Special Session Proposal

- **Title:**
  Special Session on Intelligent Sensing for ITS

- **Modality:**
  Half-day

- **Scope (no longer than 4 pages), including the following sections:**

  In the Intelligent Transportation Systems (ITS), intelligent sensing serves as an entry point for data acquisition and information processing, as well as the bridge connecting cyber, physical, and social space for the Cyber-Physical-Social Systems (CPSS). It plays a crucial role in the construction of safe, efficient, and green ITS. In recent years, intelligent sensing has made rapid progress, with new technologies and methods continuously emerging, including hardware design for physical sensors, virtual sensing data generation, multi-source data fusion, and new intelligent sensing techniques such as cognitive sensing, parallel sensing, crypto sensing, federated sensing, social sensing, and ecological sensing, etc. These efforts drive us to achieve the “6S” of intelligent sensing, which stands for safety in the physical world, security in the cyber world, sustainability in the ecological realm, sensitivity to individual privacy and rights, services with high quality, and smartness aligning with human values. The goal of this special session is to encourage more contributions from academia and industry in the development of intelligent sensing for ITS, and facilitate the development of more intelligent and sustainable transportation systems. We welcome original research papers that address various aspects of intelligent sensing, such as design, modeling, algorithms, field applications, and emerging paradigms.

  The list of topics includes but not limited to:
  - Intelligent sensing for autonomous vehicles and ITS
  - Design of camera, LiDAR, RaDAR
  - Virtual sensing and data generation
  - 2D and 3D sensing
  - Cognitive sensing
  - Parallel sensing
  - Crypto sensing
  - Federated sensing
  - Social sensing

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- Ecological sensing
- GhatGPT-powered intelligent sensing
- Human-in-the-loop intelligent sensing
- Edge computing for intelligent sensing
- Verification and validation for intelligent sensing
- Multi-sensor multi-source data fusion
- Machine learning and deep learning in intelligent sensing
- Intelligent sensing for smart and safe pedestrian and cyclist mobility
- Intelligent sensing for traffic control and management
- Intelligent sensing for 3D reconstruction and mapping
- Datasets for autonomous vehicles and ITS

- Organizers (names, affiliations, emails, and short bio):
  
  Xingyuan Dai (Institute of Automation, Chinese Academy of Sciences, China, xingyuan.dai@ia.ac.cn)
  Xuan Li (Department of Mathematics and Theories, Peng Cheng Laboratory, China, lix05@pcl.ac.cn)
  Yongling Tian (Institute of Automation, Chinese Academy of Sciences, China, yongling.tian@ia.ac.cn)
  Bin Chen (College of Systems Engineering, National University of Defense Technology, China, chenbin06@nudt.edu.cn)

- Intended audience and expected attendance of the special session:
  
  Researchers in the field of ITS

- Materials and equipment needed for the special session:
  
  NA

- Contact details of the proposers (email, postal address, etc):
  
  Yu Shen
  Institute of Automation, Chinese Academy of Sciences
  95 Zhongguancun East Road, Haidian
  Beijing 100190 China
  Tel(office): +86-10-82544791
  E-mail: shenyu2015@ia.ac.cn