Special Interest Groups (SIG) on AI Empowered Internet of Vehicles

Chair: Ning Zhang
University of Windsor, Canada

Vice Chairs: Xianfu Chen, Alagan Anpalagan, Ning Lu

Scope and Objectives

Internet of Vehicles (IoV) (including UAVs) empower vehicles to communicate with the surrounding environment and remote servers, enabling a wide range of on-the-go services, including road safety, infotainment, intelligent transportation, data acquisition. To better support IoV, heterogeneous networks (terrestrial networks, aerial networks and satellite networks) and heterogeneous resources (communication, computing and storage) expects to be integrated to provide service anywhere and anytime.

In such a dynamic and complex scenario, many technical challenges arise, e.g., high mobility of vehicles, stringent of service requirements, multi-dimensional randomness, great heterogeneity, etc. Artificial intelligence (AI) has great potential to address these technical challenges and manage heterogeneous resources efficiently to meet different quality of service (QoS) requirements of IoV.

This SIG group aims to provide a platform for researchers and developers from both industry and academia to exchange ideas, discuss key technologies, and share latest results, to promote the development of AI empowered IoV.

SIG Members

➢ **Chair**:
- Ning Zhang, Associate Professor, University of Windsor, Canada

➢ **Vice-Chair**
- Xianfu Chen, Senior Scientist, VTT Technical Research Centre of Finland, Finland
- Alagan Anpalagan, Professor, Ryerson University, Canada
- Ning Lu, Assistant Professor, Queen's University, Canada

➢ **Founding Members**
- Mehdi Bennis, University of Oulu, Finland
- Hongbing Liang, Southwest Jiaotong University, China
- Siyu Lin, Beijing Jiaotong University, China
- Jussi Kangasharju, University of Helsinki, Finland
- Yi Zhou, Henan University, China
- Tao Huang, James Cook University, Australia
- Mohamed Mahmoud, Tennessee Technological University, USA
- Chunhe Song, Chinese Academy of Sciences, China
- Dajiang Chen, University of Electronic Science and Technology of China, China
- Mohammad S Khan, East Tennessee State University, USA
- Peng Yang, Huazhong University of Science and Technology, China
- Xiaojie Fang, Harbin Institute of Technology, China
- Sai Mounika Errapotu, University of Texas at El Paso, USA

Recent Update

➢ **Completed Activities**
- *IEEE Wireless Communications*, SI on Service-Oriented Space-Air-Ground Integrated Networks
- *IEEE Transactions on Industrial Informatics*, SI on AI Empowered Communication and Computing Systems for Industrial Internet of Things
- *IEEE Wireless Communications*, SI on Aerial Computing: Drones for Multi-Access Edge Computing
- New SIG members (8 new members)

Recent Update

➢ **Ongoing Activities**

- *IEEE Transactions on Intelligent Transportation Systems (ITS),* SI on Space-Air-Ground Integrated Networks for Intelligent Transportation Systems
- *IEEE Internet of Thing Journal*, SI on Space-Air-Ground Integrated Networks for Internet of Vehicles
- *IEEE VTC-Fall 2021*
  - *TPC chair (Ning Zhang)*
  - *Track chair (Xianfu Chen),* **Airbone and Maritime Mobile Systems and Services**
  - *Track chair (Ning Lu),* **Electric Vehicles, Vehicular Electronics, and Intelligent Transportation**
- *IEEE IECON 2021*, IEEE 47th Annual Conference of IEEE Industrial Electronics Society,
  - *Track Chair*, SS on Recent Advances in **Decision-Making and Motion Control for Autonomous Vehicles**,
  - *Track Chair*, SS on Recent Advances in **Sliding Mode Control and Model Predictive Control for Automated and Autonomous Vehicles**

Recent Update

➢ **Activities Planned**
- Invited talks
  - Bin Li, University of Rhode Island (confirmed)
  - Peng Yang, Huazhong University of Science and Technology (confirmed)
  - … maybe more

- Attract more members
- SI/Conference/Workshop organization

Thank you !
Welcome!