Title of the special session

Cybersecurity and Privacy Issues in Emerging Mobility Technologies and Services

Aim and Scope

New mobility technologies and services are rapidly changing our travel habits. A large amount of personal data is generated while using these services. Nowadays, most of our mobility information is stored and processed online, while service providers are aware of sensitive and personal information that need to be protected. Nevertheless, in recent years many security breaches have occurred as well as incidences where companies misused the personal information. In 2015 a group of civic hackers deciphered and exposed the unstandardized bus system location data of Baltimore. In 2016 the San Francisco transit was hacked to give free access to commuters. During the same year, information of 57 million Uber customers and drivers were leaked. With the emergence of connected, automated, and shared vehicles cybersecurity and privacy issues are expected to become more frequent and challenging.

Various governments have started to develop regulations related to cybersecurity and privacy. One such example is the General Data Protection Regulation (GDPR) proposed by European Union (EU). Although the GDPR is only valid in the EU, it is still expected to push multinational companies to be more transparent on how they manage people's private information.

List of specific topics of interest

To address cybersecurity and privacy issues in emerging mobility technologies and services and how they could be built upon privacy principles and regulations (e.g. GDPR), we propose a special session at the IEEE Intelligent Transportation Systems Conference (ITSC 2019). It covers a range of related methodological issues and applications. In particular we invite original research contributions to address following or relevant issues:

- Privacy and cybersecurity issues arising from data sharing in connected, automated and shared vehicles environment
- Adversarial models, abstractions, and analyses for connected, automated and shared vehicles environment
- Methodologies and use cases for privacy techniques (e.g. K-anonymity, differential privacy, etc.) in mobility related location-based services
- Trade-offs related to utility and protection in location-based services using privacy preserving techniques
- New cybersecurity schemes and models (e.g. blockchain) for data-sharing and vehicle-sharing services
- Decentralized transportation services and cybersecurity and privacy issues related to them
- Design and implementation of IoT mobility devices with privacy as the directive axis
- Adversarial models, abstractions, and analyses for open data and associated anonymization techniques
- New methods for open data that guarantee privacy
- Privacy-aware centralized as well as distributed machine learning on mobility data

History of the special session

Organizers are offering this special session for the first time. Also, to best of their knowledge such special session has not be offered before at IEEE ITSC.

Expected Contributions

This special session covers research related to the role of anonymization and cybersecurity applied to data mining, machine learning, IoT, connected and autonomous vehicles, and sharing mobility. We expect a very strong interest in the session as privacy and cybersecurity is been a hot topic in the recent years not only in intelligent transportation systems, but in other fields as well.

Given the scope and importance, we expect that there will be around 12-15 submissions to this special session. This will give us a rich choice to choose the most relevant and high-quality submissions. We expect submissions from researchers at C2SMART lab in NYU, UTTRI at University of Toronto, Cybersecurity lab and LiTrans at Ryerson University, TU Delft, TU Munich, Denmark TU, ITS at Berkeley, and other international organizations.

Dissemination plan

Organizers have a strong experience in organizing such special sessions and workshops. The CFP will be disseminated via LinkedIn, Facebook, Twitter, direct emails to relevant listsrvs, and relevant committees in organizations like TRB, IEEE, and ACM. This special session will be open to everyone who wishes to present their relevant research.

Associated Special Issue

Given the importance and timeliness of the topic, we will also suggest a special issue in IEEE Transactions on ITS, where selected papers from this special session will be invited to submit a full paper.

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