

Final Program



20th IEEE/ACIS International Conference on Software Engineering, Management and Applications (SERA 2022)



May 25, 2022, Las Vegas, U.S.A.

University of Nevada, Las Vegas, U.S.A., and Virtual

<https://acisinternational.org/conferences/sera-2022/>

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University of Nevada, Las Vegas

Program at a Glance

Venue: University of Nevada, Las Vegas

Parking: <https://www.unlv.edu/maps/pkg-1> (parking permits will be available on check-ins)

Rooms: Thomas T. Beam Engineering Complex (TBE)– B 174 and 176,
<https://www.unlv.edu/maps/tbe-b>

Wednesday, May 25, 2022

Time (PDT)	Activity	Session Name	Room
8:30 – 9:00 AM	Registration		TBE – B
9:00 – 9:30 AM	Opening Ceremony		TBE – B 174
9:30 – 10:00 AM	Keynote – Dr. Haeng-Kon Kim		TBE – B 174
10-10:15 AM	Coffee break		TBE – B
10:15–12:15 AM	Session 1	Session 1A: Software Engineering and Systems 1	TBE – B 174
		Session 1B: Software Engineering and Systems 2	TBE – B 176
12:15-1:15 PM	Lunch		TBE - B
1:15-2:55 PM	Session 2	Session 2A: A.I. and Machine Learning 1	TBE – B 174
		Session 2B: A.I. and Machine Learning 2	TBE – B 176
3:00–3:30 PM	Keynote – Dr. Hyun Yeo		TBE – B 174
3:45–5:25 PM	Session 3	Session 3A: Security	TBE – B 174
		Session 3B: Potpourri	TBE – B 176
5:25 PM	Program End*		TBE – B 174

* Note: Any in-person attendants may have dinner together after the program.

Keynote 1

Internet of Things Applications and Current Issues in Korea

Dr. Haeng-kon Kim
hangkon@cu.ac.kr
Professor of Software Computer Engineering
Daegu Catholic University, South Korea

Abstract

Internet of things (IoT) is expanding its areas from smart connected homes to wearables and healthcare. IoT is now becoming part of every aspect of our lives. Internet of things applications are not only enhancing our living quality but also giving us more control by simplifying routine work and personal tasks. With the recent hype about the future prospects of IoT, companies have been forced to take the initiative of coming up with basic building blocks of the internet of things, such as hardware, software, and support to enable developers to deploy applications that can connect to anything within the scope of internet of things. We know that the potential of IoT markets is huge, but there are some domains that will get mature much faster than the rest. Here we list the application areas for the internet of things with examples that have the potential for exponential growth. For instance, a smart home is one in which the devices have the capability to communicate with each other as well as their intangible environment. A smart home provides owners the capability to customize and control a home environment with increased security and efficient energy management. There are hundreds of IoT technologies available for monitoring and building smart homes. Consumer product manufacturers like Belkin, Philips, Amazon, and Haier have already established themselves as prominent companies in this market. Here are examples of the internet of things for building your own smart homes.

In this keynote, I would like to talk about the concepts behind the Internet of Things services and the products in Korea. You will have a chance to learn about sensors, actuators, processors, and communication protocols that help you deploy real-life IoT applications and big issues in Korea. I will also cover the fundamental components of the IoT and future directions of IoT.

Biography

Dr. Haeng-Kon Kim was a vice president of Research and Information, a dean of engineering college, and a professor in the school of I.T., Daegu Catholic University, in Korea. He has been a research staff member in Bell Lab., NASA center, and Central Michigan University in the U.S.A. He received two Ph. Ds from Chung Ang University, Korea, and University of Bristol, England, and has taught at Central Michigan University from 2000 to 2002. Dr. Kim is the chief editor of KIPS SE-Sig journal and Korea Multimedia Society, an editorial board of KISS (Korea Information Science Society), and a steering committee of KIPS (Korea Information Processing Society). He was an organization committee (publicity chair) of ACIS and SEITI at C.M.U. in the U.S.A. He is also a senior member IAENG and WCECS from Hong Kong. Dr. Kim advised 27 Ph. Ds students and 43 master's Degree students in his laboratory of Catholic Univ. of Daegu in KOREA. His research interests include the following fields: Software Engineering, Mobile Applications Design and Testing, S.O.A., Frameworks for U-Healthcare Services, and IoT.

Keynote 2

Smart Farming Technology Review

Dr. Hyun Yeo
yhyun@scnu.ac.kr

Director of A.I. based Smart Agriculture Grand I.C.T. Research Center
Sunchon National University, Korea

Abstract

Smart Farming is a concept of farming management using modern technology to increase the quantity and quality of agricultural products, which is a new trend in Agriculture Technology. Like many other industries, technology is changing the ways that farmers manage their operations. New developments in machinery, software, and genetics are allowing farmers to have more control over how they plant and manage their crops. Smart Farming Technology has played a big role in developing the agricultural industry. In this keynote, overall Smart Farming Technology is briefly introduced, and several examples of Smart Farm will be presented. Finally, standard activity about Smart Farming Technology is introduced.

Biography

Hyun Yeo is Director of A.I.-based Smart Agriculture Grand I.C.T. Research Center at Sunchon National University, Korea. He is a Professor in the Dept. of Information and Communication engineering, Sunchon National University. His research interests are in Smart Farming Technology and related areas. He is a vice president of the Korea Association of Smart-Farm Industry, which is an association of Smart-Farm companies in Korea. He is one of the premier speakers 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 create new smart farming standards that industries will use.

Program in Detail

Venue: University of Nevada, Las Vegas

Parking: <https://www.unlv.edu/maps/pkg-1> (parking permits will be available on check-ins)

Rooms: Thomas T. Beam Engineering Complex (TBE)– B 174 and 176,
<https://www.unlv.edu/maps/tbe-b>

Wednesday, May 25, 2022

8:30 AM - 9:00 AM – Registration

Room: TBE

9:00 AM - 9:30 AM – Opening Ceremony

Room: TBE – B 174

9:30 AM – 10:00 AM – Keynote 1 – Dr. Haeng-kon Kim

Room: TBE – B 174

10:00 AM – 10:15 AM – Coffee Break

10:15 AM - 12:15 PM – Session 1

Note: Each author will have a 15 minutes presentation and 5 minutes Q&A.

Session 1A: Software Engineering and Systems 1

Chair: *Weixian Liao (Towson University)*

Room: TBE – B 174

Improving Students' Readiness Toward the Labor Market Through Customized Learning
Majed Almotaيري, Hamdan Alabsi, Yahya Alqahtani and Mohammed Alyami

An Object Constraint Language Implementation Extending Model-Driven Engineering for C++
Ralph Maschotta, Ndongmo Silatsa, Tino Jungebloud, Maximilian Hammer and Armin Zimmermann

Using Metamorphic Relations to Improve The Effectiveness of Automatically Generated Test Cases
Prashanta Saha and Upulee Kanewala

Automated Testing to Detect Status Data Loss in Android Applications
Anusha Konduru and Zhiyong Shan

Supporting Coordination among Participants in Crowdsourcing Software Design
Ohoud Al Haqbani and Sultan Alyahya

Introduction to Imperative Code Execution Machine – a framework for sustainable Salesforce application development
Prateek Gupta

Session 1B: Software Engineering and Systems 2

Chair: *Qianlong Wang (Towson University)*

Room: TBE – B 176

A Practical Style Guide and Templates Repository for Writing Effective Use Cases
Bingyang Wei, Lin Deng and Yi Wang

What is Discussed About Software Engineering Ethics on Stack Exchange (Q&A) Websites? A Case Study
Reem Alfayez, Yunyan Ding, Robert Winn and Ghaida Alfayez

Software Engineering Process and Methodology in Blockchain-Oriented Software Development: A Systematic Study
Md Jobair Hossain Faruk, Santhiya Subramanian, Hossain Shahriar, Maria Valero and Xia Li

Modeling Concretizations in Software Design
Alexey Tazin, Shan Lu, Yanji Chen, Mieczyslaw Kokar and Jeff Smith

Assessing Software Fault Risk With Machine Learning
Naveen Ashish, Greg Barish and Steven Minton

Automatic Transformation of Natural to Unified Modeling Language: A Systematic Review
Sharif Ahmed, Arif Ahmed and Nasir Eisty

12:15 PM – 1:15 PM – Lunch

1:15 PM – 2:55 PM – Session 2

Note: Each author will have a 15 minutes presentation and 5-minute Q&A.

Session 2A: A.I. and Machine Learning 1

Chair: *Bingyang Wei (Texas Christian University)*

Room: TBE – B 174

A Multi-model Multi-task Learning System for Hurricane Genesis Prediction
Martin Pineda, Qianlong Wang, Weixian Liao, Michael McGuire and Wei Yu

Output-only Structural Damage Detection via Enhanced Random Vibration Analysis using LSTM/GRU model
Matthew Sands, Jongyeop Kim and Jinki Kim

Android Feature Selection based on Permissions, Intents, and API Calls
Fred Guyton, Wei Li, Ling Wang and Ajoy Kumar

Concept of the PBNM Scheme for Multiple Domains as Cyber Physical System Using Data Science and A.I.
Kazuya Odagiri, Naohiro Ishii and Shogo Shimizu

Internal Search Engine and Recommender System with Natural Language Processing in PaaS
Herig Recalde, Santiago Soria and Diego Vallejo-Huanga

Session 2B: A.I. and Machine Learning 2

Chair: *Fan Liang (Sam Houston State University)*

Room: TBE – B 176

Generating Adversarial Robust Defensive CAPTCHA (GARD-CAPTCHA) Convolutional Neural Networks
Pu Tian, Weixian Liao, Turhan Kimbrough, Erik Blasch and Wei Yu

A Deep Learning Approach for Lantana Camara Weed Detection and Localization in the Natural Environment
Wie Kiang Hi and Santoso Wibowo

Label Correction of Sound Data with Label Noise Using Self Organizing Map
Pildong Hwang and Yanggon Kim

PREDICTING EPISODIC VIDEO MEMORABILITY USING DEEP FEATURES FUSION STRATEGY
Hasnain Ali, Syed Omer Gilani, Muhammad Jawad Khan, Mohsin Jamil and Muazzam Khattak

Performance Analysis of Deep Learning Libraries: Keras, PyTorch, and MXnet
Seongsoo Kim, Hayden Wimmer and Jongyeop Kim

3:00 PM – 3:30 PM – Keynote speech – Dr. Hyun Yeo
Room: TBE – B 174

3:30 PM – 3:45 PM – Coffee break

3:45 PM – 5:25 PM – Session 3

Note: Each author will have a 15 minutes presentation and 5-minute Q&A.

Session 3A: Security

Chair: *Weixian Liao (Towson University)*

Room: TBE – B 174

Big Cyber Security Data Analysis with Apache Mahou
Omotola Adekanbmi, Hayden Wimmer and Jongyeop Kim

Finding the Middle Ground: Measuring Passwords for Security and Memorability
Joshua Rodriguez, Minhaz Zibran and Farjana Eishita

Towards Internet of Things (IoT) Forensics Analysis on Intelligent Robot Vacuum Systems
Honghe Zhou, Lin Deng, Weifeng Xu, Wei Yu, Josh Dehlinger and Suranjan Chakraborty

Security Versus Performance Bugs: How Bugs are Handled in the Chromium Project
Amrit Rajbhandari, Minhaz Zibran and Farjana Eishita

Securing Sensitive Data in Java Virtual Machines
Lin Deng, Bingyang Wei, Jin Guo, Matt Benke, Tyler Howard, Matt Krause and Aman Patel

Session 3B: Potpourri

Chair: *Qianlong Wang (Towson University)*

Room: TBE – B 176

Automatic Detection of Interaction Errors
Nader Kesserwan and Jameela Al-Jaroodi

Enhancing UML Connectors with Behavioral Specifications
Alper Tolga Kocatas and Ali Hikmet Dogru

Hybrid Analysis Based Cross Inspection Framework for Android Malware Detection
Biodoumoye Bokolo, Gagandeep Sur, Qingzhong Liu, Fang Yuan and Fan Liang

Development of Autonomous Driving Adaptive Simulation System Using Deep Learning Process Model
Symphorien Karl Yoki Donzia and Haeng-Kon Kim

Dolphin Whistles Visualization Framework: MySQL Query Approach
Seongsoo Kim, Yiming Ji, Jongyeop Kim and Eric Montie

5:25 PM: Program End (TBE – B 174)

The end of the online program. In-person attendants may have dinner together.