



# RASSE 2022

## DAY 0 – Pre-Conference (November 7, 2022)

9:00–13:30	Registration
<b>Venue : 3<sup>rd</sup> Lecture Room</b> Tutorial chair : Prof. Chia-Feng Juang	
13:30–15:00	Tutorial 1 Dr. Yu-Kai Wang, <b>Virtual</b>
15:00–15:30	Coffee break (Multi-function room)
15:30–17:00	Tutorial 2 Prof. Wei-Yu Chiu, <b>in-person</b>

## DAY 1 – Research Focus (November 8, 2022)

08:00 – 08:30	Welcome Coffee (Multi-function room)
<b>Venue : 2<sup>nd</sup> Lecture Room</b>	
08:30 – 09:15	Welcome Remarks Andy Chen, Conference Chair, Catronic Enterprise, <b>in-person</b> NCKU President Dr. Huey-Jen Jenny Su, <b>in-person</b> Stephen Jack Dyer, President IEEE Systems Council, <b>Virtual</b>
09:15 – 09:45	Keynote Speaker (1) Dr. Shen-Ying Pao, Professor, iphD and EECS at National Tsing University, <b>Virtual</b> <b>“Interdisciplinary Design for the Post-pandemic Era”</b>
09:45– 10:00	Coffee break (Multi-function room)
10:00 –10:30	Keynote Speaker (2) Vincenzo Piuri, Past President, IEEE Systems council, <b>Virtual</b> <b>“Artificial Intelligence in Cloud/Fog/Edge Computing and Internet-of-Things”</b>
10:30–11:00	Keynote Speaker (3) Roger Chien, Chief Engineer, Intel Corporation – Asia Pacific and Japan, <b>in-person</b> <b>“The Rise of Infrastructure Processing Unit: Opportunities and Challenges”</b>
11:00–11:30	Keynote Speaker (4) Morris Chen, 5G Project Lead Wistron, <b>in-person</b> <b>“Our Architecture for 5G Network &amp; AI”</b>
11:30–12:00	Keynote Speaker (5) Amir Aghdam, Concordia University, Canada, <b>Virtual</b> <b>“Characterization of Connectivity in Asymmetric Networks with Application to Data Aggregation in Underwater Sensor Networks”</b>
12:00–13:30	Lunch (Multi-function room)



# RASSE 2022

Venue	2 <sup>nd</sup> Lecture Room	3 <sup>rd</sup> Lecture Room
13:30–15:00	Session 1 Autonomous Vehicle Session Chair: Prof. Wei-Liang Lin	Session 2 Deep Learning Session Chair: Prof. Men-Shen Tsai
15:00–15:30	Coffee break (Multi-function room)	
15:30–16:30	Session 3 <b>Cloud Computing</b> Session Chair: Prof. Yin-Tsung Hwang	Session 4 <b>Communication System</b> Session Chair: Prof. Chao-Yu Chen
16:30–18:00	Session 5 <b>Video Processing</b> Session Chair: Prof. Chih-Hung Kuo	Session 6 <b>Hardware Acceleration for Deep Learning</b> Session Chair: Prof. Chia-Chi Tsai
19:00	Conference Reception (Venue: Multi-function room)	

## Paper Presentation Sessions detailed schedule

Time: 13:30–15:00 (Taiwan local Time)

Autonomous Vehicle		
Session 1	Session Chair: Prof. Wei-Liang Lin	Room: 2 <sup>nd</sup> Lecture Room
1570840437	Customer Guidance System With Image-Sensing and Features Based Technology for Smart Autonomous Mover (Presenter: Chih-Peng Fan, <b>In-person</b> )	
1570829363	Challenges of Testing Highly Automated Vehicles: A Literature Review (Presenter: Dhanoop Karunakaran, <b>In-person</b> )	
1570840252	Autonomous Mover With Social Distance Respect (Presenter: Wei-Liang Lin, <b>In-person</b> )	
1570840416	Realization of Unmanned Vehicle Navigation Considering Density and Pedestrian Flow With Cloud Information (Presenter: Wei-Liang Lin, <b>In-person</b> )	
Deep Learning		
Session 2	Session Chair: Prof. Men-Shen Tsai	Room: 3 <sup>rd</sup> Lecture Room
1570822711	SEmbedNet: Hardware-Friendly CNN for Ectopic Beat Classification on STM32-Based Edge Device (Presenter: You-Liang Xie , <b>In-person</b> )	
1570823201	Based on Faster R-CNN in Dental Panoramic X-Rays Accomplished Automatic Detection of Implants, Retained Root, and Root Canal (Presenter: Shih-Lun Chen, <b>In-person</b> )	
1570820887	An Event Detection Method Combining Grayscale Images and Convolutional Neural Networks for Non-Intrusive Load Identifications (Presenter: Yen-Kuang Lin , <b>In-person</b> )	
1570838892	YOLO-Based Deep-Learning Gaze Estimation Technology by Combining Geometric Feature and Appearance Based Technologies for Smart Advertising Displays (Presenter: Chih-Peng Fan , <b>In-person</b> )	



## Paper Presentation Sessions detailed schedule

Time: 15:30–16:30 (Taiwan local Time)

Cloud Computing		
Session 3	Session Chair: Prof. Yin-Tsung Hwang	Room: 2 <sup>nd</sup> Lecture Room
1570840285	Performance Comparison of Containerized HBase Clusters on Kubernetes (Presenter: Ta Chun Lo, <b>In-person</b> )	
1570818904	DW Vs OLTP Performance Optimization in Cloud on PostgreSQL (a Case Study) (Presenter: Youry Khmelevsky, <b>Virtual</b> )	
1570841159	An Image Feature Points Assisted Point Cloud Matching Scheme in Odometry Estimation for SLAM Systems (Presenter: Yin-Tsung Hwang, <b>In-person</b> )	

Communication System		
Session 4	Session Chair: Prof. Chao-Yu Chen	Room: 3 <sup>rd</sup> Lecture Room
1570818695	Space-Time Parallel Cancellation Interleaved OFDM Systems in Impulsive Noise and Mobile Fading Channels (Presenter: Hen-Geul Yeh, <b>In-person</b> )	
1570818863	Design 4x1 Space-Time Conjugate Two-Path Full-Rate OFDM Systems (Presenter: Hen-Geul Yeh, <b>In-person</b> )	
1570834920	Deep Learning Based Adaptive Hybrid Beamforming for mmWave MIMO Systems (Presenter: Yuan-Hao Huang, <b>Virtual</b> )	

## Paper Presentation Sessions detailed schedule

Time: 16:30–18:00 (Taiwan local Time)

Video Processing		
Session 5	Session Chair: Prof. Chih-Hung Kuo	Room: 2 <sup>nd</sup> Lecture Room
1570839501	Edge-Guided Video Super-Resolution Network (Presenter: Yi-Ting Chen, <b>In-person</b> )	
1570850601	Stereo Video Depth Estimation Based on Disparity Map Propagation (Presenter: Wei-Jong Yang, <b>Virtual</b> )	
1570823338	Critical Concrete Scenario Generation Using Scenario-Based Falsification (Presenter: Dhanoop Karunakaran, <b>Virtual</b> )	

Hardware Acceleration for Deep Learning		
Session 6	Session Chair: Prof. Chia-Chi Tsai	Room: 3 <sup>rd</sup> Lecture Room
1570839551	Hardware and Software System Integration and Implementation on FPGA Platform for Deep Learning Accelerator (Presenter: Chung-Bin Wu, <b>In-person</b> )	
1570840422	Implementation of Gabor Filter Based Convolution for Deep Learning on FPGA (Presenter: Yu-Wen Wang, <b>In-person</b> )	
1570842322	A Programmable CNN Accelerator With RISC-V Core in Real-Time Wearable Application (Presenter: Sing-Yu Pan, <b>Virtual</b> )	
1570839343	High Energy-Efficiency Hardware Acceleration Architecture Design for Sparse CNN (Presenter: Chung-Bin Wu, <b>In-person</b> )	



## DAY 2 – Industry Forum (November 9, 2022)

8:00–8:30

Welcome Coffee (Multi-function room)

### Venue : 2<sup>nd</sup> Lecture Room

08:30 –10:30

**Industry Forum Opening – Tony Tsao, In-person**

Founder and CEO at Global Channel Resources Ltd

**Keynote – Stephen Ibaraki, In-person**

Founding General Partner, REDDS Capital

“Metaverse, the confluence of the digital, physical, and biological via digital reshaping and transformation”

**Keynote – Pattie Maes, Virtual**

Professor and Chair of the Media Lab’s Executive Committee, MIT

“Supporting Human Intelligence with Machines”

**Keynote – Dr. Charles Chan, In-person**

CEO, Octon

“From Corporate First to Community First Business Communication”

**Keynote – Dr. Mingshou Liu, In-person**

President, Accton China

“New Paradigm in Computing Hardware and Algorithms”

**Keynote – Jeanne Lim, Virtual**

CEO BeingAI

“AI Beings: The Next Generation Experiential Interface”

**Keynote – RH Shih, In-person**

Red Pill Lab Founder

How to train the Redpill AI Voice NN for real-time gaming

10:30–11:00

Coffee break (Multi-function room)

11:00–12:30

### AI/ML expanding to general intelligence and what this means to industry, government, consumers

- **Keynote – Pat Pataranutaporn, Virtual**

MIT Media Lab

“Human-AI Interaction, AI generated virtual human and Cyborg Augmentation”

- **Moderator – Stephen Ibaraki, In-person**

Founding General Partner, REDDS Capital

- **Panelist 1 – Pattie Mae, Virtual**

- **Panelist 2 – Jeanne Lim, Virtual**

- **Panelist 3 – RH Shih, In-person**

- **Panelist 4 – Pat Pataranutaporn, Virtual**

12:30–14:00

Lunch (Multi-function room)



## The new digital explosive solutions transforming 7.8 billion experiences

- **Keynote Speaker, Chintan Oza, In-person**  
Founder of Anantam Ecosystems  
"Future of Customer Experiences – Inclusive, Intelligent, and Immersive."
- **Moderator – Andy Chen, In-person**  
CEO, Catronic Enterprise
- **Panelist 1 Chintan Oza, In-person**
- **Panelist 2 Dr. Shen-Ying Pao, Virtual**
- **Panelist 3 Vincent Cho, In-person**
- **Panelist 4 Naveen Punnoose, In-person**
- **Panelist 5 Carrie Chen, In-person**

14:00–15:30

15:30–16:00

Coffee break (Multi-function room)

## What will the world look like in 2025?

- **Keynote Speaker, Karthi Madarvan, In-person**  
President, Tata Consultancy Services  
"Trend & Opportunity in Metaverse"
- **Moderator – Dr. Charles Chan, In-person**
- **Panelist 1 GK Lee, In-person**
- **Panelist 2 Morris Chen, In-person**
- **Panelist 3 M.D. Mathew, In-person**
- **Panelist 4 Karthi Madarvan, In-person**

16:00–17:30

19:00

Conference Banquet and Award Presentations  
(Venue: Shangri-La Far Eastern, Tainan)

Announcement for IEEE RASSE 2023 by George Punnoose, Saintgits Group of Institutions

## DAY 3 – Research Focus and Special Tracks (November 10, 2022)

08:00 – 08:30

Welcome Coffee (Multi-function room)

Venue

2<sup>nd</sup> Lecture Room

3<sup>rd</sup> Lecture Room

8:30–10:00

Special Session 1  
Ph.D. Forum  
Session Chair: Prof. Chun-Rong Huang

Session 7  
System Application  
Session Chair: Prof. Bernard Fong

8:30–10:00

SBBS Workshop Posters to be displayed (Multi-function room)

10:00–10:30

Coffee break (Multi-function room)

10:30–12:00

Special Session 2  
Presentation-only papers  
Session Chair: Prof. Chih-Peng Fan

Session 8  
System Technologies  
Session Chair: Prof. Bernard Fong

12:00–13:30

Lunch (Multi-function room)

13:30–18:00

Half-day local tour in Tainan city



## Paper Presentation Sessions detailed schedule

Time: 8:30–10:00 (Taiwan local Time)

Ph.D. Forum		
Special Session 1	Session Chair: Prof. Chun-Rong Huang	Room: 2 <sup>nd</sup> Lecture Room
1570835343	Convolutional Layers Acceleration by Exploring Optimal Filter Structures (Presenter: Hsi-Ling Chen, <b>In-person</b> )	
1570837369	Drowsy Driving Detection Using Sparse Learning (Presenter: Chien-Yu Chiou, <b>In-person</b> )	
1570841950	Real-Time and Non-Contact Arrhythmia Recognition Algorithm for Hardware Implementation (Presenter: Kai-Ze Lei, <b>In-person</b> )	

System Application		
Session 7	Session Chair: Prof. Bernard Fong	Room: 3 <sup>rd</sup> Lecture Room
1570850620	Deep Oral Cancer Lesion Segmentation With Heterogeneous Features (Presenter: Yi-Siang Tan, <b>In-person</b> )	
1570851159	Image Segmentation for Colorectal Cancer Histopathological Images Analysis (Presenter: Meng-Ling Wu, <b>In-person</b> )	
1570818868	Algorithmic Trading and Short-Term Forecast for Financial Time Series With Machine Learning Models; State of the Art and Perspectives (Presenter: Youry Khmelevsky, <b>Virtual</b> )	

Poster Papers for SBBS Workshop		
Room: The Multi-function Room		
1570829706	Improving Healthcare Outcomes With Learning Models for Machine Commonsense Reasoning Systems (Presenter: Alvis Fong)	
1570823503	Memristive Circuit Design of Sequencer Network for Human Emotion Classification (Presenter: Zhekang Dong)	



IEEE

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## Paper Presentation Sessions detailed schedule

Time: 10:30–12:00 (Taiwan local Time)

Presentation-only		
Special Session 2	Session Chair: Prof. Chih-Peng Fan	Room: 2 <sup>nd</sup> Lecture Room
1570838912	Using Vision Transformer for Histopathological Image Classification (Presenter: Chun-Rong Huang, <b>In-person</b> )	
1570838995	3D Printed Robotic Arm for Object Gripping Through Deep Reinforcement Learning (Presenter: Ting-Han Chien, <b>In-person</b> )	
1570839966	Radiation Pattern Synthesis Using Deep Learning Technique With Phase Tuning Only (Presenter: Ming-Lin Chuang, <b>In-person</b> )	
1570843566	A Novel Visible Light Based Localization Scheme (Presenter: Chung Shue Chen, <b>In-person</b> )	

System Technologies		
Session 8	Session Chair: Prof. Bernard Fong	Room: 3 <sup>rd</sup> Lecture Room
1570834509	A Diversity, Equity, and Inclusion Model for Engineering Curriculum (Presenter: Holly Handley, <b>Virtual</b> )	
1570840304	Bert Based Chinese Sentiment Analysis for Automatic Censoring of Dynamic Electronic Scroll (Presenter: Wei-Liang Lin, <b>In-person</b> )	
1570843252	An Indian Currency Recognition Model for Assisting Visually Impaired Individuals (Presenter: Madhav Pasumathy, <b>In-person</b> )	
1570829914	Graph Neural Networks for HD EMG-Based Movement Intention Recognition: An Initial Investigation (Presenter: Silvia Maria Massa, <b>Virtual</b> )	