The 22nd IEEE/ACIS International Conference on Software Engineering Research, Management and Applications (SERA 2024)

May 30-June 1, 2024
Venue: Hilton Waikiki Beach, Honolulu, Hawaii, USA
https://acisinternational.org/conferences/sera-2024/

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Program at a Glance

Venue: Hilton Waikiki Beach, Grand Ballroom on the 3rd floor, Honolulu Hawaii, USA

Day 1 - Thursday, May 30, 2024

Time (EST)	Activity	Concurrent Sessions	
		Room 1	**Room 2**
8:00 –10:30 AM	Registration (Grand Ballroom on the 3rd floor)		
8:20 - 8:40 AM	Opening Ceremony	Plenary Session (Grand Ballroom on the 3rd floor)	
8:40 – 9:40 AM	Keynote Speech		
9:40 – 10:00 AM	Coffee Break		
10:00AM – 12:00 PM	Sessions	W1: Next Generation Ecosystems(1)	SS1: Methodologies of Advanced Software
12:00 – 1:00 PM	Luncheon (complimentary) (Grand Ballroom on the 3rd floor)		
1:00 – 3:00 PM	Sessions	W1: Next Generation Ecosystems(2)	SS2: Signal Processing and Analysis
3:00 - 3:20 PM	Coffee Break		
3:20 – 5:20 PM	Sessions	W1: Next Generation Ecosystems(3)	SS3: Information Management, Big Data
5:30 - 7:00 PM	Dinner Banquet & Award Ceremony (complimentary) (Grand Ballroom on the 3rd floor)		

Room 3: Board room for conference officers

※ W: Workshop, SS: Special Session, TS: Technical Session

Day 2 - Friday, May 31, 2024

Time (EST)	Activity	Concurrent Sessions	
		Room 1	Room 2
8:00 – 10:00 AM	Sessions	SS5: Software Development, Quality Assurance	SS6: Bioinstrumentation Affective Computing
10:00 – 10:20 AM	Coffee Break		
10:20 AM – 12:00 PM	Sessions	TS1: Machine Learning	TS2: Large Language Model & Security
12:00 – 1:00 PM	Luncheon (complementary) (Grand Ballroom on the 3rd floor)		
1:20 – 3:00 PM	Sessions	TS3: Chat GPT	TS4: Block Chain
3:00 - 3:20 PM	Coffee Break		
3:20 – 5:40 PM	Sessions	TS5: Artificial Intelligence	TS6: Security

Day 3 - Saturday, June 1, 2024

Time (EST)	Activity	Concurrent Sessions	
		Room 1	**Room 2**
8:00 – 10:00 AM	Sessions	TS7: Software Development	TS8: Performance Analysis
10:00 – 10:20 AM	Coffee Break		
10:20 AM – 12:40 PM	Sessions	TS9: Data Analytics	TS10: Internet of Things
12:40 – 12:45 PM	Closing Remark		
1:00 - 5:00 PM	Conference Organization Committee Meeting (This event is only for conference organizers)		

Keynote

ICT-based Digital Agriculture

Hyun Yoe Ph. D.

Director of AI based Smart Agriculture Grand ICT Research Center(A-GITRC)

Professor, Sunchon National University, Korea

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Abstract

Digital agriculture based on ICT represents an approach that integrates modern technologies into the field of agriculture to enhance productivity and realize sustainable farming practices. Here are some of the key technologies involved in digital agriculture:

First, remote sensing and monitoring systems allow real-time observation and data collection on crop conditions.

Second, precision agriculture techniques optimize the use of pesticides and fertilizers.

Third, the introduction of automated agricultural machinery reduces reliance on manual labor by mechanizing tasks, increasing efficiency.

Overall, ICT-based digital agriculture maximizes the efficiency of agricultural practices, contributes to environmental protection, and provides benefits to both consumers and producers, offering a new paradigm in agriculture.

Biography

Hyun Yoe is Director of AI based Smart Agriculture Grand ICT Research Center(A-GITRC) at Sunchon National University, Korea. A-GITRC is supported by the Ministry of Science and ICT. He is a Professor of Department of Artificial Intelligence engineering and a Chairman of Dept. of Smart Agriculture of Graduate School, Sunchon National University. He previously worked as a researcher at the Korea Telecom Research Center. Nowadays, his research interests are in Smart Farming Technology and related areas. He is a vice president of Korea Association of Smart-Farm Industry, which is an association of Smart-Farm companies in Korea. He is one of the premier experts on Industrial approaches to Smart Farming Technology. He is deeply interested in the standardization of smart farming technology these days, and he is making a lot of effort to make smart farming standards that industries will use.

Program in Detail

Day 1 - Thursday, May 30, 2024

8:00 – 10:30 AM – Registration   **Foyer**

8:20 – 8:40 AM – Opening Ceremony   **Auditorium**

8:40 – 9:40 AM – Keynote   Dr. Hyun Yoe   **Auditorium**

9:40 – 10:00 AM – Coffee Break   **Foyer**

10:00 AM – 12:00 PM -- Workshop 1: Next Generation Ecosystems (1)   Room 1
Chair: Prof. Masahide NAKAMURA, Kobe University   (Grand Ballroom on the 3rd floor)

1.   A Study of Efficient Needs-Based Service Development Using Software Upcycling
     Takuya Nakata, Sinan Chen, Sachio Saiki, and Masahide Nakamura

2.   A Preliminary Study on Self Contained Libraries in the NPM Ecosystem
     Jaisi Pongchai, Brittany Reid, Raula Gaikovina Kula

3.   Porting a Python Application to the Web Using Django: A Case Study of an Archaeological
     Image Processing System
     Hikaru Tomita, Mariko Sasakura, Kinari Nishiura, Hiroki Inayoshi, Akito Monden

4.   An Empirical Study on Ambiguous Words in Software Requirements Specifications of Local
     Government and Library Systems
     Toru Nakamichi, Kinari Nishiura, Mariko Sasakura, Akito Monden

10:00 AM – 12:00 PM – Special Session 1: Methodologies of Advanced Software   Room 2
Chair: Takaaki Goto (Toyo University, Japan)   (Grand Ballroom on the 3rd floor)

1.   Need of Public-Private Healthcare Collaboration for managing seasonal Dengue Fever in West
     Bengal
     Anwesha Nag, Takaaki Goto, Subhankar Roy, Partha Ghosh

2.   A machine learning based automated model for managing student dropout
     *Partha Ghosh, Arnab Charit, Hindol Banerjee, Debanwesa Bandhu, Agniv Ghosh, Ankita Pal,
     Takaaki Goto, Soumya Sen*

3.   A Spatial Data Pipeline for Streaming Smart City Data
     *Chase Carthen, Araam Zaremehrjardi, Vinh Le, Carlos Cardillo, Alireza Tavakkoli, Sergiu M.
     Dascalu, Frederick C. Harris Jr University of Nevada, Reno*

4.   SpeciServe, a gRPC Infrastructure Concept
     *Chase Carthen, Araam Zaremehrjardi, Zachary Estreito, Alireza Tavakkoli, Frederick C. Harris
     Jr., Sergiu M. Dascalu   University of Nevada, Reno*

5.   AI-Driven Analysis and Prediction of Energy Consumption in NYC's Municipal Buildings
     Hossein Jamali, Sergiu M. Dascalu, Frederick C. Harris, Jr

12:00 – 1:00 PM – Luncheon (complimentary)   (Grand Ballroom on the 3rd floor)

1:00 – 3:00 PM -- Workshop 1: Next Generation Ecosystems (2)   **Room 1**
Chair: **Prof. Masahide NAKAMURA, Kobe University**   (Grand Ballroom on the 3rd floor)

1. Long-Term Fine-grained Forecasts of Emergency Demand Using EMS Big Data and Regional Mesh Population Estimates
   Masaki Kaneda_Sinan Chen, Masahide Nakamura, Sachio Saiki

2. Implementing of a remote task execution service for automated management of hybrid meeting spaces
   Takeshi Yoshida_Sinan Chen, Masahide Nakamura_Sachio Saiki

3. Proposal for a Memory Impairment Support Service Integrating Voice Dialogue Agents and ChatGPT
   Hiro Okamoto, Sinan Chen, Masahide Nakamura_Sachio Saiki

4. Evaluating Recognition AI and Personal Memories Using Time-Series Images in Daily Activities
   Raiki Saito, Sinan Chen, Sachio Saiki, and Masahide Nakamura

1:00 – 3:00 PM -- Special Session 2: Signal Processing and Analysis   **Room 2**
Chair: Seiichi SERIKAWA (Kyushu Institute of Technology)   (Grand Ballroom on the 3rd floor)

1. *Proposal of Automatic Sirocco Fan Washing System
   Momoka Shiraishi, Haru Okazaki, Seiichi Serikawa, Yuhki Kitazono

2. Segmentation Method of Lunchbox Images by Weight Optimization using Color Texture Dissimilarity   *Qian YangYang, Koki Hayakawa, Seiji Nishifuji, Shenglin Mu, Shota Nakashima*

3. Observation and Evaluation for Individual Student using Learning Analytics of Software Programing and Functional Questionnaire   *Motoi Nakao, Yuhei Oomachi*

4. Extraction and Application of Introspection using LegoR Serious PlayR Combined with Software Method *Motoi Nakao, Yuhei Oomachi, Michiko Matsuda*

3:00 – 3:20 PM – Coffee Break   **Foyer**

3:20 – 5:20 PM -- Workshop 1: Next Generation Ecosystems (3)   **Room 1**
Chair: Prof. Masahide NAKAMURA, Kobe University   (Grand Ballroom on the 3rd floor)

1. Characterising Contributions that Coincide with Vulnerability Mitigation in NPM Libraries
   Ruksit Rojpaisarnkit, Hathaichanok Damrongsiri, Christoph Treude, Ali Ouni and Raula Gaikovina Kula

2. Contributing Back to the Ecosystem: A User Survey of NPM Developers
   Supatsara Wattanakriengkrai, Christoph Treude, Raula Gaikovina Kula

3. Extracting Educational Code Scenarios from Python Textbooks, Hathaichanok Damrongsiri
   Ruksit Rojpaisarnkit, Indira Febriyanti, Dong Wang, Christoph Treude and Raula Gaikovina Kula

4. Should I Drop Everything? An Exploratory Study on Developer Responses to the Log4JShell Vulnerability
   Vittunyuta Maeprasart, Ali Ouni, Raula Gaikovina Kula

3:20 – 5:20 PM -- Special Session 3: Information Management, Big Data   Room 2
Chair: Teruhisa Hochin, Kyoto Institute of Technology   (Grand Ballroom on the 3rd floor)

1. Using 2-gram to Detect Potential Appropriate Respondents to Questions at Q&A Sites
   Yuya Yokoyama

2. Revised Transition Method in Impression Spaces for Multimedia Positive Computin
   Teruhisa Hochin

3. Applying Impression Evaluation Method by Space to Multimedia Data Retrieval Using Impression Words
   Teruhisa Hochin, Tran Thi Bich Lien

4. Clarifying Specification Semantics of Impression Evaluation Method by Space Based on Peaks
   Teruhisa Hochin

5:30 – 7:00 PM – Dinner Banquet & Award Presentation (complimentary)
                    (Grand Ballroom on the 3rd floor)

Day 2 - Wednesday, May 24, 2023

8:00 – 10:00 AM – Special Session 5: Software Development, Quality Assurance   **Room 1**
Chair: Kinari Nishiura, Kyoto Institute of Technology   (Grand Ballroom on the 3rd floor)

1. Identifying Security Bugs in Issue Reports: Comparison of BERT, N-gram IDF and ChatGPT
    Daiki Yokoyama, Kinari Nishiura, and Akito Monden

2. Global Alignment Learning For Code Search
    Juntong Hong, Eunjong Choi, Kinari Nishiura, and Osamu Mizuno

3. Analyzing the Impact of Formal Methods on Issue Trends Using BERTopic
    Soshi Inoue, Kinari Nishiura, Eunjong Choi, and Osamu Mizuno

4. A Comparative Study on COSMIC FP approximation with Deep Learning and Conventional
    Machine Learning
    Kaoru Yokogawa, Masashi Hiroishi, Sousuke Amasaki, Hirohisa Aman, and Tomoyuki Yokogawa

5. A Multi-Aspect Evaluation of DL-based SQLi Attack Detection Models
    Pattara Leelaprute, Yuki Kase, Sousuke Amasaki, Hirohisa Aman, and Tomoyuki Yokogawa

6. An Application of Program Slicing and CodeBERT to Distill Variables With Inappropriate
    Names
    Yahiro Mori, Hirohisa Aman, Sousuke Amasaki, Tomoyuki Yokogawa, Minoru Kawahara

8:00 – 10:00 AM – Special Session 6: Bioinstrumentation Affective Computing   Room 2
Chair: Naruki Shirahama (Prof. Ph.D)   (Grand Ballroom on the 3rd floor)

1. Quantitative Analysis of Conversational Response Nuances Using Visual Analog Scale, Data
    Visualization, and Cluster
    *Naruki Shirahama, Shinichi Kondo, Keiji Matsumoto, Kenji Moriya, Naofumi Nakaya, Kazuhiro
    Koshi, Satoshi Watanabe*

2. A Study of the Distribution Between Visual Analog Scale and Likert Scale for Subjective
    Evaluation of Like-Dislike
    Satoshi Watanabe, Naofumi Nakaya, Yuji Matsumoto, Naruki Shirahama

3. A Study on Generation of Spectrogram for Detection of Venous Needle Dislodgement by Image
    Recognition Using Machine Learning
    *Naofumi Nakaya, Mutsuki Koizumi, Satoshi Watanabe, Naruki Shirahama, Takayuki Abe, Akihiro
    Watanabe*

4. Evaluation of Machine Tool Operating State Estimation using Channel State Information
    *Takanori MATSUZAKI, ShinjoKATO, Yoshihiro ASANO, Yuga SAKO, Kozo HORIUCHI, Hiroshi
    SHIRATSUCHI*

10:00 – 10:20 AM – Coffee Break   **Foyer**

10:20 AM – 12:00 PM -- Technical Session 1: Machine Learning   **Room 1**
Chair: Prof. Hong Cheng, Southern Arkansas University   (Grand Ballroom on the 3rd floor)

1. Multi Label Sound Classification using Deep Learning Models
   Tasnim Akter Onisha, Jongyeop Kim and Jongho Seol

2. Multi-Class Label Detection and Bounding Box Regression Using Vision Transformer with a Customized Loss Function
   Hong Cheng and Rupesh Konduru

3. Leveraging Conditional Generative Adversarial Networks for cosmic microwave background separation
   Saurabh Shinde

4. Exploring Flavors Through AI: The Future of Culinary Taste Prediction
   Cemil Emre Yavas, Jongyeop Kim and Lei Chen

5. Illustration or Illusion? Reassessing the Use of Machine Learning in Phishing Email Detection
   Arifa Islam Champa, Md Fazle Rabbi and Minhaz Zibran

10:20 AM – 12:00 PM -- Technical Session 2: Large Langue Model & Security Room 2
Chair: Hossein Jamali, Universityof Nevada Reno (Grand Ballroom on the 3rd floor)

1. Improving Accuracy of LLM-based Code Clone Detection Using Functionally Equivalent Methods
   Ryutaro Inoue and Yoshiki Higo

2. Estimating the Difficulty of Programming Problems Using Fine-tuned LLM
   Chihiro Yoshida, Makoto Matsushita and Yoshiki Higo

3. Securing Against Deception: Exploring Phishing Emails Through ChatGPT and Sentiment Analysis
   Shahrzad Sayyafzadeh, Mark Weatherspoon and Hongmei Chi

4. A Method for Word Extraction of Language-Specific Phrases for Lyric Data of Different Languages in the Same Song and Its Application to Decoding Cultural Nuances in Dynamic Equivalence: A Case Study of Let It Go from Frozen
   Fan Cheng and Takafumi Nakanishi

12:00 – 1:00 PM – Luncheon (complementar)   (Grand Ballroom on the 3rd floor)

1:20 PM – 3:00 PM -- Technical Session 3: Chat GPT and Data Processing   Room 1
Chair: Jongyeop Kim, Georgia Southern University   (Grand Ballroom on the 3rd floor)

1. Analyzing ChatGPT Assistance in Programming
    Costain Nachuma, Md Fazle Rabbi, Arifa Champa and Minhaz Zibran

2. Context Matters: Investigating Its Impact on ChatGPT's Bug Fixing Performance
    Xianshan Qu, Fei Zuo, Xiaopeng Li and Junghwan Rhee

3. Discovering different parties, factions, and close politicians using a word importance derivation method for parliamentary proceedings data
    Shota Tamaru, Ryotaro Okada, Ayako Minematsu and Takafumi Nakanishi

4. Integrated Search Method based on Municipal Attributes and Issue Similarities for MaaS Precedents
    Suzuto Kirishima, Ryotaro Okada, Ayako Minematsu and Takafumi Nakanishi

1:20 PM – 3:00 PM -- Technical Session 4: Block Chain   Room 2
Chair: Abhilash Kancharla, The University of Tampa   (Grand Ballroom on the 3rd floor)

1. Improving Reliability in Hybrid Cross-Chain Models through Adaptive Thresholds with a Performance and Adaptability
    Jongho Seol, Jongyeop Kim and Abhilash Kancharla

2. Optimizing Cross-Chain DeFi and Smart Contracts in Stochastic Integration
    Jongho Seol, Jongyeop Kim and Abhilash Kancharla

3. Utility-Based Routing in Payment Channel Networks: A Tradeoff Between Utility And Privacy
    Suhan Jiang, Fei Zuo and Jie Wu

4. Project-based Learning in Software Engineering Education: Integrating Blockchain-Oriented Repositories in SE Curriculum and Coursework
    Md Jobair Hossain Faruk, Masrura Tasnim and Jerry Q. Cheng

3:00 – 3:20 PM – Coffee Break   Foyer

3:20 PM – 5:40 PM -- Technical Session 5: Artificial Intelligence   Room 1
Chair: Jongyeop Kim, Georgia Southern University (Grand Ballroom on the 3rd floor)

1. Reinforcement Learning Architecture for Facial Skin Treatment Recommender
   Jennifer Kim Jin, Khalil Dajani, Mira Kim, Soo Dong Kim, Bilal Khan and Daniel Hyun Jin

2. Revising the Problem of Partial Labels from the Perspective of CNNs' Robustness
   Xin Zhang, Yuqi Song, Wyatt McCurdy, Xiaofeng Wang and Fei Zuo

3. A Robust Attention-based Convolutional Neural Network for Monocular Depth Estimation
   Yuqi Song, Xin Zhang, Bokai Yang, Fei Zuo and Xianshan Qu

4. DiffECG: A Versatile Probabilistic Diffusion Model for ECG Signals Synthesis
   Nour Neifar,Achraf Ben-Hamadou, Afef Mdhaffar and Mohamed Jmaiel

5. Design of AI-based Smart Crop Harvesting System
   Seungjae Kim, Hyun Yoe and Meonghun Lee

3:20 PM – 5:40 PM – Technical Session 6: Security   Room 2
Chair: Farjana Z. Eishita, PhD, Idaho State University   (Grand Ballroom on the 3rd floor)

1. Data Guard: Android Application to Monitor Security Threat in Background Data Transmission
   Rifat Ara Tasnim, Farjana Eishita and Minhaz Zibran

2. Detection of Cyber Attacks on Cloud Based Microservices with Distributed Features
   Wonjun Lee and Yung Ryn Choe

3. Data Guard: Android Application to Monitor Security Threat in Background Data Transmission
   Rifat Ara Tasnim, Farjana Eishita and Minhaz Zibran

4. Mapping Cyberattack Patterns and Detection: An Azure Sentinel Approach
   Chidozie Odigbo, Hayden Wimmer and Jongyeop Kim

5. Automatic Configurator to Prevent Attacks for Azure Cloud System
   Chijung Jung, Yung Ryn Choe, Junghwan Rhee and Yonghwi Kwon

Day 3 - Saturday, June 1, 2024

8:00 AM – 10:00 AM -- Technical Session 7: Software Development   **Room 1**
Chair: Brennan Ward, University of South Florida   (Grand Ballroom on the 3rd floor)

1. Automated Theory Substitution: Toward Proof-Driven Software Development
   John Scebold, Jared Ziegler, Emily Gray and Eric Bond

2. Preventing Variadic Function Attacks Through Argument Width Counting
   Brennan Ward, Kevin Dennis, Gabriel Laverghetta, Parisa Momeni and Jay Ligatti

3. A study on ARIMA-based melon size prediction and monitoring system design
   Sangmin Lim, Meonghun Lee and Hyun Yoe

4. What is Asked About Ionic on Stack Overflow (SO) ? An Empirical Study
   Fatima Ezzahra Chaabi and Reem Alfayez

5. SBOM Challenges for Developers: From Analysis of Stack Overflow Questions
   Wataru Otoda, Tetsuya Kanda, Yuki Manabe, Katsuro Inoue and Yoshiki Higo

8:00 AM – 10:00 AM -- Technical Session 8: Software Development   **Room2**
Chair: Yinh Le, University of Nevada Reno   (Grand Ballroom on the 3rd floor)

1. Leveraging Shared Accelerators in Kubernetes Clusters with rOpenCL
   Rui Alves and José Rufino

2. Exploiting CPU Clock Modulation for Covert Communication Channel
   Shariful Alam, Jidong Xiao and Nasir Eisty

3. Adaptive Frequency Cluster-Level Performance Profiler for Multi-Domain Applications
   Hoyong Lee, Hayeon Park and Chang-Gun Lee

4. Performance Analysis of Quantum Computer Simulators across Different Environments
   Nozomi Aoki, Masafumi Yamazaki, Akira Hirai, Mari Yamaoka, Naoto Fukumoto, Akihiko Kasagi and Masato Oguchi

10:20 AM – 12:40 PM – Technical Session 9: Data Analytics   **Room 1**
Chair: Brennan Ward, University of South Florida   (Grand Ballroom on the 3rd floor)

1. Marketing Insight Discovery using Approximate Inverse Model Explanations (AIME):
   Explanatory Derivation of Response Estimates to Campaigns for Marketing Data
   Takafumi Nakanishi

2. Revisiting Program Suitability for Fault Localization with Large Dataset and Various Mutation
   Operators
   Hikaru Kubo, Yoshiki Higo and Shinji Kusumoto

3. Decade-long Utilization Patterns of ICSE Technical Papers and Associated Artifacts
   Sharif Ahmed, Rey Ortiz and Nasir Eisty

4. The Discovery of Aesthetic Notions of the Four Seasons in Sandaishu, the Three Imperial Anthologies of Waka Poetry Using Approximate Inverse Model Explanations (AIME)
   Aiha Ikegami and Takafumi Nakanishi

5. Hybrid ASCII Art Extraction Algorithm Based on String Distance
   Xiujuan Wang, Xiaotong Wu, Haochen Shi and Shuaibing Lu

10:20 AM – 12:40 PM – Technical Session 10: Internet of Things   **Room 2**
Chair: Chase Carthen   (Grand Ballroom on the 3rd floor)

1. A Model-Driven Approach for Designing and Validating ABAC Policies
   Duc-Hieu Nguyen, Yuichi Sei, Yasuyuki Tahara and Akihiko Ohsuga

2. Design of REST API Client for Conversational Agent using Large Language Model with Open API System
   SeongGyeol Park, Ahtae Kim, Sookyung Lee, Haeun Lee, Chayapol Kamyod, Cheong Ghil Kim

12:40 – 12:45 PM – Closing Remark

1:00 – 5:00 PM – Conference Organization Committee Meeting (Organizers only)