between researchers and practitioners, and to provide an excellent forum for exchanging and developing new ideas.

We express our gratitude to the authors for their submissions contributed to our workshop. Each submission was reviewed by at least two-three referees, and we also appreciate the referees for their great effort and hard work in the paper reviewing. After a rigorous reviewing procedure, 175 papers were selected to give an oral presentation during the workshop. The topics of the presentations cover image processing, intelligent control, digital twin technology, data perception, etc. This year 26 papers are transferred from the main conference to the workshops.

We greatly thank all authors of submitted papers to the workshops for their support of the conference. The selection process was carefully carried out by the workshop organizers. We would like to thank the organizers of all workshops and the program committee members of workshops for their efforts and exceptional job, despite working under a very short review cycle. Also, we would like to thank all people involved in organizing COMPSAC 2024 and standing committees for their help, to make COMPSAC 2024 a success.

It was our great honor and pleasure to accept the responsibilities and challenges of Conference Workshop Chairs. We trust that you will enjoy the academic program within COMPSAC 2024 and the location!

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Tom Coughlin, President, Coughlin Associates is a digital storage analyst and business and technology consultant. He has more than 40 years in the data storage industry with engineering and senior management positions at several companies.

An IEEE Life Fellow, Dr. Coughlin has many publications and six patents. He is also the author of Digital Storage in Consumer Electronics: The Essential Guide, which is now in its second edition with Springer. Tom is a regular storage and memory contributor for forbes.com and media and entertainment organizations. Coughlin Associates consults and publishes books and market and technology reports, including The Media and Entertainment Storage Report and an Emerging Memory Report, and puts on digital storage-oriented events.

Tom has served in numerous IEEE volunteer leadership roles, including President of IEEE-USA, Director of IEEE Region 6, Vice President and Board member of the IEEE Consumer Technology Society, Chair of the Santa Clara Valley IEEE Section, and Chair of the Consultants Network of Silicon Valley. He is also active with the Storage Networking Industry Association (SNIA) and the Society of Motion Pictures and Television Engineers (SMPTE).
Jean-Luc Gaudiot, a professor of electrical engineering and computer science at the University of California, Irvine, has served the Computer Society for many years in a variety of offices, which has given him experience in many activities of the Society. He currently serves as a Vice President for Publications and is on the Board of Governors. He was 2013 Vice President for Educational Activities. He was a founder and the first editor in chief of IEEE Computer Architecture Letters and IEEE Transactions on Computers, chair of the IEEE Computer Society Technical Committee on Computer Architecture for two terms, and program committee and general chair of many major conferences. Gaudiot is a Computer Society Golden Core member and a Fellow of the IEEE and the AAAS.

Before joining UCI in 2002, where he was department chair for six years, Gaudiot was a professor of electrical engineering at the University of Southern California. His industrial experience includes software engineering at Teledyne Controls and design of innovative processor architectures at TRW. Gaudiot has more than 250 refereed publications in the field of computer architecture. He has a PhD in computer science from the University of California, Los Angeles.
Hironori Kasahara is a Senior Executive Vice President at Waseda University. He was the IEEE Computer Society president in 2018 and a member of the Executive Committee from 2017 through 2019, Board of Governors from 2009 through 2014. He is an IEEE Fellow, an IPSJ Fellow, a Golden Core Member of the IEEE Computer Society, a professional member of the IEEEEta Kappa Nu, and a member of the Engineering Academy of Japan and the Science Council of Japan. He received a PhD in 1985 from Waseda University, joined its faculty in 1986, and has been a professor of computer science since 1997 and a director of the Advanced Multicore Research Institute since 2004. He was a visiting scholar at the University of California, Berkeley, and the University of Illinois at Urbana–Champaign’s Center for Supercomputing R&D. He has served as a chair or member of 250 society and government committees, including a member of the CS Board of Governors and Executive Committee; chair of CS Planning Committee, Constitution & Bylaws Committee, Multicore STC, and CS Japan chapter; associate editor of IEEE Transactions on Computers; vice PC chair of the 1996 ENIAC 50th Anniversary International Conference on Supercomputing; general chair of LCPC; PC member of SC, PACT, and ASPLOS; board member of IEEE Tokyo section; and member of the Earth Simulator and K supercomputer committees. Kasahara received Spirit of IEEE Computer Society Award. CS Golden Core Member Award, IFAC World Congress Young Author Prize, Sakai Special Research Award, and the Japanese Minister’s Science and Technology Prize. He led Japanese national projects on parallelizing compilers and embedded multicores, and has presented 218 papers, 186 invited talks, and 52 patents. His research has appeared in 615 newspaper and web articles.
WELCOME RECEPTION | JULY 1, 6PM
NAKANOSHIMA LOVE CENTRAL

COMPSAC 2024 BANQUET
HILTON OSAKA, SAKURA
6PM, JULY 3
PLENARY PANEL - JULY 2, 12:30
OSAKA UNIVERSITY NAKANOSHIMA - ROOM 7A
BUILDING AN INCLUSIVE METAVERSE:
OPPORTUNITIES, CHALLENGES, &
STRATEGIES FOR DIVERSITY, EQUITY
& INCLUSION

SESSION CHAIR: JEAN-LUC GAUDIOT
DISTINGUISHED PROFESSOR, UNIVERSITY OF CALIFORNIA-IRVINE
2016 IEEE COMPUTER SOCIETY PRESIDENT
COMPSAC 2024 KEYNOTE SPEAKER

MODERATOR: JEEWIKA RANAWEERA
IEEE FUTURE DIRECTIONS
IEEE WOMEN IN ENGINEERING
IEEE ELECTRON DEVICE SOCIETY
IEEE ENGINEERING ACCREDITATION ACTIVITIES
CO-CHAIR, IEEE METAVERSE INITIATIVE

TOM COUGHLIN
2024 IEEE PRESIDENT & CEO
COMPSAC 2024 KEYNOTE SPEAKER
PRESIDENT, COUGHLIN ASSOCIATES

KATHY GRISE
SENIOR PROGRAM DIRECTOR - IEEE FUTURE DIRECTIONS
STAFF PROGRAM DIRECTOR, PUBLIC SAFETY TECH INITIATIVE

HIRONORI WASHIZAKI
DISTINGUISHED PROFESSOR & ASSOCIATE DEAN OF RESEARCH
PROMOTION DIVISION, WASEDA UNIVERSITY
VISITING PROFESSOR, NATIONAL INSTITUTE OF INFORMATICS
ADVISOR, UNIVERSITY OF HUMAN ENVIRONMENTS
IEEE BOARD OF GOVERNORS

YOSHIKO YASUDA
HITACHI LTD CENTRAL RESEARCH LABORATORY
YOUTH COMMITTEE OF THE ENGINEERING ACADEMY OF JAPAN
IEEE COMPUTER SOCIETY TECHNICAL COMMITTEE ON
SERVICES COMPUTING
PLENARY PANEL - JULY 4, 3:30
NAKANOSHIMA MUSEUM OF ART
HIGHLIGHTING PUBLIC SAFETY TECHNOLOGIES AND ITS APPLICATIONS FOR A BETTER FUTURE

CAROLYN MCGREGOR
ONTARIO TECH UNIVERSITY
CANADA RESEARCH CHAIR IN HEALTH INFORMATICS
DIRECTOR, JOINT RESEARCH CENTRE IN AI FOR HEALTH AND WELLNESS, ONTARIO TECH & UNIVERSITY OF TECHNOLOGY, SYDNEY

NICHOLAS NAPP
XMARK LABS
STEERING COMMITTEE, IEEE METAVERSE INITIATIVE

LOUIS NISIOTIS
UNIVERSITY OF CENTRAL LANCASHIRE, CYPRUS
STEERING COMMITTEE, IEEE METAVERSE INITIATIVE
FELLOW, UK HIGHER EDUCATION ACADEMY

MAY WANG
GEORGIA INSTITUTE OF TECHNOLOGY
EMORY UNIVERSITY
DIRECTOR OF BIOMEDICAL BIG DATA INITIATIVE
BOARD OF DIRECTORS, AMERICAN BOARD OF AI IN MEDICINE

KATHY GRISE
SENIOR PROGRAM DIRECTOR - IEEE FUTURE DIRECTIONS
STAFF PROGRAM DIRECTOR, PUBLIC SAFETY TECH INITIATIVE
### Monday July 1

- **6:00pm** | **Welcome Reception | Nakanoshima Love Central | Address: 2-1-18 Nishitenma, Kita-ku, Osaka**

### Tuesday July 2

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### Wednesday July 3

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<td>PLENARY KEYNOTE: JEAN-LUC GAUDIOT</td>
<td>2016 IEEE PRESIDENT, DISTINGUISHED PROFESSOR, UNIVERSITY OF CALIFORNIA-IRVINE</td>
<td>ENHANCING COMPUTER SECURITY WITH HARDWARE-LEVEL MALWARE DETECTION</td>
<td>NAKANOSHIMA MUSEUM OF ART</td>
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<td>6:00pm</td>
<td>COMPSAC BANQUET</td>
<td>5F Sakura, Hilton Osaka</td>
<td>Address: 1 Chome-8-8 Umeda, Kita Ward, Osaka, 530-0001</td>
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### Thursday July 4

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<td>PLENARY KEYNOTE: HIRONORI KASAHARA, 2018 IEEE COMPUTER SOCIETY PRESIDENT</td>
<td>GREEN MULTICORE COMPUTING</td>
<td>NAKANOSHIMA MUSEUM OF ART</td>
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### Monday July 1

6:00pm | Welcome Reception | Nakanoshima Love Central | Address: 2-1-18 Nishitenma, Kita-ku, Osaka

### Tuesday July 2

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Monday, July 1

6:00PM | COMPSAC Welcome Reception
Nakanoshima Love Central
Address: 2-1-18 Nishitenma, Kita-ku, Osaka 530-0047

Tuesday, July 2

9:00 - 10:30 | Breakout Sessions

DICAR 2024: The 1st IEEE International Workshop on Digital Cardiology
Session 1
Location: Room 6A
Session Chair: Arutyun Avetisyan, Institute for System Programming

59: Transferring Knowledge from 12-lead to 1-lead ECGs via Contrastive Learning
Sergey Skorik, Aram Avetisyan, Ekaterina Diatlinko, Renata Mindiiarova and Yury Markin

252: EchoAGE: Echocardiography-based Neural Network Model Forecasting Heart Biological Age
Alexey Moskalev, Anastasia Kobelyatskaya, Fedor Isaev and Irina Strazhesko

461: A Comparative Study of Classical and Quantum Algorithms for Heart Disease Prediction Using Patients’ Vital Signs
Paramita Basak Upama, Parama Sridevi, Masud Rabbani, Mohammad Syam, Abul Hasan Muhammad Bashar, M. Rubaiyat Hossain Mondal, Rumil Ahmed Khan and Sheikh Iqbal Ahamed

3029: E-SMOTE: Entropy based Minority Oversampling for Heart Failure and AIDS Clinical Trails Analysis
Sainath Veerla, Anbu Valluvan Devadasan, Mohammad Masum, Mohammed Chowdhury and Hossain Shahrir

3977: Cardiac Age Estimation Using Genetic and Sphygmographic Data
Mikhail Ivanchenko, Elena Kondakova, Igor Yusipov and Alena Kalyakulina

AIMG 2024: The 7th IEEE International Workshop on Advances in Artificial Intelligence and Machine Learning: AI & ML for a Sustainable and Better Future
Session 1
Location: Room 6B
Session Chair: San Murugesan, BRITE Professional Services

907: Students’ Perspectives on AI Code Completion: Benefits and Location Challenges
Wannita Takerngsaksiri, Cleshan Warusavitarne, Christian Yaacoub, Matthew Hee Keng Hou and Chakkrit Tantithamthavorn

1554: Extraction of Subjective Information from Large Language Models
Atsuya Kobayashi and Saneyasu Yamaguchi

2474: Semantic Segmentation in Aerial Imagery: A Novel Approach for Urban Planning and Development
Pawan Chinnari, Soumen Sinha, Budonkayala Ishaa, Neha Bharill and Om Prakash Patel

3159: LiCAFeL-STC: A Lightweight Cluster-Based Federated Learning Framework for Sensor-Based Human Activity Recognition using Unlabeled Data in Heterogeneous Wearable Devices
Tori Andika Bukil, Bernardo Nugroho Yahya and Seok-Lyong Lee

ASYS 2024: Symposium on Autonomous Systems
Session 1
Location: Room 6C
Session Chair: Mihhail Matskin, Royal Institute of Technology

2700: Trans3-Vision: Transfer Learning based Transformer for Transparent Object Segmentation with Grounded-ID2
Junyang Wang
3173: Online Nonstationary and Nonlinear Bandits with Recursive Weighted Gaussian Process
Yusuke Miyake, Ryuji Watanabe and Tsunenori Mine

9054: Verifying Multi-agent Coordination Correctness for BDI agents
Geeta Mahala, Aditya Ghose, Hoa Khanh Dam and Angela Consoli

9904: Autonomous Cherry Sorting System for the Realization of Smart Agriculture
Ricardo Cerrud, Shinji Kotani and Hiromi Watanabe

**CAP 2024: Symposium on Computer Architecture & Platforms**
**Session 1**
**Location:** Room 6D
**Session Chair:** Yasutaka WADA, Meisei University

1316: Test Case Selection in Continuous Regression Testing using Machine Learning: An Industrial Case Study
Azeem Ahmad, Dimitris Rentas, Daniel Hasselqvist, Pontus Sandberg, Kristian Sandahl and Aneta Vulgarakis

2599: Characterize and Compare the Performance of Deep Learning Optimizers in Recurrent Neural Network Architectures
Mohammad Zaeed, Tanzima Z. Islam and Vladimir Indic

3131: LLM-based Class Diagram Derivation from User Stories with Chain-of-Thought Prompting
Yishu Li, Jacky Keung, Xiaoxue Ma, Chun Yong Chong, Jingyu Zhang and Yihan Liao

5052: Formalization and Verification of OpenStack Swift Using CSP
Ziqing Su, Wei Lin and Huibiao Zhu

8759: Scalable Computation of Inter-Core Bounds Through Exact Abstractions
Mohammed Aristide Foughali and Marius Mikučionis

**SETA 2024: Symposium on Software Engineering Technologies & Applications**
**Session 1**
**Location:** Room 6E
**Session Chair:** Ali Huron, Missouri University of Science & Technology

8464: Prevalence and Prediction of Unseen Co-Changes: A Graph-Based Approach
Amit Kumar, Ethari Hrishikesh, Yugandhar Desai and Sonali Agarwal

9958: Characterizing Developers’ Behaviors in LLM-Supported Software Development
Wei Wang, Huilong Ning, Shuo Qian, Gaowei Zhang and Yi Wang

9966: Unveiling Hidden Anomalies: Leveraging SMAC-LSTM for Enhanced Software Log Analysis
Yicheng Sun, Jacky Keung, Jingyu Zhang, Hi Kuen Yu, Wenqiang Luo and Shuo Liu

8456: MT-PART: Metamorphic-Testing-Based Adaptive Random Testing Through Partitioning
Zhihao Ying, Dave Towey, Tsong Yueh Chen and Zhi Quan Zhou

**DSAT 2024: Symposium on Data Sciences, Analytics & Technologies**
**Session 1**
**Location:** Room 6F
**Kathy Grise, IEEE**

87: PMCS: Partition-based Maximal Frequent Subgraph Mining using MCS
Vani Sancheti, Lini T Thomas and Vikram Pudi

710: From Data to Forecast: A Comparative Evaluation of Machine Learning and Deep Learning Models for Rainfall Prediction in Australia
Yashodha Karunarathna and Caslon Chua

1279: Designing a Lightweight Convolutional Neural Network for Camouflaged Object Detection
Mark Edward Gonzales, Hans Oswald Ibrahim, Elyssia Barrie Ong and Ann Franchesca Laguna
DSAT 2024: Symposium on Data Sciences, Analytics & Technologies
Session 2
Location: Hall 3
Session Chair: Nicholas Napp, XMark Lab

1638: A Time-Efficient Distributed Constant Conditional Functional Dependency Discovery Algorithm for Data Consistency
Junchao Chen, Jian-Tao Zhou and Xinyu Hao

2288: Novel Resilient Model Risk Forecasts based on Neuro Volatility Models
Md. Erfanul Hoque, Sulalitha Bowala Mudiyan selage, Ananthi Saun yam ala, Aerambamoorthy Thavaneswaran and Ruppa Thulasiram

2508: Assessing Maintainability Risks in the Open Source Software Supply Chain: An Empirical Quality Approach
Fenglin Bi, Sijia Zhao, Wei Wang and Songlin Wu

DBDM 2024: The 9th IEEE International Workshop on Distributed Big Data Management
Location: Hall 4
Session Chair: Alfredo Cuzzocrea, University of Calabria

1696: A Big Data Analytics Solution for Restaurant Data Analytics
Carson Leung and Alfredo Cuzzocrea

3551: A Sharded Blockchain Architecture for Healthcare Data
Jahan Zeb Shahid, Stelvio Cimato and Zia Muhammad

3700: Exploration of traffic interaction on air quality via data analytics
Carson Leung and Alfredo Cuzzocrea

FA 2024: Fast Abstract
Session 1
Location: Room 7A
Session Chair: Ryohei Banno, Hitotsubashi University

2333: Exploring the Impact of a ChatGPT-Based Interactive System on Enhancing the Knowledge and Attitudes towards Advance Care Planning in Older Adults
Xin Yu Liao and Pin Xuan Wang

681: Enhancing Dengue Awareness: A Comprehensive System for Filtering Thai Social Media Postsac
Jedsada Phengsuwan, Kamron Aroonrua, Krit Punpreuk and Naiyana Sahavechaphan

831: Blurred Facial Recognition based on AdaFace
Yi-Zeng Hsieh

1076: Enhancing Website Fraud Detection: A ChatGPT-Based Approach to Phishing Detection
Michael Schesny, Nico Lutz, Thomas Jägle, Felix Gerschner, Marco Klaiber and Andreas Theissler

1716: Distributed Threat Intelligence at the Edge Devices: A Large Language Model-Driven Approach
Syed Mhamudul Hasan, Alaa M A lo taibi, Sajedul K Talukder and Abdur Rahman Bin Shahid

1945: A Method to Design SOA-based Software Architecture and Goal Models from BPMN Models
Redouane Blal, Abderrahmane Leshob and Hafedh Mili

2081: EPNATOP: An Operational Profile for Verifying Software Designs Based on EPNAT Tomohiko Takagi, Rikuto Otake and Sho Matsumoto
Session Chair: Stelvio Cimato, University of Milan

- 1256: ZT-OTA Update Framework for IoT Devices toward Zero Trust IoT
  Nobuo Aoki, Atsuko Takefusa, Yutaka Ishikawa, Yashushi Ono, Eisaku Sakane and Kento Aida

- 3588: A Contextual Approach for Improving Anomalous Network Traffic Flows Prediction
  Eilaf Mohamed Abaker Babai and Koji Okamura

- 3847: DDoS Attack Information Sharing Among CDNs Interconnected Through CDNI
  Kazuki Takashima, Daisuke Kotani and Yasuo Okabe

- 7041: Practical Performance of a Distributed Processing Framework for Machine-Learning-based NIDS
  Maho Kajiura and Junya Nakamura

DDS-BDAF 2024: The 4th IEEE International Workshop on Dynamic Data Science and Big Data Analytics in Finance

and

DT4Meta 2024: The 2nd IEEE International Workshop on Digital Twins for the Metaverse
Session Chair: Dr. Maria Fazio, Università di Messina

- 1417: Synchronous Set-based Particle Swarm Optimization: Heuristics for Portfolio Optimization
  Ashish Lakhmani, Ruppa Thulasiram and Parimala Thulasiraman

  Avanthi Saumyamala, Sulalitha Bowala Mudiyanselage, You Liang, Shanika Basnayake, Aerambamoorthy Thavaneswaran and Ruppa Thulasiraman

- 7526: Visualization of Crowd Contamination Simulations using Immersive Virtual Reality
  Vinicius Teixeira, Gabriel Silva, Isabel Manssour, Soraia Musse and Márcio Pinho

SEPT 2024: Symposium on Security, Privacy & Trust in Computing
Session 1
Location: Room 7D
Session Chair: Yoshiaki Hori, Saga University

- 253: CCall: Recovering Indirect Call Targets from Binaries With Cross-Domain Fine-Tuning
  Bin Weng, Yunru Wang, Juan Wang, Mengda Yang, Ziang Li and Fei Li

- 2562: Efficiently Calculating Stronger Lower Bound for Differentially Private SGD in Black-box Setting
  Toshiki Shibahara, Takayuki Miura, Masanobu Kii and Atsunori Ichikawa

- 2744: PIXHELL Attack: Leaking Sensitive Information from Air-Gap Computers via `Singing Pixels'
  Mordechai Guri

10:30 - 11:00 | Coffee Break

11:00 - 12:30
Plenary Session - Keynote 1
IEEE - The State of the Institute
Tom Coughlin, 2024 IEEE President
Location: Nakanoshima Museum of Art
12:30 - 1:30 | Lunch Break
and
Plenary Panel: Building an Inclusive Metaverse: Opportunities, Challenges, and Strategies for Diversity, Equity, and Inclusions
Location: Room 7A

Jean-Luc Gaudiot, 2016 IEEE Computer Society President, Distinguished Professor in the Department of EE and CS at the University of California, Irvine, COMPSAC 2024 Keynote Speaker

Jeewika Ranaweera, co-chair of the IEEE Metaverse Initiative, active member of IEEE Future Directions, IEEE Women in Engineering (WIE), IEEE Electron Device Society, and IEEE Engineering Accreditation Activities

Tom Coughlin, 2024 IEEE President, President of Coughlin Associates, COMPSAC 2024 Keynote Speaker

Kathy Grise, Senior Program Director at IEEE Future Directions

Hironori Washizaki, Distinguished Professor and the Associate Dean of the Research Promotion Division at Waseda University in Tokyo

Yoshiko Yasuda, Hitachi Ltd.'s Central Research Laboratory, active member of the Youth Committee of the Engineering Academy of Japan (EAJ), IEEE Computer Society and Women in Engineering and IEEE Technical Community on Services Computing

1:30 - 3:30 | Breakout Sessions

DICAR 2024: The 1st IEEE International Workshop on Digital Cardiology
Session 2
Location: Room 6A
Session Chair: Arutyun Avetisyan, Institute for System Programming

4458: Breaking Barriers in Stress Detection: An Inter-Subject Approach Using ECG Signals
Shahane Tigranyan and Arman Martirosyan

6372: Explaining Health Risk Behaviors in the U.S. with Social Deprivation at Local and Regional Levels
Swapna Gokhale, Viswadeep Lebakula and Alina Peluso

Natalia Kuznetsova, Alexander Suvorov, Petr Chomakhidze and Philippe Kopylov

8783: Application of Artificial Intelligence Technology to Prevent Sudden Cardiac Death
Helena Godunova and Sergei Prokhorov

AIML 2024: The 7th IEEE International Workshop on Advances in Artificial Intelligence and Machine Learning: AI & ML for a Sustainable and Better Future
Session 2
Location: Room 6B
Session Chair: San Murugesan, BRITE Professional Services

3543: Noninvasive ML-based BUN Prediction from Ten-second Fingertip Video using Generative AI
Parama Sridevi, Kazi Zawad Arefin, Dipranjan Das, Rumi Ahmed Khan and Sheikh Iqbal Ahamed

3667: ALRA: Adaptive Low-Rank Approximations for Neural Network Pruning
Soumen Sinha and Rajen Kumar Sinha

3995: Bat Algorithm for Attractor Reconstruction of Low-Dimensional Chaotic Maps from Time Series
Akemi Galvez-Tomida, Sara Perez Carabaza and Andres Iglesias Prieto
CDS 2024: The 12th IEEE International Workshop on Consumer Devices, Systems and Services
Session 1
Location: Room 6C
Session Chair: Saneyasu Yamaguchi, Kogakuin University

282: MemFlex: A Hybrid Memory System to boost Cost of Ownership in Data Centers
Chandranil Chakraborttii and Maminur Islam

561: Stationary Human Detection Method Using 2D LiDAR
Haruki Mochizuki and Ryozo Kiyohara

1861: Interaction in Virtual Environments Using Smartwatches: A Comparative Usability Study between Continuous Gesture Recognition and MDDTW
Thamer Nascimento, Murillo Santos de Castro, Pedro Gomes, Luciana Cardoso, Renan Aranha and Fabrizzio Soares

2036: Enhancing Road Safety through Cost-Effective, Real-Time Monitoring of Driver Awareness with Resource-Constrained IoT Devices
Ahmed Imteaj, Tanveer Rahman, Saika Zaman, Md Zarif Hossain and Abdur R. Shahid

DIGI-HEALTH 2024: The 2nd IEEE International Workshop on Digital and Public Health
Session 1
Location: Room 6D
Session Chair: Farhana Zulkernine, Queen’s University

2004: Enhancing Mental Health Care with the Kalman Filter: Predictions, Monitoring, and Personalization
Syed Azizur Rahman, Khaled Obaideen, Mohammad Alshabi and Nabeel Al-Yateem

7802: Exploring New Digital Health-Care Frontiers: Ingenuity and Vision from Saudi Arabia in Establishing a National Military Health Control and Command Centre
Richard Mottershead and Manal Bint Abdullah Aladaili

CELT 2024: Symposium on Computing Education & Learning Technologies
Session 1
Location: Room 6E
Session Chair: Henry Chan, Hong Kong Polytechnic University

1725: Towards Multilevel Logistic Regression and Cluster Analysis for Academic Performance Examination and Prediction
Myke Oliveira, Douglas Augusto de Paula and Ellen Francine Barbosa

3915: ChatGPT, be my teaching assistant! Automatic Correction of SQL Exercises
Laura Farinetti, Luca Cagliero, Jacopo Fior and Andrea Ignazio Manenti

4739: Early Identification of Struggling Students in Large Computer Science Courses: A Replication Study
Nils Rys-Recker and Qiang Hao

5402: Fault Localization for Novice Programs Combining Static Analysis and Dynamic Detection
Han Wan, Wenhao Nie, Shiyang Yue and Xiaoyan Luo

DSAT 2024: Symposium on Data Sciences, Analytics & Technologies
Session 3
Location: Room 6F
Session Chair: Carolyn McGregor, Ontario Tech University

2537: Quantum DNA Encoder: A Case-study in gRNA Analysis
Phuong-Nam Nguyen

3719: Reimagine Application Performance as a Graph: Novel Graph-Based Method for Performance Anomaly Classification in High-Performance Computing
Chase Phelps, Ankur Lahiry and Tänzima Z. Islam
EATA 2024: Symposium on Emerging Advances in Technology & Applications
Session 1
Location: Hall 3
Session Chair: Sahra Sedigh Sarvestani, Missouri University of Science & Technology

302: Effective Compression of Language Models by Combining Pruning and Knowledge Distillation
Chi-Yu Chiu, Ding-Yong Hong, Pangfeng Liu and Jan-Jan Wu

1356: LLMChain: Blockchain-based Reputation System for Sharing and Evaluating Large Language Models
Mouhamed Amine Bouchiha, Quentin Telnoff, Souhail Bakkali, Ronan Champagnat, Mourad Rabah, Mickael Coustany and Yacine Ghamri-Doudane

1784: Context-aware Personalized Route Recommendations for Bicycle Users using Large-Scale Mobility Data
Francesco Maria Turno, Aleksejs Vesjolijs, Jelena Kijonoka and Irina Yatskiv

1839: FedAVO: Improving Communication Efficiency in Federated Learning with African Vultures Optimizer
Md Zarif Hossain and Ahmed Imteaj

EATA 2024: Symposium on Emerging Advances in Technology & Applications
Session 2
Location: Hall 4
Session Chair: Hiroyuki Sato, The University of Tokyo

2432: Multi-Accelerator Neural Network Inference via TensorRT in Heterogeneous Embedded Systems
Yuxiao Zhou, Zhishan Guo, Zheng Dong and Kecheng Yang

2833: Approximate Vedic Multiplier Architecture for Efficient CNN Acceleration on Embedded Devices
Anakhi Hazarika, Soumyajit Poddar and Nikumani Choudhury

4234: Optimal Multi-Constrained Workflow Scheduling for Cyber-Physical Systems in the Edge-Cloud Continuum
Andreas Kouloumpris, Georgios L. Stavrinides, Maria K. Michael and Theocharis Theocharides

6036: Trusted Off-chain Machine Learning Scheme Based on ZK-SNARK and Oracle
Zehui Yuan, Xian Deng, Junhong Liu, Peng Wu, Fake Fang, Jiale Xie, Zhixing Zhang and Libo Feng

FA 2024: Fast Abstract
Session 2
Location: Room 7A
Session Chair: Hossain Shahriar, University of West Florida, USA

522: Architecture Design and Implementation of a Security Threat Data Sharing Platform
Chase Lamkin, Mst Shapna Akter, Hossain Shahriar and Guillermo Francia

3088: Authentic Learning Approach for Data Poisoning Vulnerability in LLMs

2385: Online Gaming Platform for Tibetan Jiu Chess: AI-vs-AI and Human-vs-Human
Gan Xu, Xiali Li, Yanyin Zhang and Yang Xiao

2535: Detecting Video Surveillance Systems in Real-Time through Wireless Traffic Analysis
Hye Young An, Woojin Park and Soochang Park
2707: Transforming Security Policies in Firewalls Using the Shortest Editing Script Algorithm
Motoyuki Ohmori

2782: Effect of Retraining Graph Generative Models with Generated Graphs
Takeru Inada, Sho Tsugawa, Akiko Manada and Kohei Watabe

3489: AI-based Occupancy Prediction using WiFi CSI
Minwoo Chun, Seunghyeon Park, Kiwoong Kwon and Sanghun Kim

3959: Survey of Technical and Soft Skills Learners Acquired in a Software Engineering Project Course
Atsuo Hazeyama

4062: Enhanced Client-side Internal load Balancing for in 5G Online Charging System
N. Tien Nguyen, V. Duong Nguyen, N. Son Dinh, T. Q. Hoa Hoang, C. Dan Pham and D. Hai Nguyen

80: Creativity Using Generative AI vs. Physical Modeling: A Case Study of Architecture Workshops in a SIHEI
Yimeng Wang, Dave Towey, Derek Irwin and Jing Xie

5198: FROM Syntax to Semantics: An OER-Powered SQL Learning and Visualisation Tool
Yuyan Zhou, Dave Towey and Matthew Pike

8799: Size-Insensitive Network for Visible-Infrared Image Fusion Model
Yihan Zhang, Qian Zhang and Dave Towey

NCIW 2024: Symposium on Networks, Communications, Internet & Web Technologies
Session 1
Location: Room 7B
Session Chair: Ryohei Banno, Hitotsubashi University, Japan

670: SPV: Formal Verification of Stateful Parallel SFC Correctness
Yijun Guo, Zhenyu Liu, Yintan Ai and Hua Li

8496: MECM2M: An MEC Based M2M System Considering Mobile Nodes as Compute Servers
Rempei Sawada, Haruto Takano, Kosuke Mori and Fumio Teraoka

9514: E-LDAC: A High-Accuracy Method for Predicting Bursty Latency in 5G Networks
Zhibo Zhang, Huiqiang Wang, Hongwu Lv and Jiayu Sun

1175: A Real-Time Background Replacement Method Based on Machine Learning for AR Applications
Yoshihiro Tsuboki, Tomoya Kawakami, Satoru Matsumoto, Tomoki Yoshihisa and Yuuichi Teranishi

SDIM 2024: The 7th IEEE International Workshop on Secure Digital Identity Management
and
SAPSE 2024: The 16th IEEE International Workshop on Security Aspects in Processes and Services Engineering
and
QUORS 2024: The 18th IEEE International Workshop on Quality Oriented Reuse of Software
Location: Room 7C
Session Chair: Stelvio Cimato, University of Milan

494: A Cross-organizational Identity Proofing System for Seamless Online ID Re-Binding Leveraging Individual Number Cards
Sayako Shimizu, Hiroyuki Sato, Motonori Nakamura, Hikofumi Suzuki and Yasuo Okabe

4046: Achieving Third-party Deniability in Signature-based Credential Systems
Magdalena Bertram, Maximilian Richter and Marian Margraf

3623: A SOLID-Based Framework for Supporting Privacy-Preserving Identity Management in Multi-Cloud Environments
Alfredo Cuzzocrea and Islam Belmerabet

8145: Standard-Driven Software Component Reuse and Agile Testing
Ma Yunxiao, Li Mingyue, Bao Aliya, Tian Chengyuan and Li Hua
SEPT 2024: Symposium on Security, Privacy & Trust in Computing
Session 2
Location: Room 7D
Session Chair: Yoshiaki Hori, Saga University

3577: Textual Differential Privacy for Context-Aware Reasoning with Large Language Model
Junwei Yu, Jieyu Zhou, Yepeng Ding, Lingfeng Zhang, Yuheng Guo and Hiroyuki Sato

3880: RollupTheCrowd: Leveraging ZkRollups for a Scalable and Privacy-Preserving Reputation-based Crowdsourcing Platform
Ahmed Mounsf Rafik Bendada, Mouhamed Amine Bouchiha, Mourad Rabah and Yacine Ghamri-Doudane

4248: Customized Malware: Identifying Target Systems using Personally Identifiable Information
Rui Tanabe, Yuta Inoue, Daigo Ichikawa, Takahiro Kasama, Dai Inoue, Katsunari Yoshioka and Tsutomu Matsumoto

4641: XGDFed: Exposing Vulnerability in Byzantine Robust Federated Binary Classifiers with Novel Aggregation-Agnostic Model Poisoning Attack
Israt Jahan Mouri, Muhammad Ridowan and Muhammad Abdullah Adnan

3:00 - 3:30 | Coffee Break
3:30 - 5:00 | Breakout Sessions

DADA 2024: The 6th IEEE International Workshop on Deep Analysis of Data-Driven Applications
Session 1
Location: Room 6A
Session Chair: Akbar Namin, Texas Tech University

553: The Accuracy of Domain Specific and Descriptive Analysis Generated by Large Language Models
Denish Otieno, Faranak Abri and Akbar Namin

2362: Deep Learning Empowered High Accuracy and Low Complexity Indoor Channel Prediction for Wireless Communication Systems
Rong-Terng Juang, Tong-Wen Wang, Jun-Xiang Cao, Hsin-Piao Lin and Ding-Bing Lin

2529: Neural Network Fuzzy Electricity Demand Forecasts Based on Fuzzy Inputs
Sulalitha Bowala Mudiyanselage, Md. Erfanul Hoque, Aerambamoorthy Thavaneswaran, Ruppa Thulasiram and Sriman Toorao Appadoo

5802: Application of a Novel Fuzzy Pattern Mining Algorithm for Sequence Data
Thimani Dananjana Ranathungage, Sulalitha Bowala, Md Erfanul Hoque, Aerambamoorthy Thavaneswaran and Ruppa Thulasiram

EATA 2024: Symposium on Emerging Advances in Technology & Applications
Session 3
Location: Room 6B
Session Chair: Anakhi Hazarika, BITS Pilani

85: Uncovering the Metaverse within Everyday Environments: A Coarse-to-Fine Approach
Liming Xu, Dave Towey, Andrew P. French and Steve Benford

6317: Towards Communication-Efficient Federated Learning Through Particle Swarm Optimization and Knowledge Distillation Saika Zaman, Sajedul Talukder and Ahmed Imteaj

6463: Progressive Sign Language Video Translation Model for Real-World Complex Background Environments
Jingcheng Zou, Jianqiang Li, Xi Xu, Yuning Huang, Jing Tang, Linna Zhao, Wenxiu Cheng, Chujie Zhu and Suqin Liu

6753: Response Time and Energy-aware Optimization for Co-locating Microservices and Offline Tasks
Jie Wang, Huiqun Yu, Guisheng Fan and Jiayin Zhang
CDS 2024: The 12th IEEE International Workshop on Consumer Devices, Systems and Services  
Session 2  
Location: Room 6C  
Session Chair: Yasuo Okabe, Kyoto University

2089: Computer-Assisted English Presentation Learning System Based on the Stress of the Pronunciation of Words  
Yugo Tagami, Takako Kojima and Saneyasu Yamaguchi

5505: A Safe Vehicle Routing System Based on Road Characteristics from Telematics Data  
Hiroshi Tei, Tomoya Kawakami and Yoshimi Kawamoto

7244: Feasibility Assessment of Denial-of-Service Attacks by Analyzing SOME/IP-SD State Transition Models  
Kazuki Iehira and Hiroyuki Inoue

DIGI-HEALTH 2024: The 2nd IEEE International Workshop on Digital and Public Health  
Session 2  
Location: Room 6D  
Session Chair: Syed Rahman, University of Sharjah

2116: Revolutionizing Healthcare Management: Architecture of a Web-based Medical Triage Service  
Ahmed A. Harby, Eyad Elkhodary, Drishi Sharma, Farhana Zulkernine, Amina Almarzouqi, Nabeel Alyateem, Syed Azizur Rahman and Ronan Almeida

2295: Optimization of Electronic Health Record through Local & International Standards: A Case from United Arab Emirates  
Alounoud Al Marzouqi

2388: Assist-Bot: A Voice-Enabled Assistant for Seniors  
Yuhao Chen, Jiahao Cai, Siyu Chen, Farhana Zulkernine, Nauman Jaffar, Amina Almarzouqi, Nabeel Al-Yateem and Syed Aziz Rahman

2628: Factors Influencing Public Trust in Emergency Health Helplines in Bangladesh  
Md. Aminul Islam and Dr. Ahmed Hossain

8662: Implementing Electronic Medical Record EMR Technology in Hospital Setting: A Qualitative Study  

9003: An Exploration of E-Puskesmas Technology Application in Indonesian Public Health Centers: A Qualitative Study  

CELT 2024: Symposium on Computing Education & Learning Technologies  
Session 2  
Location: Room 6E  
Session Chair: Marina Marchisio, University of Turin

3099: Development of Digital Competencies in Education through Staff Training Events and International Schools  
Marina Marchisio Conte, Fabio Roman, Matteo Sacchet, Enrico Spinello, Daniela Voicu, Magdalena Rykala and Linko Nikolov

7476: A Proposal for the Smart ClassLocation: Room Infrastructure using IoT and Artificial Intelligence  
Antoni Martinez-Ballesté, Edgar Batista, Elena Figueroa Cabrera, Gabriela Fretes Torruella, Celia Llurba, Jose Quiles-Rodriguez, Oihane Unciti and Ramon Palau

8325: Exploring Collaborative Immersive Virtual Reality Serious Games for Enhancing Learning Motivation in Physics Education  
Linjing Sun, Boon Giin Lee, David Chieng and Sen Yang
8577: Detecting LLM-Generated Text in Computing Education: A Comparative Study for ChatGPT Cases
Michael Sheinman Orenstrakh, Oscar Karnalim, Carlos Aníbal Suarez Hernández and Michael Liut

DSAT 2024: Symposium on Data Sciences, Analytics & Technologies
Session 4
Location: Room 6F
Session Chair: May Wang, Georgia Tech and Emory University

4997: Zero-Shot Hierarchical Classification on the Common Procurement Vocabulary Taxonomy
Federico Moiraghi Motta, Matteo Palmonari, Davide Allavena and Federico Morando

5081: An Empirical Approach for Clustering-Based Time Series Summarisation Assessment
Devis Bianchini and Massimiliano Garda

5179: Sentiment-Driven LSTM Analysis of Bitcoin Price: Uncovering Insights from Tweets and Macroeconomics Data
Chia-Chun Hsu, Po-Han Lu, Jyun-Siyan Chu and Ya-Ning Chang

3954: How to Fit the SCC Algorithm Efficiently into Distributed Graph Iterative Computation
Xiaochen Sun

EATA 2024: Symposium on Emerging Advances in Technology & Applications
Session 4
Location: Hall 3
Session Chair: Francesco Maria Turno, Transport and Telecommunication Institute

3703: Experiences in Building a Digital Twin Framework: Challenges and Possible Solutions
Rong Gu, Teodor Barbuceanu, Ning Xiong and Tiberiu Seceleanu

8120: Node Embedding Accelerates Randoms Walk on a Graph
Han Nay Aung and Hiroyuki Ohsaki

8590: Dynamic Positioning Vectors for Collaborative UWB-Based Positioning
Yerkezhan Sartayeva and Henry C. B. Chan

8514: EdgeFL: A Lightweight Decentralized Federated Learning Framework
Hongyi Zhang, Jan Bosch and Helena Holmström Olsson

8647: BFSA: Blockchain-Enhanced Flexible Storage Architecture for Smart Building IoT Applications
Jinqian Jiang, Xiaohua Wu, Zirui Wang, Jun Cheng and Tao Meng

DIGI-HEALTH 2024: The 2nd IEEE International Workshop on Digital and Public Health
Session 3
Location: Hall 4
Session Chair: Richard Mottershead, University of Sharjah

3705: Health Sciences Students and Educators Experience with Using ChatGPT

4636: Assessing the Efficacy of Telephone Telemedicine in Enhancing Follow-up Visits for non-adherence Hypertensive patients: A Cross-Sectional Study in Northern Bangladesh

SETA 2024: Symposium on Software Engineering Technologies & Applications
Session 2
Location: Room 7A
Session Chair: Cataldo Basile, Politecnico de Torino
475: Security Orchestration with Explainability for Digital Twins-based Smart Systems
Minh-Tri Nguyen, An Lam, Phu Nguyen and Hong-Linh Truong

981: MMACode: A Multi-Modal-Aware Pre-Trained Model for Code Representations
Zicong Zhuang and Pingjian Zhang

1001: Audio Steganography Based Backdoor Attack for Speech Recognition Software
Mengyuan Zhang, Shunhui Ji, Hanbo Cai, Hai Dong and Pengcheng Zhang

NCIW 2024: Symposium on Networks, Communications, Internet & Web Technologies
Session 2
Location: Room 7B
Session Chair: Tomokoi Yoshihisa, Shiga University

9518: Optimizing WDM Network Restoration with Deep Reinforcement Learning and Graph Neural Networks Integration
Isaac Ampratwum and Amiya Nayak

9655: SCALE: Self-regulated Clustered federAted LEarning in a Homogeneous Environment
Sai Puppala, Ismail Hossain, Md Jahangir Alam, Sajedul Talukder, Syed Bahauddin Alam and Zahidur Talukder

7253: Fluid-based Modeling of TCP BBR Congestion Control Mechanism
Shota Inoue, Ryo Nakamura and Hiroyuki Ohsaki

9082: FLNET: Fluid-based Large-scale Network Simulator
Shota Inoue, Tomoka Yamazaki, Ryo Nakamura and Hiroyuki Ohsaki

eHealth-IoT 2024: The 1st IEEE International Workshop on e-Health Systems & IoT Technologies
and
ICT4SmartGrid 2024: The 4th IEEE International Workshop on Rising ICT Solutions for Smart Grids as Multi-energy Systems
Location: Room 7C
Session Chair: Alfredo Cuzzocrea, University of Calabria

3834: Employee Perceptions of Privacy and Data Control in Workplace Wellness e-Health Programs
Oihane Gómez-Carmona, Diego Casado-Mansilla, Diego López-De-Ipifía and Javier García-Zubia

9270: Shaping the Future of Energy Markets: Federated Systems and Blockchain Synergy
Silvio Meneguzzo, Stefano Bergia, Alessandro Mozzato, Claudio Schifanella and Alfredo Favenza

SEPT 2024: Symposium on Security, Privacy & Trust in Computing
Session 3
Location: Room 7D
Session Chair: Hiroki Kashiwazaki, Kindai University

5036: Ants: Attacking Spatial Temporal Graph Learning Networks Structurally
Ran Ran, Qi Liu, Nuo Xu, Ning Sui and Wujie Wen

5555: Comparison of Methods for Automatically Predicting CVSS Base Vector
Sho Isogai, Shinpei Ogata, Yutaro Kashiwa, Satoshi Yazawa, Kozo Okano, Takao Okubo and Hironori Washizaki

Yu Li, Rui Wang and Yi-Xiao Yang

6718: Breaking reCAPTCHA v2
Andreas Plesner, Tobias Vontobel and Roger Wattenhofer
Wednesday, July 3

9: 00 - 10: 30 | Breakout Sessions

**DSAIH 2024: The 1st IEEE International Workshop on Data Science and Artificial Intelligence in Healthcare**

*Session 1*
*Location: Room 6A*
*Session Chair: Tomoyuki Sugimoto, Shiga University*

- **598:** SCAN: A HealthCare Personalized ChatBot with Federated Learning Based GPT
  Sai Puppala, Ismail Hossain, Md Jahangir Alam and Sajedul Talukder

- **3326:** Automatic Structuring of Radiology Reports of Chest X-ray Images Using Large Language Model
  Mizuho Nishio, Takaaki Matsunaga and Hidetoshi Matsuo

- **5544:** On the Use of Gaussian Process Regression and Multiple Imputation in Cox Regression Models with Time-dependent Covariates
  Kenta Tanaka and Tomoyuki Sugimoto

- **6137:** Research on the Efficiency of Operating Location: Room Management through Numerical Optimization and Matters to be Considered in the Process
  Onishi Tatsuki and Casanova Carlos

**AIML 2024: The 7th IEEE International Workshop on Advances in Artificial Intelligence and Machine Learning: AI & ML for a Sustainable and Better Future**

*Session 3*
*Location: Room 6B*
*Session Chair: San Murugesan, BRITE Professional Services*

- **4380:** Enhancing Team Diversity with Generative AI: A Novel Project Management Framework
  Johnny Chan and Yuming Li

- **4497:** FireSense: Integrating Deep Learning with ESP32 Microcontrollers for Enhanced Forest Fire Surveillance
  Rohan Arunkumar and Atul Dubey

- **5417:** Open-Source Text-to-Image Models: Evaluation using Metrics and Human Perception
  Aylin Yamac, Dilan Genc, Esra Zaman, Felix Gerschner, Marco Kläber and Andreas Theissler

- **7939:** Federated Learning Framework for Collaborative Time Series Anomaly Detection on Distributed Machines
  Ignatius Iwan, Tori Andika Bukit, Bernardo Nugroho Yahya and Seok-Lyong Lee

**SEPT 2024: Symposium on Security, Privacy & Trust in Computing**

*Session 4*
*Location: Room 6C*
*Session Chair: Hossain Shahriar, University of West Florida*

- **4202:** Uncovering the Interpretation of Large Language Models
  Mst Akter, Hossain Shahriar, Alfredo Cuzzocrea, Fan Wu, Akond Rahman and Sheikh Ahmed

- **4452:** Fine-tuned Variational Quantum Classifiers for Cyber Attacks Detection based on Parameterized Quantum Circuits and Optimizers
  Md Abdur Rahman, Hossain Shahriar, Emily Miller, Bogdan Timofti and Mohammad Masum

- **7148:** Quantum Adversarial Attacks: Developing Quantum FGSM Algorithm
  Mst Akter, Hossain Shahriar and Alfredo Cuzzocrea

- **2864:** Robustness of Random Walk on a Graph against Adversary Attacks
  Hiroki Kawamura, Satoshi Shiina, Han Nay Aung and Hiroyuki Ohsaki
DADA 2024: The 6th IEEE International Workshop on Deep Analysis of Data-Driven Applications
Session 2
Location: Room 6D
Session Chair: Akbar Namin, Computer Science Department, Texas Tech University

5981: Relative Performance Prediction using Semi-Supervised Learning
Arunavo Dey, Aakash Raj Dhakal, Tanzima Islam, Jae-Seung Yeom, Tapasya Patki, Abhinav Bhavele, Alexander Movsesyan and Daniel Nichols

6323: Audio Classification with Semi-supervised Contrastive Loss and Consistency Regularization
Juan-Wei Xu and Yi-Ren Yeh

7673: Analyzing the Characteristics of Ego-Network Structures of Influential Twitter Users
Yuto Nakamitsu, Sho Tsugawa, Keiichiro Tsukamoto and Shintaro Igari

8043: Maintaining Performance of a Machine Learning System Against Imperfect Retraining
Zhengji Wang and Fumio Machida

CELT 2024: Symposium on Computing Education & Learning Technologies
Session 3
Location: Room 6E
Session Chair: Dave Towey, University of Nottingham Ningbo China

9303: Learning from the Past: Using Peer Data to Improve Course Recommendations in Personalized Education
Colton Walker, Ali Hurson and Sahra Sedigh Sarvestani

Yifan Zhang, Dave Towey, Matthew Pike, Zhi Quan Zhou and Tsong Yueh Chen

6295: Hybrid Teaching based on a 4C Model-based Framework
Henry Chan

3726: AI to the Test: Measuring ChatGPT's Objective Accuracy in the SATs in Comparison to Human Performance
Eliza Janel Tan, Keith Alexandre Ramos, Maria Elisha Nazario, Steven Vincent Lim and Shirley Chu

DSAT 2024: Symposium on Data Sciences, Analytics & Technologies
Session 5
Location: Room 6F
Session Chair: Louis Nisiotis, University of Central Lancashire

5824: Improvement of Deep Learning Models by Excluding Inappropriate Data Based on Interpretability
Saneyasu Yamaguchi, Fuma Hrabayashi and Atsuki Tamekuri

6020: Comparative Analysis of ImageNet Pre-Trained Deep Learning Models and DINOv2 in Medical Imaging Classification
Guanghui Fu, Yuning Huang, Jingchen Zou, Lanxi Meng, Xin Yue, Qing Zhao, Jianqiang Li, Changwei Song, Gabriel Jimenez and Shaowu Li

6255: Efficient Multi-network Community Search Method for Distributed Graph Iterative Computation
Xiaochen Sun

DIGI-HEALTH 2024: The 2nd IEEE International Workshop on Digital and Public Health
Session 4
Location: Hall 3
Session Chair: Farhana Zulkernine, Queen's University

4964: Advancements in Multimodal Social Media Post Summarization: Integrating GPT-4 for Enhanced Understanding
Md Jahangir Alam, Ismail Hossain, Sai Puppala and Sajedul Talukder
5125: Exploring New Horizons in Dental Education: Leveraging AI and the Metaverse for Innovative Learning Strategies
Amina Almarzouqi, Anissa Bettayeb, Syed Azizur Rahman, Nabeel Al-Yateem and Said Salloum

9447: Nurses’ Perceptions about Champs Tool Trials in the Pediatric Ward

HCSC 2024: Symposium on Human Computing & Social Computing
Session 1
Location: Hall 4
Session Chair: Moushumi Sharmin, Western Washington University

245: Survey on Objective Measurement and Sensor-Based Detection of Physical and Social Activities
Arafat Mahmood, Parama Sridevi, Padmapriya Velupillai Meikandan and Sheikh Iqbal Ahamed

1319: Safety of the Intended Functionality of External Human Interfaces: Gaps and Research Agenda
Manabu Okada and Barbara Gallina

2647: Reinforcement Learning to Personalize User eXperience within Digital Business Ecosystems
Mustapha Kamal Benramdane and Elena Kornyshova

5185: SocialGuard: Bangla Text-Based Gender Identification for Enhancing Integrity in Social Networks
Md Jahangir Alam, Sultan Ahmed, Ismail Hossain, Sajedul Talukder and Zahidur Talukder

6679: Dynamic Behavior Variation in Virtual Human Agents Driven by a Model of Needs and Personality
Sean Brzoska and Wesley Deneke

FA 2024: Fast Abstract
Session 3
Location: Room 7A
Session Chair: Yuuichi Teranishi, Osaka University

4079: Evaluation of Transformer-Based Encoder on Conditional Graph Generation
Thamila Abeywickrama, Sho Tsugawa, Akiko Manada and Kohei Watabe

4183: FLEDGY: Federated Learning for Edge Devices Accommodating GPU Diversity
Aria Ghora Prabono, Yangfan Goh and Mei Kobayashi

4440: Dynamic Opaque Predicate Detection with a Recursive Matching Method
Hyeongchang Jeon, Seoksu Lee and Eun-Sun Cho

5137: Comprehensive Analysis of the Therapeutic Effects and Mechanisms of Panax Ginseng through Network-Based Methods
Young Woo Kim, Seon Been Bak, Byung Woo Lee, Seung Wook Hong, Ki Wook Kim, Sun-Dong Park and Won Yung Lee

5333: An Automation Tool Converting Test Steps into Keywords for Automated Test Development
Zhen-Yang Guo, Zi-Long You, Shuo-Han Chen, Shiang-Jiun Chen and Chuan-Ming Liu

5340: Design and Evaluation of YOLOv7-based License-Plate Recognition for Mobile Vehicles Using Notebook-Raspberry-PI
Hung-Yu Chien and Kuang-Yu Chao

5352: Minimizing FPS Degradation in Multi-Streaming Processing with YOLO
Taekwon Chung, Seunghyeon Park, Sanghun Kim and Kiwoong Kwon

5858: Large Language Model Integrated Healthcare Cyber-Physical Systems Architecture
Malithi Wanniarachchi Kankanamge, Syed Mhamudul Hasan, Abdur R. Shahid and Ning Yang
9224: An Innovative Method for Efficient Coverage Data Reduction in Multiple Fault Localization
Chih-Chiang Fang and Chin-Yu Huang

OER 2024: The 8th IEEE International Workshop on Open Education Resources
Session 1
Location: Room 7B
Session Chair: Henry Chan, Hong Kong Polytechnic University
832: Online Coding Tutorial Systems: A New Category of Programming Learning Platforms
AC Ohud Alasmari, Jeremy Singer and Mireilla Bikanga Ada

SEPT 2024: Symposium on Security, Privacy & Trust in Computing
Session 5
Location: Room 7C
Session Chair: Shameem Ahmed, Western Washington University
7997: EGAGN: Generative Adversarial Graph Networks for Ethereum Phishing Scams Detection
Bo Cui, Zhenyu Zhang and Wenhan Hou

SCH 2024: Symposium on Smart & Connected Health
Session 1
Location: Room 7D
Session Chair: Zeno Franco, Medical College of Wisconsin & Marquette University
1067: CFSCare: ML-based Activity Monitoring System for Chronic Fatigue Syndrome Patients Using Smartphone and Wrist Sensor
Arafat Mahmood, Parama Sridevi, Masud Rabbani, Padmapriya Velupillai Meikandan, Mohammad Syam, Syeda Shefa, William Chu and Sheikh Iqbal Ahamed

10:30 - 11:00 | Coffee Break
11:00 - 12:30
Plenary Session - Keynote 2
Enhancing Computer Security with Hardware-level Malware Detection
Jean-Luc Gaudiot, UCI Distinguished Professor, University of California, Irvine
IEEE Computer Society President Emeritus
Location: Nakanoshima Museum of Art

12:30 - 1:30 | Lunch
1:30 - 3:00 | Breakout Sessions

DSAIH 2024: The 1st IEEE International Workshop on Data Science and Artificial Intelligence in Healthcare
Session 2
Location: Room 6A
Session Chair: Chisako Muramatsu, Shiga University

Invited Talk: Data Science and Data Management
Tosiya Sato, Shiga University

792: MamT4: Multi-view Attention Networks for Mammography Cancer Classification
Alisher Ibragimov, Sofya Senotrusova, Arsenii Litvinov, Egor Ushakov, Evgeny Karpulevich and Yury Markin

3545: Similar Mask Retrieval with Contrastive Learning for Single Domain Generalization in Medical Imaging
Izumi Ogura and Chisako Muramatsu

7286: Statistical Review of Regulatory Requirements for AI Diagnosis
Naoki Ishizuka

6772: Multiview Machine Learning Classification of Tooth Extraction in Orthodontics using Intra Oral Scans
Carlos Falcão de Azevedo Gomes, Adriel Silva de Araújo, Sunna Imtiaz Ahmad, Maurício Cecílio Magnaguagno, Vinicius Crisosthemos Teixeira, Anushri Singh Rajapuri, Quinn Roederer, Dalvan Jair Griebler, Vinicius Dutra, Hakan Turkkahraman and Marcio Sarroglia Pinho

STPSA 2024: The 18th IEEE International Workshop on Security, Trust, and Privacy for Software Applications
Session 1
Location: Room 6B
Session Chair: Hossain Shahriar, University of West Florida

1644: A Chat Application on a Bare Internet
Fahad Alotaibi, Ramesh Karne, Alexander Wijesinha, Nirmala Soundararajan and Abhishek Rangi

3161: Call Graph Delta Analysis and Security Vulnerability Assessment with Static Analysis
Hasan Sozer

4314: Authentic Leaning on DevOps Security with Labware: Git Hooks to Facilitate Automated Security Static Analysis
Md Mostafizur Rahman, Mst Shapna Akter, Md Abdul Barek, Abm Kamrul Islam Riad, Md Abdur Rahman, Hossain Shahriar, Akond Rahman and Fan Wu

5413: Mitigating Insecure Outputs in Large Language Models LLMs: A Practical Educational Module

7576: Enhancing HIPAA Compliance in AI-driven mHealth: Security and Privacy Strategies
Abm Kamrul Islam Riad, Md Abdur Rahman, Mdabdul Barek, Md Mostafizur Rahman, Tahia Islam, Mst Shapna Akter and Muhammad Rahman
ITiP 2024: Symposium on IT in Practice
Session 1
Location: Room 6C
Session Chair: Charalampos Patrikakis, University of West Attica

153: Exploring Gaming Technologies, Digital Twins, and VR to Visualise Wireless Propagation Simulations
Louis Nisiotis, Anna Anikina and Marios Raspopoulos

3644: Exploiting Transformer Models in Three-version Image Classification Systems
Shamima Afrin and Fumio Machidaac

7223: A Taxonomy and Review of Prompt Engineering Patterns in Software Engineering
Yuya Sasaki, Hironori Washizaki, Jialong Li, Dominik Sander, Nobukazu Yoshioka and Yoshiaki Fukazawa

7665: Low-Resolution Face Recognition for CCTV and Edge-Powered Smart Attendance Systems
Nico Surantha, Edward Yose and Sani Muhamad Isa

HCSC 2024: Symposium on Human Computing & Social Computing
Session 2
Location: Room 6D
Session Chair: Shameem Ahmed, Western Washington University

9678: The Audience Effect: Do Observations Change Outcomes in HCI Studies?
Huimin Tang, Boon Giin Lee, Dave Towey, Kaiyi Chen, Yichu Fang, Runzhou Zhang and Matthew Pikeac

7059: Exploring Emotional Responses with Dynamic Difficulty Adjustment Adaptation in Immersive Virtual Reality Exergaming
Renzhi Han, Boon Giin Lee, Dave Towey, Yuan Yao and Matthew Pike

7499: A Comparative Human-Robot Interaction Study Between Face-Display and an Advanced Social Robot
Ahmed Salem and Kaoru Sumi

8144: Identifying Key Players and Themes in Michigan Protests Through Social Network Analysis
Hieu Nguyen and Swapna Gokhale

9204: Evaluating Graphical User Interfaces for Improving Depth Perception with Remote Crane Operators
Johan Harju and Taufik Akbar Sitompul

9610: Interaction Between Unmanned Systems and Humans: An Example of a Smart Passenger Access Gate for Autonomous Urban Passenger
Ferriesac Felix-Marcel Petermann

SETA 2024: Symposium on Software Engineering Technologies & Applications
Session 3
Location: Room 6E
Session Chair: Hiroyuki Ohsaki, Kwansei Gakuin University

2661: Predicting Change-Proneness with a Deep Learning Model: Incorporating Structural Dependencies
Yamin Hu and Hao Jiang

4524: Boundary-guided Black-box Fairness Testing
Ziqiang Yin, Wentian Zhao and Tian Song

4640: Gradient-Guided Test Case Generation for Image Classification Software
Shunhui Ji, Yunhe Li, Hai Dong and Pengcheng Zhang

5080: Interlinking Clinical Guidelines via mining Medical Literature Knowledge for Multi-morbidity Decision-Making
Hang Yang, Liang Xiao, Rujun Zhu, Ziji Liu and Jianxia Chen

5200: Towards Continuous Deployment at Scale in Software-intensive Embedded Systems: A Maturity Model from the Telecommunications Domain
Anas Dakkak, Jan Bosch and Helena Holmström Olsson
DSAT 2024: Symposium on Data Sciences, Analytics & Technologies
Session 6
Location: Room 6F
Session Chair: Mohammad Masum, San Jose State University

6651: Natural Language Processing for Recognizing Bangla Speech with Regular and Regional Dialects: A Survey of Algorithms and Approaches
Paramita Basak Upama, Parama Srivevi, Masud Rabbani, Kazi Shaful Alam, Munirul Haque and Sheikh Iqbal Ahamed

9298: ActivePCA: Integrating PCA and Active Machine Learning for Efficient Dimension Reduction
Priyanka Bhyregowda, Mohammad Masum, Lohuwa Mamudu, Mohammed Chowdhury, Sai Chandra Kosaraju and Hossain Shahriar

9743: Research on Trajectory Frequent Pattern Mining Method Based on Deep Clustering
Bohua Tian and Yan Wang

9743: Research on Trajectory Frequent Pattern Mining Method Based on Deep Clustering
Bohua Tian and Yan Wang

9907: An Ontology Alignment Validation Approach Based on Supervised Machine Learning Algorithms and Automatic Schema Matching Approach
Yousra Bendaly Hlaoui and Faten Abbassi

STA 2024: The 16th IEEE International Workshop on Software Test Automation and
SSMLS 2024: The 19th IEEE International Workshop on Smart and Sustainable Mobility and Logistics in Smart Cities
Location: Hall 3
Session Chairs: Sahra Sedigh Sarvestani, Missouri University of Science & Technology and Cataldo Basile, Politecnico de Torino

480: An Empirical Study of Fault Localization on Novice Programs
Yuxing Liu, Jianying Chen, Jiamin Tang, Xiaoyi Tong, Hengyuan Liu and Xuchuan Zhou

4285: Facilitating the Process Rate of Difference Determination within HTML after Web Page Events
Zhen-Yang Guo, Yu-Siang Liao, Shuo-Han Chen and Chuan-Ming Liu

4445: Enabling Effective Metamorphic-Relation Generation by Novice Testers: A Pilot Study
Yifan Zhang, Dave Towey and Matthew Pike

7421: Explicable Machine Learning Models Using Rich Geospatial Data
Aaron Bramson and Masayoshi Mita

5873: A Threat Analysis of Cooperative Intelligent Transport Systems: C-Roads scenarios
Gabriele Gatti, Cataldo Basile, Marco Civera, Massimiliano Masi and Michele La Manna

SCH 2024: Symposium on Smart & Connected Health
Session 3
Location: Hall 4
Session Chair: Zeno Franco, Medical College of Wisconsin & Marquette University, USA

6611: An Affordable Real-Time Wearable Monitoring System for Head Impact Detection
Alaa Aldin Ghazal and S. G. Ganpule

8320: BlockPRLS: Blockchain-based Patient Record Linkage System for Big Data Analytics
Abu Sayed Md Latiful Hoque, Md Raihan Mia, Mohammad Sajid Abdullah, Mohammad Jahedul Islam, Bipul Chandra Dev Nath, Muhammad Tanvir Rahman and Sheikh Iqbal Ahamed

24: Towards Understanding the Challenges, Needs, and Opportunities Pertaining to Assessment Techniques for Autism Computing College Students
Moushumi Sharmin, Jordan Archer, Adrian Heffelman, Eli Graves, Yasmine Elglaly and Shameem Ahmed
ISAC 2024: The 1st IEEE International Workshop on Interactive Systems, Affective Computing Technologies and Applications

Session 1
Location: Room 7A
Session Chair: Kaoru Sumi, Future University Hakodate

Keynote: Thomas James Tiam-Lee
Bridging Humanity & Technology

27: GetEmotion: A Data Collection Tool for Building an Affective Haptic Dataset
Cymon Radjh Nadela, Irah Faye Oliva, Christopher Josh Quinzon and Merlin Teodosia Suarez

600: Physiological Correlates while Playing Tetris: A Comparative Study between Males and Females
Yusuke Sato, Ahmed Salem and Kaoru Sumi

774: Development of a Virtual Travel System to Enhance the Discovery of Aspiration and Pleasure
Tetsunari Inamura, Reiko Gotoh and Madoka Matsumoto

841: Experiential Learning System with Generative Art using Virtual Spaces
Shun Furuichi and Kaoru Sumi

841: Experiential Learning System with Generative Art using Virtual Spaces
Shun Furuichi and Kaoru Sumi

7734: Analysis of Verbal and Nonverbal Behaviors in Online Bibliobattle Focusing on Listener Responses
Akihiro Nagai and Yasuyuki Sumi

SRS 2024: Student Research Symposium
Session 1
Location: Room 7B
Session Chair: Ryohei Banno, Kogakuin University

735: Identifying Which Clients Will Cancel Their Insurance Policy Given Information about their Economic and Domestic Status Using Logistic Regression and Linear Discriminate Analysis Methods
Katelyn Narain and Yulei Pang

1209: WeBMO: Bitwise Memory Operation based Data Obfuscation for WebAssembly
Park Jeongpil and Cho Eun-Sun

1334: A Risk Assessment based RBAC using Attack Graphs to Mitigate Insider Threat during UAQ
Shuvo Bardhan

2569: Fitness Monitoring System based on Multimodal Perception and Rotation Strategy
Wangyuhao Li, Hideaki Miyaji and Hiroshi Yamamoto

4209: Trajectory-Aware Framework for Dynamic MEC Server Selection in 5G Networks
Massinissa Lakhdar Friha, Hideaki Miyaji and Hiroshi Yamamoto

4878: Proximity Verification Function of Real World Data Sources based on Similarity Analysis on Environmental Information
Masashi Kobayashi, Hideaki Miyaji and Hiroshi Yamamoto

2099: An Evaluation of Time-Sliced GPU Sharing with KubeRay for Machine Learning Workloads
Papon Choonhaklai, Kohei Ichikawa, and Hajimu Iida

SEPT 2024: Symposium on Security, Privacy & Trust in Computing
Session 6
Location: Room 7C
Session Chair: Syed Rahman, University of Sharjah

8262: GuardFL: Detection and Removal of Malicious Clients Through Majority Consensus
Md Hasebul Hasan, Md Shariful Islam Khan, Md Shafayatul Haque, Ajmain Yasar Ahmed and Muhammad Abdullah Adnan
8390: CoMDet: A Contrastive Multimodal Pre-Training Approach to Encrypted Malicious Traffic Detection
Jiakun Sun, Xiaotian Zhang, Yabo Wang and Shuyuan Jin

9780: SLIMECRAFT: State Learning for Client-server Regression Analysis and Fault Testing
Eric Lesiuta, Victor Bandur and Mark Lawford

8216: GeoGRCNN: Synthetic Trajectory Generation for Location Privacy Protection
Srikanth Narayanan, Chaoquan Cai and Dan Lin

SESS 2024: The 8th IEEE International Workshop on Software Engineering for Smart Systems and
SIS-SS 2024: The 7th IEEE International Workshop on Smart IoT Sensors & Social Systems for eHealth and Well-Being Applications
Location: Room 7D
Session Chair: TBD

8954: Cloud Memory Enabled Code Generation via Online Computing for Seamless Edge AI Operation
Myungjin Kang and Daejin Park

3365: Communication Performance Evaluation Using Compression Processing for IoT Systems in Mobile Environments
Chisa Ito, Atsuko Takefusa, Hidemoto Nakada and Masato Oguchi

3:00 - 3:30 | Coffee Break
3:30 - 5:00 | Breakout Sessions

DSAIH 2024: The 1st IEEE International Workshop on Data Science and Artificial Intelligence in Healthcare
Session 3
Location: Room 6A
Session Chair: Chisako Muramatsu, Shiga University

1373: Three-branch Molecular Representation Learning Framework for Predicting Molecular Properties in Drug Discovery
Yu Liu, Lihui Duo, Jianfeng Ren, Bencan Tang and Dave Towey

2941: Early Recurrence Detection of Invasive Ductal Carcinoma Utilizing High-Dimensional Genomic Data
Rohan Kaushikan

8537: Efficient Pooling Designs and Screening Performance in Group Testing for Two Type Defectives
Hiroyasu Matsushima, Yusuke Tajima, Xiao-Nan Lu and Masakazu Jimbo

8772: Machine Learning-Based Early Detection and Intervention for Mental Health Issues in Children
Sriteja Kataru, Kathleen King and Lachin Fernando

ITiP 2024: Symposium on IT in Practice
Session 2
Location: Room 6B
Session Chair: Charalampos Patrikakis, University of West Attica

5151: Agile Requirements Engineering in a Distributed Environment: Experiences from the Software Industry during Unprecedented Global Location Challenges
Yishu Li, Jacky Keung, Kwabena Ebo Bennin, Xiaoxue Ma, Jingyu Zhang and Zhen Yang

5541: Detection of Lesion Candidates and Extraction of Diagnostically Inconclusive Images in Capsule Endoscopy Using YOLOv5
Tatsuki Ito, Shinji Kotani and Hiromi Watanabe

6934: Leveraging Large Language Models for Automatic Smart Contract Generation
Emanuele Antonio Napoli, Fadi Barbâra, Valentina Gatteschi and Claudio Schifanella
Carlos Eduardo Ramos Nunes and Afshin Ashofteh

7146: Automatic Generation of Selective Disassembly Sequences for Augmented Reality-Guided Maintenance
Zhao Xin, Huang Hao, Wang Yue and Fu Hongyong

MediComp 2024: The 10th IEEE International Workshop on Medical Computing
Session 1
Location: Room 6C
Session Chair: Farhana Zulkernine, Queen's University

965: Attention to Key Fundus Features: A Prior Knowledge-Guided Deep Learning Network for Pediatric High Myopia Detection
Wenxiu Cheng, Jianqiang Li, Xi Xu, Haoran Peng, Linna Zhao, Suqin Liu, Chujie Zhu and Fujiu Xu

3488: Investigating Radiological Diagnosis Through Smartphone-Based Virtual Reality Applications: A User Study
Renan Trévia, Vinicius Teixeira and Márcio Pinhoac

6935: Application of a Bacterial Image Analysis System for AST Detection
Cheng-Yu Ye, Cheng-Kai Huang and Meng-Hua Yen

SloT 2024: Symposium on Smart IoT Systems & Applications
Session 1
Location: Room 6D
Session Chair: Hironori Washizaki, Waseda University

1544: Performability Modeling and Analysis for Real-time Object Detection on UAV Systems
Qingyang Zhang, Fumio Machida and Ermeson Andrade

Rochishnu Banerjee, Ethan Han, Longze Li, Haoxiang Yu, Md Osman Gani and Vaskar Raychoudhury

2234: Design and Implementation of an Agile Microservices-Based Intelligent Surveillance Platform with Kubernetes
Chun-Hao Yang, Hei Man Fung and Meng-Hsun Tsai

4320: An Empirical Study on AI-Powered Edge Computing Architectures for Real-Time IoT Applications
Awatif Yasmin, Tarek Mahmud, Minakshi Debnath and Anne H. H. Ngu

DSAT 2024: Symposium on Data Sciences, Analytics & Technologies
Session 7
Location: Room 6E
Session Chair: Kathy Grise, IEEE

3612: BloomWalk and CuckooWalk: Fast Random Walks Utilizing Probabilistic Data Structure
Ren Inayoshi, Han Nay Aung and Hiroyuki Ohsaki

7238: A Federated Learning Framework based on Spatio-Temporal Agnostic Subsampling (STAS) for Forest Fire Prediction
Mutakabbir Abdul Mutakabbir, Chung-Horng Lung, Samuel A. Ajila, Sagar Naik, Marzia Zaman, Richard Purcell, Srinivas Sampalli and Thambirajah Ravichandran
7817: On Leveraging Multi-Page Element Relations in Visually-Rich Documents
Davide Napolitano, Lorenzo Vaiani and Luca Cagliero

8502: Strategic Integration of Context for Fine-Tuning Topic Model Performance
Pierre Dardouillet, Kave Salamatian, Herve Verjus, Faiza Loukil, David Telisson and Olivier Le Van

DSAT 2024: Symposium on Data Sciences, Analytics & Technologies
Session 8
Location: Room 6F
Session Chair: May Wang, Georgia Tech and Emory University

3184: Learning Priors of Human Motion with Vision Transformers
Placido Falqueto, Alberto Sanfeliu, Luigi Palopoli and Daniele Fontanelli

6350: Enhancing Crime Investigation: Attention-Based GAN for Sketch-to-Portrait Conversion
Sheng Yun, Haoran Xue, Xueqing Zhang, Junkai Zhang and Yijun Zhao

6907: Novel Data-Driven Dynamic Network Science Applications in Algo Trading
Thimani Ranathungage, Aerambamoorthy Thavaneswaran, You Liang, Ruppa Thulasiraman and Alex Paseka

8969: Deception and Lie Detection Using Reduced Linguistic Features, Deep Models and Large Language Models for Transcribed Data
Tien Nguyen, Akbar Siami Namin, Faranak Abri and Keith Jones

SRS 2024: Student Research Symposium
Session 2
Location: Hall 3
Session Chair: Ryo Nakamura, Fukuoka University

5312: A Study on the Applicability of Graph Reduction to Evaluating the Robustness of Complex Networks
Tomoya Matoba, Ryotaro Matsuo and Ryo Nakamura

6217: Machine Learning for the Recognition of Defects on the Surface of Film Capacitors
Ayumu Narita, Tepppei Shibata, Akira Fujii, Takanori Sato and Eduardo Carabez

6881: Opportunistic Network Routing Strategy Based on Node Sleep Mechanism
Zhuoyuan Li, Danjie Bao, Gang Xu and Feng Zhang

7364: Wide-range Sensor Network System by Limited Sensors based on Various Image Analysis Method
Mao Kubota, Hideaki Miyaji and Hiroshi Yamamoto

8587: Fine-Grained Classification of Researcher-Related Web Pages Using String and Contextual Features
Hiroo Hayashi and Marie Katsurai

9798: Health Monitoring System for Desk Workers using Non-Contact Multi-Sensors
Zhenghan Li, Hideaki Miyaji and Hiroshi Yamamoto

5259: An AR Visualization System of Near-Future Information to Avoid Dangerous Situations
Tokiteru Ino, Tomoya Kawakami, Satoru Matsumoto, Tomoki Yoshihisa and Yuichi Teranishi

MOWU 2024: Symposium on Mobile, Wearable & Ubiquitous Computing
and
SCH 2024: Symposium on Smart & Connected Health (Session 4)
Location: Hall 4
Session Chair: Hiroyuki Ohsaki, Kwansei Gakuin University

3038: A Learning-based and Network-aware Power Management for Mobile Devices
Jin Zhang, Jiangjie Huang, Long Peng, Xiaodong Liu, Jie Yu and Wenzhu Wang

8364: CA-GAR: Causality-Aware Pattern Mining Scheme for Group Activity Recognition
Hyunju Kim, Heesuk Son and Dongman Lee
ISAC 2024: The 1st IEEE International Workshop on Interactive Systems, Affective Computing Technologies and Applications
Session 2
Location: Room 7A
Session Chair: Kaoru Sumi, Future University Hakodate

2639: Advancing Arousal and Valence Prediction in Virtual Reality through Sentiment Analysis Integration
Allison Bayro and Heejin Jeong

3945: Psychophysiological Correlates of Embarrassment Emotion: A Comparative Study Between Shy Males and Females
Ahmed Salem and Kaoru Sumi

4993: Self-instructional Training Interface Using a Speech Bubble that Facilitates Users to Internalize the Automatically Generated Texts
Kei Hyodo, Tomonori Kubota, Satoshi Sato and Kohei Ogawa

5421: The Impact of Anonymity on Communication in the Metaverse
Yoshifuru Nakayama and Kaoru Sumi

6303: Persuasive Emotional and Cultural Elicitation in Health Marketing Content: A Cross-Cultural Experimental Study
Pinkie Anggia and Kaoru Sumi

9510: Evaluation of Cybernetic Avatar Operations in Three Different Types of Viewports for Optimizing Operator Usability and Comfort
Nitchan Jianwattanapaisarn, Akira Utsumi and Takahiro Miyashita

SCA 2024: The 7th IEEE International Workshop on Smart Computing & Applications
Session 1
Location: Room 7B
Session Chair: Chih-Hung Chang

536: Using Convolutional Neural Network to Epilepsy Brainwave Recognition
Yi-Hsiu Tsai, Chih-Hung Chang, Yan-Heng Lin, Ta-Cheng Chen, Chu-Ling Chen, Hong-Jie Jhou, Wen Chien Huang, Fang-Ju Lin and Dann-Pyng Shih

Yi-Cyuan Tseng, Wei-En Hsu, Yu-An Chen, Yu-Wei Chan, Shih-Ting Ciou and Shun-Ping Wang

861: LASG: Streamlining Legal Adjudication with AI-Enabled Summary Generation
Yi-Hung Liu and Yi-Fun Lin

1091: Can Large Language Model Aid in Generating Properties for UPPAAL Timed Automata? A Case Study
Han-Wei Wu and Shin-Jie Lee

Blockchain 2024: 1st IEEE International Workshop on Blockchain Nexus: Bridging Innovations and Standards for Tomorrow's Digital Frontier
Location: Room 7C
Session Chair: Dr. Mohammad Fardad, Dublin City University

6147: Hybrid Consensus Networks for Scalable and Secure Internet of Vehicles
Mohammad Fardad, Elham Mohammadzadeh Mianji, Gabriel-Miro Muntean and Irina Tal
7577: Distributed Ledger Technology as a Tool for Voluntary Standardization Compliance in Emerging Technologies: A Legal View
Dimitar Kyosev

7908: Secure and Decentralized Collaboration in Oncology: A Blockchain Approach to Tumor Segmentation
Ramin Ranjbarzadeh, Ayse Keles, Martin Crane, Shokofeh Anari and Malika Bendechache

9776: Geopolitical Manoeuvring in Blockchain Standardization: Comparative Analysis of the EU and U.S. Approaches
Ruochen Qi and Dong-Hyu Kim

SCH 2024: Symposium on Smart & Connected Health
Session 2
Location: Room 7D
Session Chair: Zeno Franco, Medical College of Wisconsin & Marquette University

4770: Evaluation of Gaze Input in 3D Space for a Person with Multiple Physical Disabilities Using a Robot and Drones
Hiromi Watanabe, Mariko Kono and Shinji Kotani

4971: Training Sequential CAG Segmentation Models without Labeled CAG Video Data
Ting-Chia Yao, Kai-Wen Lin, Chih-Kuo Lee, Po-Hsuan Tseng and Che-Rung Lee

9571: Leveraging Technology to Address Women’s Health Challenges: A Comprehensive Survey
Sayeda Farzana Akta, Paramita Basak Upama and Sheikh Iqbal Ahamed

5281: Listening to the Brain: A Novel Approach to Understanding Cerebral Dynamics through Blood Flow Sounds

6:00PM | COMPSAC 2024 Banquet - 5F Sakura, Hilton Osaka
Address: 1 Chome-8-8 Umeda, Kita Ward, Osaka, 530-0001

Thursday, July 4

9:00 - 10:30 | Breakout Sessions

ADMNET 2024: The 12th International IEEE Workshop on Architecture, Design, Deployment, and Management of Networks and Applications
Session 1
Location: Room 6A
Session Chair: Keisuke Ishibashi, International Christian University

175: A Web-based Visualization System for Operating System Resource Management
Ting-Yu Su, Mei-Ling Chiang, Sih-Bei Chen, Yun-Han Hsu, Hsiao-Tung Yang and Run-An Yeh

1825: Proposal of a Scalable Building Operating System Architecture and Data Model Toward Software-Defined Building
Koichi Owaki, Matsuki Yamamoto, Nattaon Techasrmartikul, Yuichi Oshita, Hideyuki Shimonishi, Kouki Higashioka, Yoshihisa Toshima, Takanori Ogura and Shinji Shimojo

SETA 2024: Symposium on Software Engineering Technologies & Applications
Session 4
Location: Room 6B
Session Chair: Hiroyuki Ohsaki, Kwansei Gakuin University

7098: FOQL: Software Aging Determination and Rejuvenation Strategy Generation for Docker
Yiming Liu, Zhuanzhuan Liu, Xueyong Tan and Jing Liu
7951: Neural-MBFL: Improving Mutation-Based Fault Localization by Neural Mutation
Bin Du, Baolong Han, Hengyuan Liu, Zexing Chang, Yong Liu and Xiang Chen

8053: Empirical Study on GitHub Issue Report Templates
Jin Zhang, Maoqi Peng and Yang Zhang

**MediComp 2024: The 10th IEEE International Workshop on Medical Computing**
**Session 2**
**Location: Room 6C**
**Session Chair: Hiroki Kashiwazaki, Kindai University**

7799: How to Advance Eye Image Segmentation for Accurate Myasthenia Diagnosis? An Empirical Study of Boundary Loss
Chujie Zhu, Jianqiang Li, Jijiang Yang, Wenxiu Cheng, Linna Zhao, Suqin Liu, Jingchen Zou, Shuhan Wang and Xi Xu

8108: Research on Breast Lesion Localization and Diagnosis based on Knowledge-driven and Data-driven Approach
Lintao Song, Jianqiang Li, Xiaoling Liu, Yiming Liu, Tianbao Ma, Jun Bai, Linna Zhao, Qing Zhao and Xi Xu

8213: Similarity Calculation Model between Patients with Chinese Electronic Medical Records based on Multi-view Hierarchical Learning Network
Huina Wang, Jianqiang Li, Bo Liu, Jinshu Li and Junqi Long

9027: Covid-IRLNet: A COVID-19 Diagnostic Model for Extracting CT Image Features and CT Sequence Features
Jingxiang Xu, Jianqiang Li, Juan Li, Linna Zhao and Shujie Ding

**SETA 2024: Symposium on Software Engineering Technologies & Applications**
**Session 5**
**Location: Room 6D**
**Session Chair: Mohammad Masum, San Jose State University**

2924: CodeFuse: Multimodal Code Search Model with Fine-grained Attention Alignment
Shengnan Zhang, Shuiyan Li, Rongzhi Qi and Xiaofeng Zhou

8146: Instrumenting Runtime Goal Monitoring for F’ Flight Software
Jialong Li, Christos Tsigkanos, Nianyu Li and Kenji Tei

9823: Multi-objective Test Case Generation for Web Applications with Limited Resources
Junxia Guo, Li Liu, Ruilian Zhao and Weiwei Wang

1274: Towards a Unified Approach for Software Architecture Recovery
Hasan Sozer

**DSAT 2024: Symposium on Data Sciences, Analytics & Technologies**
**Session 9**
**Location: Room 6E**
**Session Chair: Kathy Grise, IEEE**

176: A Multimodal Personalized Architecture for Irregular Bicycle Riding Form Detection
Hayato Tomisu, Hideto Yano, Naoto Kai and Tomoki Yoshihisa

350: Mobile Microlearning to Scaffold Project-Based Learning Using ARCS Model: A Preliminary Study
Amparpreet Gill, Derek Irwin, Dave Towey and Yanhui Zhang

2411: On the Impact of Network Topology on Distributed Online Kernel Learning
Han Nay Aung and Hiroyuki Ohsaki

823: A Cryptocurrency Multiple Trading Strategy with Kalman Filter Innovation Volatility Interval Forecasts
You Liang, Aerambamoorthy Thavaneswaran, Juan Liyau, Areebah Muhammad and Thimani Ranathungage
SETA 2024: Symposium on Software Engineering Technologies & Applications
Session 6
Location: Room 6F
Session Chair: Shameem Ahmed, Western Washington University

3898: Microcompositions for Goal-Driven Self-Adaptation
Alan Colman, Bao Vo, Anton V. Uzunov, Saad Sajid Hashmi, Hoa Khanh Dam and Mohan Baruwal Chhetri

5377: Practitioners’ Expectations on Code Smell Detection
Zexian Zhang, Shuang Yin, Wenliu Wei, Xiaoxue Ma, Jacky Wai Keung, Fuyang Li and Wenhua Hu

6229: MTSA: Multi-granularity Metamorphic Testing for Sentiment Analysis Systems
Honghao Huang, Ya Pan, Lan Luo and Yinfeng Wang

6938: Context-focused Prompt Tuning Pre-trained Code Models to Improve Code Summarization
Xinglu Pan, Chenxiao Liu, Yanzhen Zou, Xianlin Zhao and Bing Xie

7011: Cloned Code Clustering for the Software Product Line Engineering Approach to Developing a Family of Products
Taeyoung Kim, Jihyun Lee and Sungwon Kang

SETA 2024: Symposium on Software Engineering Technologies & Applications
Session 7
Location: Hall 3
Session Chair: Moushumi Sharmin, Western Washington University

1145: A Systematic Literature Review on MBT Test Cases Maintenance
Carlos D. Q. Lima, Everton L. G. Alves and Wilkerson L. Andrade

4486: Enhancing Collaborative Software Development: A Deep Learning Approach for Bot Recommendation
Jin Zhang, Xingjin Wu, Yang Zhang, Shunyu Xu and Maoqi Peng

1582: Combining Prompts with Examples to Enhance LLM-Based Requirement Elicitation
Shuaicai Ren, Hiroyuki Nakagawa and Tatsuhiro Tsuchiya

1885: Determine When and How to Perform Edge Rejuvenation Effectively for Cloud-Edge Collaborative System
Zhuanzhuan Liu, Yiming Liu, Xue-Yong Tan and Jing Liu

2600: VulDet-BC: Binary Software Vulnerability Detection Based on BiGRU and CNN
Xinxin Cai, Xin Chen, Dongjin Yu, Xinjiang Ye and Fanrong Lv

MVDA 2024: 12th IEEE International Workshop on Modeling and Verifying Distributed-Embedded Applications
Location: Hall 4
Session Chair: Alfredo Cuzzocrea, University of Calabria

Atsushi Naito, Tatsuhiro Tsuchiya and Hiroyuki Nakagawa

9483: Trace and Algebraic Semantics for Partial Store Order Memory Model
Junfu Luo, Lili Xiao and Huibiao Zhu

1833: Formal Verification and Security Analysis of AMQP
Huiying Liu, Wenting Dong and Huibiao Zhu

7109: Formalization and Verification of Percolator Using CSP
Chenhui Wang, Ziqing Su and Huibiao Zhu

Abdur R. Shahid, Syed Mhamudul Hasan, Malithi Wanniarachchi Kankanamge, Md Zarif Hossain and Ahmed Imteaj
FA 2024: Fast Abstract
Session 4
Location: Room 7A
Session Chair: Toyokazu Akiyama, Kyoto Sangyo University

6343: Tackling Front-End Challenges: Strategies for Time-Series Data Retrieval and Visualization
Naiyana Sahavechaphan, Manot Rattanen, Jukkrapong Ponharn, Tanapon Yotanak, Krit Punpreuk and Kamron Aroonrua

6918: Rethinking UX for Diverse Digital Proficiency
Naiyana Sahavechaphan, Tanapon Yotanak, Manot Rattanen, Jukkrapong Ponharn and Asamaporn Chatrattikorn

7071: The Study of Student Program Analysis and Feedback System
Jong-Yih Kuo, Ti-Feng Hsieh and Yu-Hong Chen

7231: Enhancing Security of Generalization Methods based on m-invariance for Dynamic Data Publication
Fusu Zhang, Yoko Kamidoi and Shin‘Ichi Wakabayashi

7613: A Machine Learning based on Arithmetic Optimization Algorithm Select the Significant Genes
Yu-Da Lin, Jun-Han Lin, Chiang-Wen Hsu and Sin-Hua Moi

7707: A Deep Learning Approach for Assessment of Breast Aesthetic Score and Keypoint Localization
Jin Byeong Park, Myeongju Kim, Joseph Kyu-Hyung Park and Yujin Myung

7711: Privacy Preserved Achievement Method for OCSP Status and Supported Protocols in Full-DoH Architecture
Satoru Sunahara, Yong Jin, Katsuyoshi Iida, Yoshiaki Takai and Nariyoshi Yamai

7916: Implementation of Dynamic Round Robin Scheduling on Bare-Metal SLocation: Hallow Multi-OS for Lightweighted Microcontrollers
Minjung Kim and Daejin Park

8217: Ethical Analysis of AI-Enhanced Audiovisual Translation Tools
Iulia Mihalache

SCA 2024: The 7th IEEE International Workshop on Smart Computing & Applications
Session 2
Location: Room 7B
Session Chair: Chih-Hung Chang

1169: By Machine Learning Techniques Predicting Post-COVID-19 Condition
Pei-Rong Huang, Chih-Hung Chang, Wen-Ching Chen, Che-Lun Hung, Po-Yu Lu, Ting-Kuang Yeh, Hsiu-Wen Wang, Yu-Chun Yen and William Cheng-Chung Chu

1815: Enhancing Cutting Sound Quality in Tool Wear Monitoring via Hybrid Domain Loss UNet Network
Jian Wen Chen, Meng Shiu Tsai and Che Lun Hung

2481: An Accurate and Robust Matching Network for Full/Partial Point Cloud Registration
Min-Kuan Chang, Chi-Sheng Yang and Huan Chen

SESS 2024: The 8th IEEE International Workshop on Software Engineering for Smart Systems
Session 1
Location: Room 7C
Session Chair: Sahra Sedigh Sarvestani, Missouri University of Science & Technology

1012: Code Generation Using Self-Interactive Assistant
Zixiao Zhao, Jing Sun, Cheng-Hao Cal and Zhiyuan Wei
1286: Model-Driven Engineering for Quantum-Programming: A Case Study on Ground-State Energy Calculation
Furkan Polat, Hasan Tuncer, Armin Moin and Moharram Challenger

10:30 - 11:00 | Coffee Break

11:00 - 12:30
Plenary Session - Keynote 3
Green Multicore Computing
Hironori Kasahara, 2018 IEEE Computer Society President, Waseda University
Location: Nakanoshima Museum of Art

12:30 - 1:30 | Lunch & Organizing Committee Meeting (open to all)
Location: Room 7A

1:30 - 3:00 | Breakout Sessions

ADMNET 2024: The 12th International IEEE Workshop on Architecture, Design, Deployment, and Management of Networks and Applications
Session 2
Location: Room 6D
Session Chair: Hiroki Kashiwazaki, Kindai University

3383: ES-AC Energy Balance Opportunistic Routing Algorithm Based on Game Theory
Yuqi Wang, Yanhe Fu, Jia Hao, Gang Xu, Feng Zhang and Fengqi Wei

4269: Assessing Initial Attacks and Defense with Retry Function in MQTT over QUIC
Shin Hitomi, Ismail Arai, Arata Endo, Masatoshi Kakiuchi and Kazutoshi Fujikawa

8712: Meeting Latency and Jitter Demands of Beyond 5G Networking Era: Are CNFs Up to the Challenge?
Adil Bin Bhutto, Ryota Kawashima, Yuzo Taenaka and Youki Kadobayashi

ESAS 2024: The 19th IEEE International Workshop on e-Health Systems & Web Technologies
Location: Room 6E
Session Chair: Sahra Sedigh Sarvestani, Missouri University of Science & Technology

1164: Based on Stacked Attention Network for Chinese Medical Named Entity Recognition
Tao Gu, Jianqiang Li, Qing Zhao and Zhichao Zhu

6290: Leveraging Machine Learning to Identify Effective Teaching Strategies for Children with Autism Spectrum Disorder
Savar Toteja and Pallavi Bajpai

DSML 2024: The 2nd IEEE International Workshop on Data Science & Machine Learning for Cybersecurity, IoT & Digital Forensics
Location: Room 6F
Session Chair: Hiroyuki Ohsaki, Kwansei Gakuin University

584: Improving Insurance Fraud Detection with Generated Data
Chandranil Chakraborttii, Kiet Ha and Lucas Stowe

1661: A Blind Color Image Watermarking for Grayscale Watermark based on Tensor Decomposition
Kaito Hosono, Tetsuya Morizumi, Hirotsugu Kinoshita and Sumiko Miyata

ITiP 2024: Symposium on IT in Practice
Session 3
Location: Hall 3
Session Chair: Charalampos Patrikakis, University of West Attica

8749: Discovering Implicit Operational Knowledge by Identifying Business Processes that Involve Multiple Organizational Entities
Shinobu Saito and Yukako Iimura
9478: Nested Three-stage Game Algorithm Based on Chess Shape Evaluation for Tibetan Jiu Chess
Chen Su, Yong Li, Xiali Li, Yandong Chen and Xiaoyu Fan

9712: Data Center Energy Consumption Prediction Model based on Deep Neural Network BiLSTM
Junqiang Zhou, Yan Wang and Jiefeng Li

9783: Multivariate Time-Series Anomaly Detection in IoT with a Bi-Dual GM GRU Autoencoder
Yuan-Cheng Yu, Yen-Chieh Ouyang, Ling-Wei Wu, Chun-An Lin and Kuo-Yu Tsai

STPSA 2024: The 18th IEEE International Workshop on Security, Trust, and Privacy for Software Applications
Session 2
Location: Hall 4
Session Chair: Mst Shapna Akter, University of West Florida

Hiroki Hanada and Keisuke Ishibashi

5347: Improving ML-based Solutions for Linking of CVE to MITRE ATT&CK Techniques
Saad El Jaouhari, Nouredine Tamani and Rohan Jacob Isaac

4033: Towards Anomaly Detection in Embedded Systems Application Using LLVM Passes
Sirine Ilahi, Adebayo Omotosho and Christian Hammer

6075: Formal Support for Threat Modeling with Attack Decision Diagrams
Misato Nakabayashi, Taro Sekiyama, Ichiro Hasuo and Yutaka Ishikawa

9418: Privacy-Preserving HCV Data Outsourcing Scheme for Initial Diagnosis and Epidemiological Study
Hui Li and Kexin Liu

FA 2024: Fast Abstract
Session 5
Location: Room 7A
Session Chair: Michiharu Takemoto, International Professional University of Technology in Tokyo

9520: Implementing a PHP API Gateway Based on Microservices Architecture
Wen-Tin Lee and Ming-Kai Tsai

8271: Privacy by design: Proposing a Generic Framework for Privacy Compliant Experiment Repository Tool
Abid Hussain and Lester Allan Lasrado

8312: Validating Smart Contracts Using GPT Assistant
Xianhao Zhang, Zhiyuan Wei, Jing Sun and Zijian Zhang

8333: Raw and Artificially Generated Data to Improve the Development of Brain-computer Interfaces: Proof of Concept
Eduardo Carabez, Takanori Sato and Isao Nambu

8840: Goal-Oriented Modeling in Fault Tolerant Service-Oriented Multi-Agent Systems
Elena Troubitsyna

9467: An Evaluation of Sharding Protocol with Unenven Nodes Settings
Yue Su, Yang Xiang, Kien Nguyen and Hiroo Sekiya

9501: A Pharmacogenetic Recommendation System
Michael Zastrozhin, Danika Gupta, Nisha Talagala, Jason Akram, Roman Grachev, Allan Gobbs, Nasren Karaf and Alex Timoshenko
9873: Driver Gene Expression Clustering Model for Prognostic Risk Estimation using Cancer Genomic Data
Sin-Hua Moi, Yu-Da Lin, Yi-Ling Chen, Chao-Ming Hung, Shin-Jiun Tsai and Wei-Hong Cheng

SCA 2024: The 7th IEEE International Workshop on Smart Computing & Applications
Session 3
Location: Room 7B
Session Chair: Shang-Pin Ma, National Taiwan Ocean University

2823: Exploring Drum Percussion Simulation with Gesture Recognition and Smartwatches for Interactive Duets
Pedro Gomes, Murillo Santos de Castro, Fabrizio Soares, Luciana Cardoso, Renan Aranha and Thamer Nascimento

5245: Experimental Study on the Accuracy and Precision of Object Size Measurement with Dual-Lens Imaging Systems
Tse-Chuan Hsu and Yu-Chia Cheng

6148: Chatbotification for Web Applications: A Pattern-based Approach
Yan-Cih Liang and Shang-Pin Ma

9222: A Clustering-Based Approach for Detecting Low-Contrast Texts on Web Pages at the Granular Character Level
Eng-Shen Tu and Shin-Jie Lee

SCA 2024: The 7th IEEE International Workshop on Smart Computing & Applications
Session 4
Location: Room 7C
Session Chair: Shin-Jie Lee, National Cheng Kung University

6154: A Latency Aware and Dynamic Caching Model for Heterogeneous Datalake Environments
Deepika Saxena, Ashutosh Kumar Singh and Volker Lindenstruth

8621: A New Pipeline for Generating Instruction Dataset via RAG and Self Fine-tuning
Chih-Wei Song, Yu-Kai Lee and Yin-Te Tsaiia

8778: HOSHMAND: Accelerated AI-Driven Scheduler Emulating Conventional Task Distribution Techniques for Cloud Workloads
Michael Bidollahkhani, Aasish Kumar Sharma and Julian Martin Kunkel

3:00 - 3:30 | Coffee Break

3:30 - 5:00 | Plenary Session: Highlighting Public Safety Technologies and its Applications for a Better Future
Location: Nakanoshima Museum of Art

Kathy Grise, Senior Program Director – IEEE Future Directions

Carolyn McGregor, Dean of the Faculty of Business and IT at Ontario Tech University and a two-time Canada Research Chair in Health Informatics, Director of the Joint Research Centre in Artificial Intelligence for Health and Wellness between Ontario Tech University and the University of Technology, Sydney

Nicholas Napp, Senior Member of IEEE, steering committee member for IEEE’s Metaverse initiative and the founder of Xmark Labs, LLC

Louis Nisiotis, Steering Committee Member of the IEEE Metaverse scientific community, Program Lead for BSc Computing at the University of Central Lancashire, Cyprus

May Dongmei Wang, Wallace H. Coulter Distinguished Faculty Fellow and full professor of Biomedical Engineering, Electrical and Computer Engineering, Computational Science and Engineering at Georgia Institute of Technology (GT) and Emory University (EU), Director of Biomedical Big Data Initiative, Georgia Distinguished Cancer Scholar, Petit Institute Faculty Fellow, Kavli Fellow, AIMBE Fellow, IAMBE Fellow, IEEE Fellow, and Board of Directors of American Board of AI in Medicine
Harnessing the Power of Intelligent Systems: Shaping the Future

The field of computing is rapidly evolving, driven by groundbreaking advancements in artificial intelligence, machine learning, and data analytics. At the forefront of this transformation lie intelligent systems, poised to revolutionize industries and societies. The 2025 IEEE COMPSAC conference in Toronto will be a global forum to explore intelligent systems' latest breakthroughs and applications across diverse domains. From autonomous vehicles and smart cities to personalized healthcare and sustainable energy solutions, intelligent systems are pushing the boundaries of what's possible. Innovative software and hardware architectures are underpinning these systems, enabling the robust, scalable, and efficient execution of complex algorithms and models. Distributed systems, edge computing paradigms, and heterogeneous computing platforms are vital to realizing the full potential of intelligent systems.

This conference invites researchers, practitioners, and visionaries to share their insights, innovations, and experiences in developing and deploying intelligent systems that address real-world challenges. Emerging technologies such as quantum computing and blockchain will also be highlighted, as they hold the potential to unlock new frontiers in computing and engineering by enabling more powerful simulations, secure data sharing, and resilient systems.

The 49th IEEE International Conference on Computers, Software, and Applications (COMPSAC 2025) will be held in Toronto, Canada on July 8-11, 2025. The conference theme is Harnessing the Power of Intelligent Systems: Shaping the Future. Intelligent Systems at COMPSAC 2025 will focus on research and development of computing technologies for their eventual integration into all aspects of society. COMPSAC 2025 will bring together researchers, developers, practitioners, and policymakers worldwide to discuss the latest advances in their fields and their challenges. The conference will be an in-person only event.

**Important Dates**

**Workshop proposals due:** October 15, 2024  
**Workshop proposal notification:** November 15, 2024  
**Full papers due:** January 31, 2025  
**Paper notification:** April 7, 2025  
**Workshop papers due:** April 15, 2025  
**Workshop papers notification:** May 1, 2025  
**Camera ready copy:** June 1, 2025

**Key Organizers**

**Standing Committee Chair:** Sorel Reisman, California State University  
**Standing Committee Vice Chairs:**  
  Sheikh Iqbal Ahamed, Marquette University  
  Mohammed Zulkernine, Queen’s University  
**General Chair:** Kostas Kontogiannis, York University  
**Program Chairs in Chief:**  
  Hiroyuki Ohsaki, Kwansei University  
  Miriam Capretz, Western University  
  Stelvio Cimato, University of Milan  
**Workshop Program Chairs:**  
  Jahangir Alam Majumder, University of North Carolina Upstate  
  Tomoki Yoshihisa, Shiga University  
  Munirul Haque, Butler University  
**Local Arrangement Chair:** Marios Fokaefs, York University  
**Proceedings/Publications Chair:** Hossain Shahriar, University of West Florida  
**Web Chair:** Laurel Ming, University of Michigan-Flint
HARNESSING THE POWER OF INTELLIGENT SYSTEMS:
SHAPING THE FUTURE

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