



# Faculty Research Liang Cheng

# Computer Science & Engineering

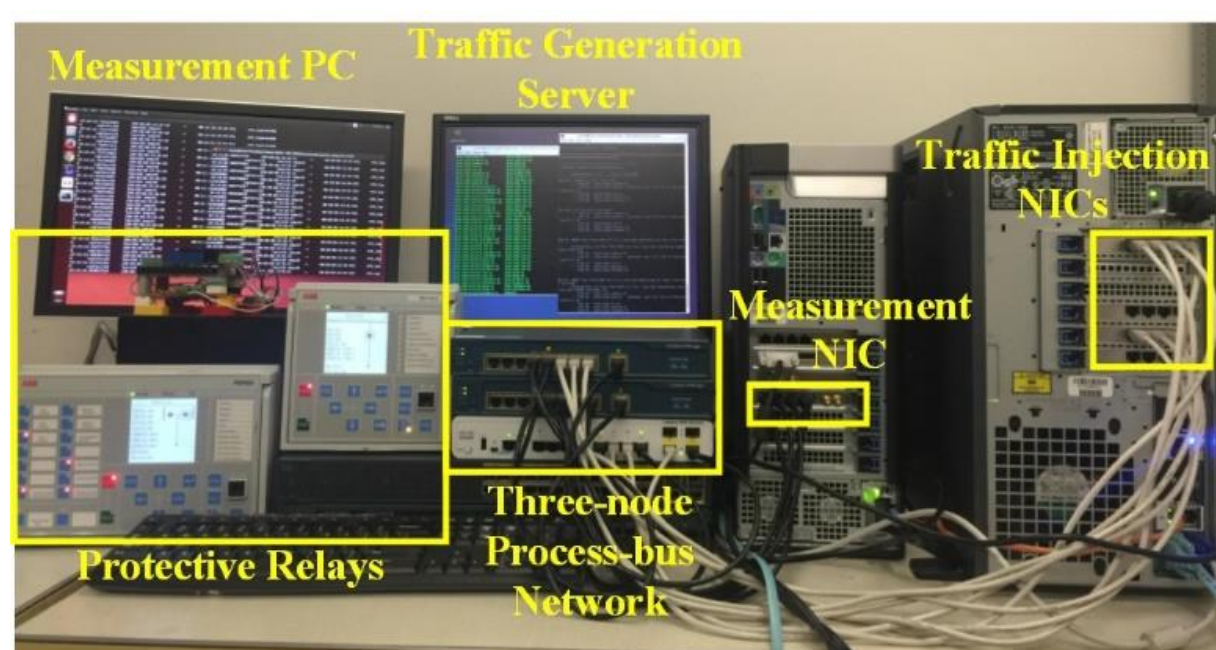
## Inter-disciplinary Research for Smarter Cities

### Data Analytics for Smart Grid

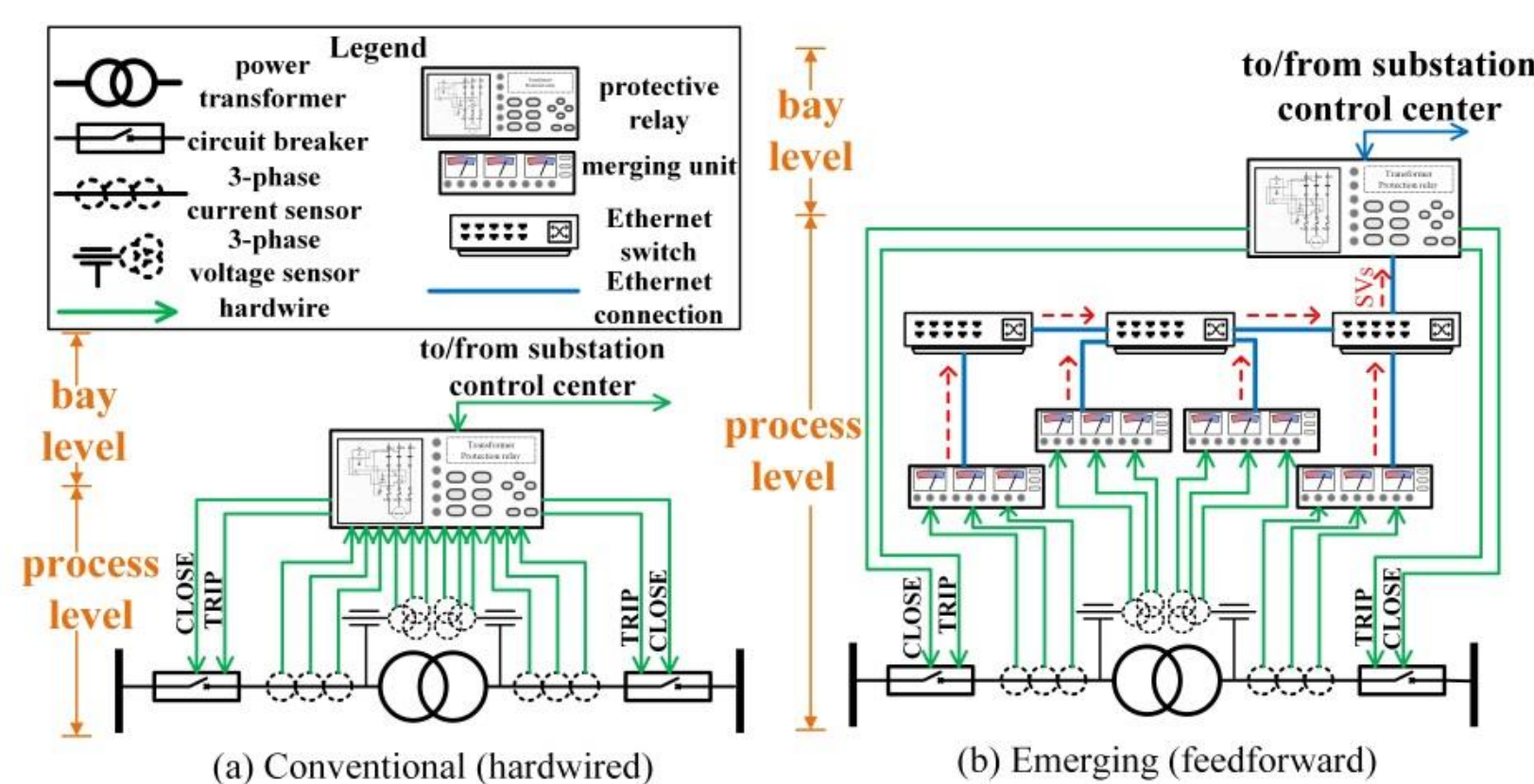
- Data-driven fault location and risk detection



J. Duan, K. Zhang, and L. Cheng, A novel method of fault location for single-phase microgrids, accepted by *IEEE Transactions on Smart Grid*, 2015.



- Substation network performance analysis

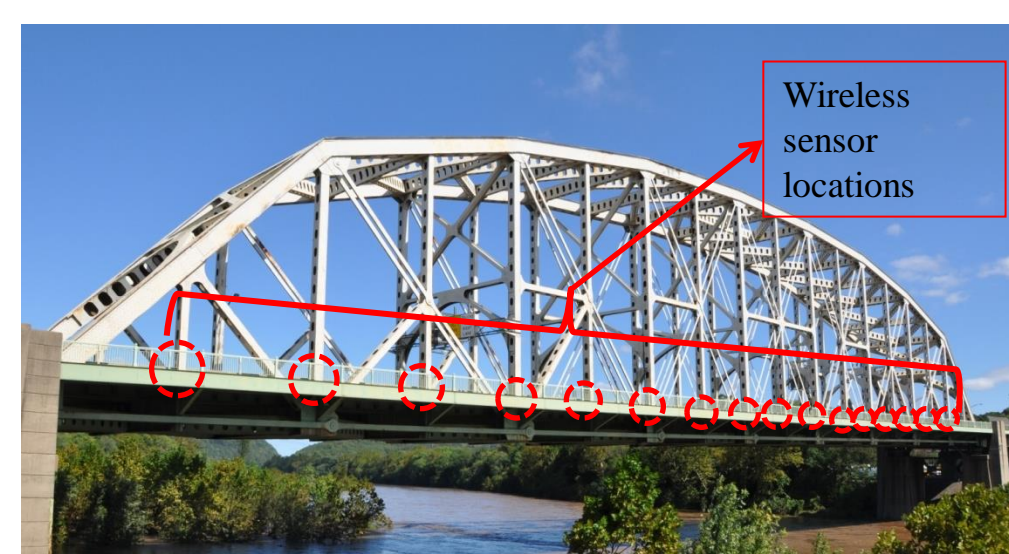


Check collaborative projects with Lehigh's INE (Integrated Networks for Electricity) cluster and ESEI (Energy Systems Engineering Institute) colleagues at



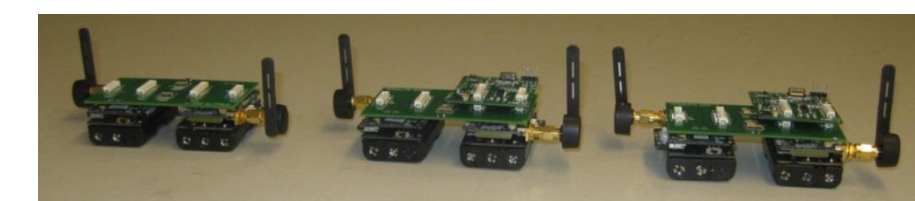
### Real-time Sensing and Analysis for Long-lifecycle Infrastructure

- Structure health monitoring

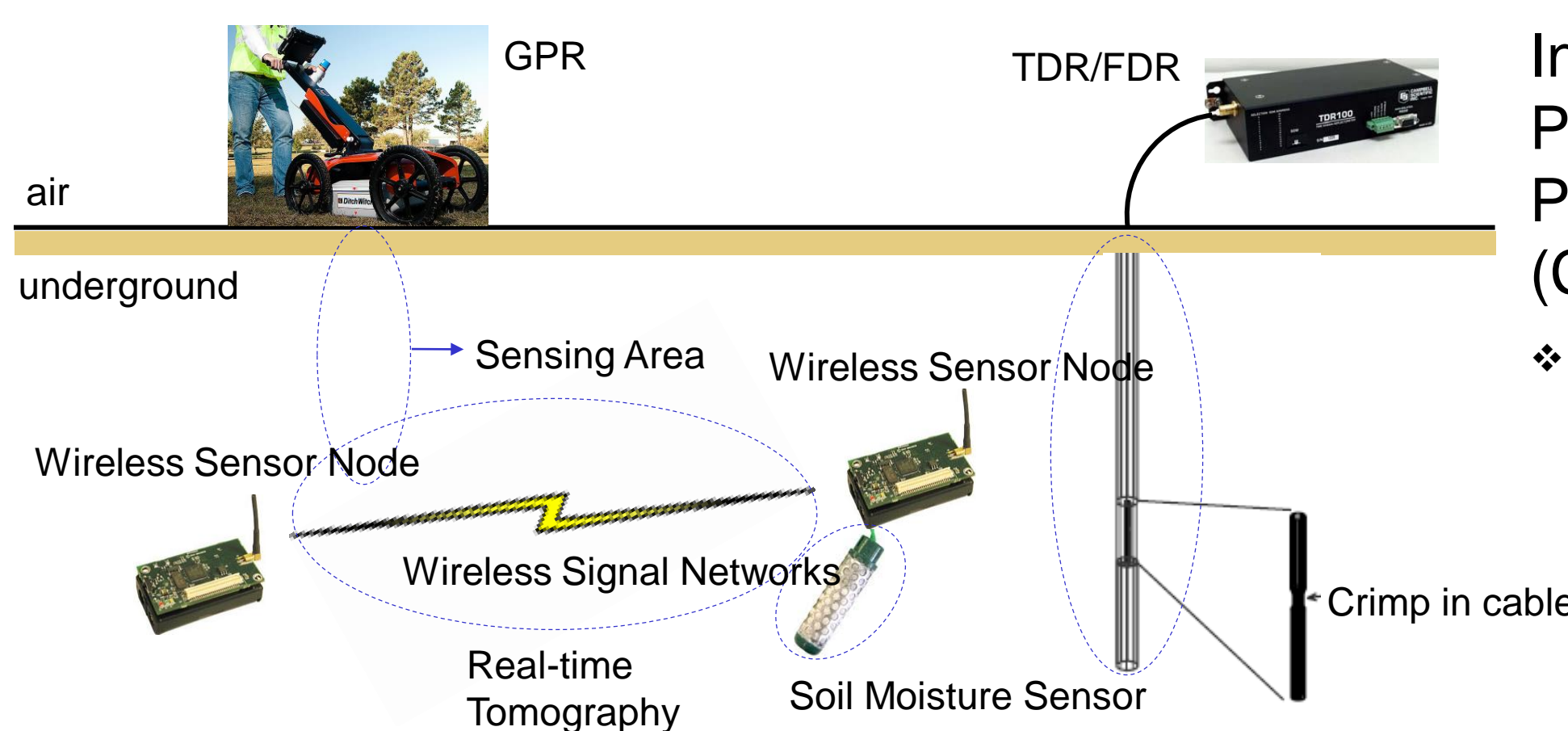


In collaboration with Prof. Shamim Pakzad (CEE at Lehigh)

❖ L. Cheng and S. Pakzad, Agility of Wireless Sensor Networks for Earthquake Monitoring of Bridges, *the Sixth International Conference on Networked Sensing Systems (INSS'09)*, Carnegie Mellon University, Pittsburgh, June 17 - 19, 2009.



- Underground sensing

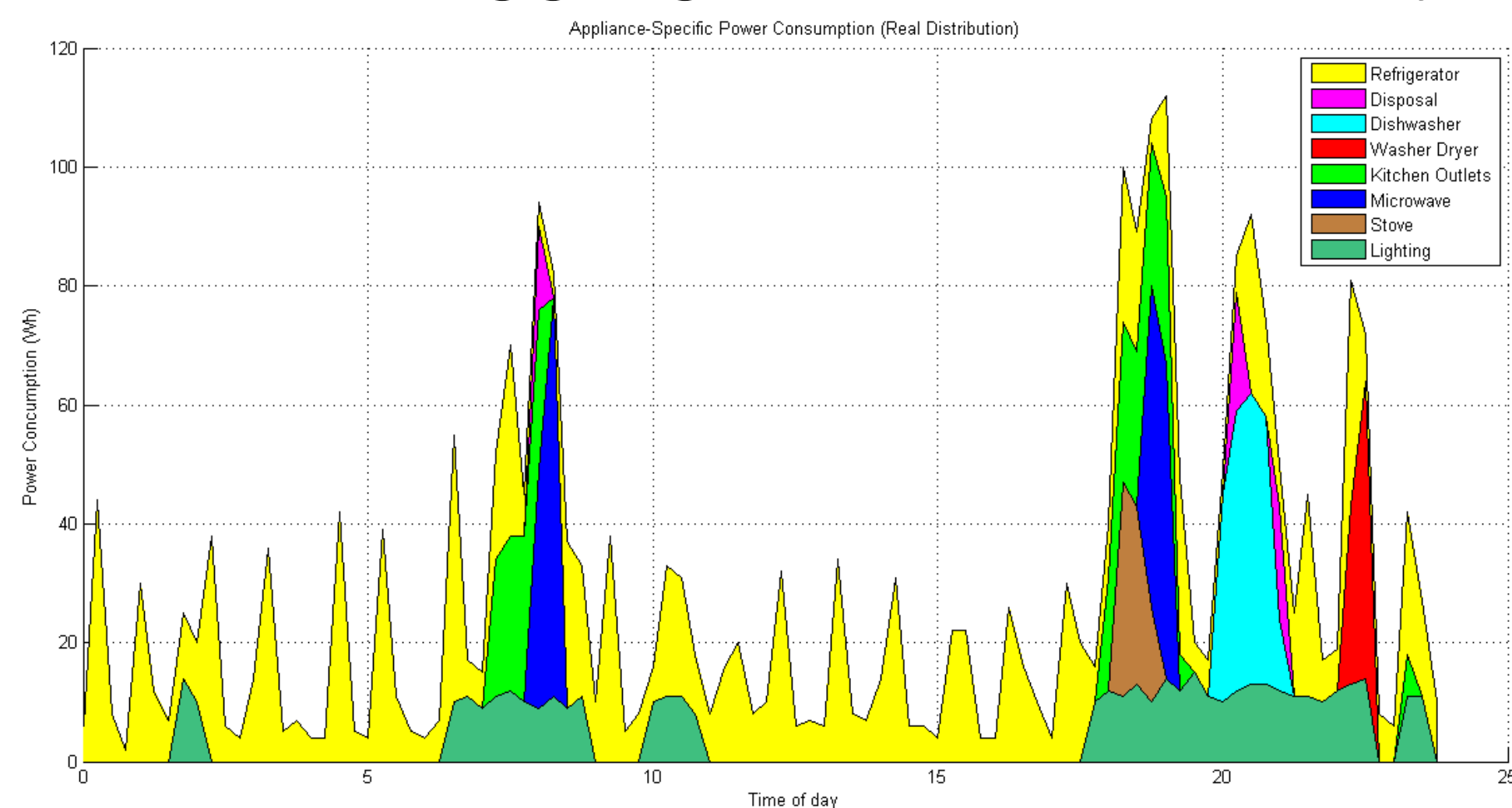


In collaboration with Prof. Sibel Pamukcu & Prof. Muhannad Suleiman (CEE at Lehigh)

❖ S. Yoon, E. Ghazanfari, L. Cheng, S. Pamukcu, M. T. Suleiman, Subsurface event detection and classification using wireless signal networks, *Sensors*, Vol. 12, No. 11, 2012.

### Urban Informatics

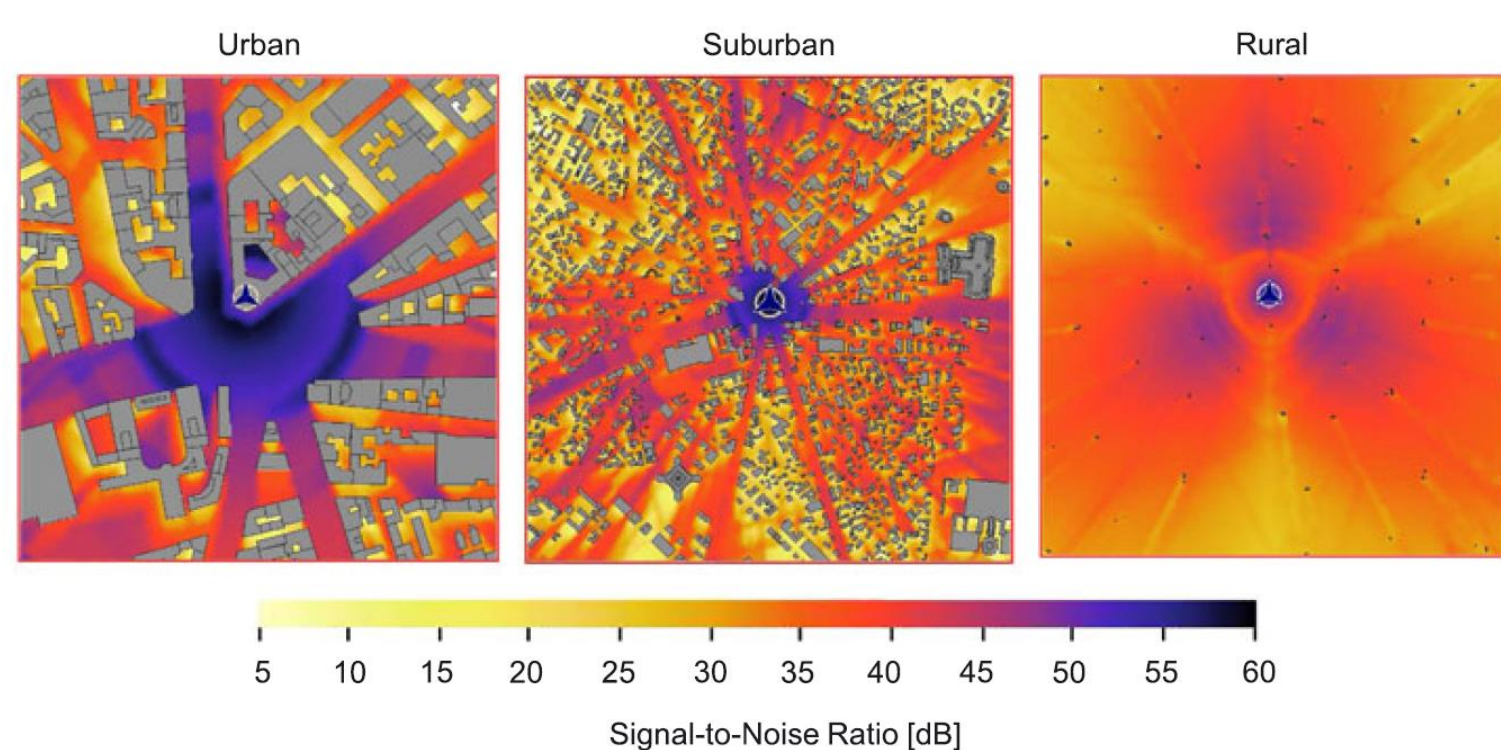
- Data disaggregation and anomaly detection



In collaboration with Prof. Mooi Choo Chuah (CSE at Lehigh)

❖ H. Yang, L. Cheng, and M. Chuah, Characterizing disaggregation solutions for urban informatics: a case study targeting anomaly detection, submitted for publication, 2016

- Wireless engineering



In collaboration with Prof. Christian Wietfeld at TU Dortmund, Germany

❖ B. Dusza, C. Ide, L. Cheng and C. Wietfeld, CoPoMo: a context-aware power consumption model for LTE user equipment, *Transactions on Emerging Telecommunications Technologies*, Vol. 24, No. 6, pp. 615-632, October 2013.

### Research Opportunities

- We recruit undergraduate and graduate students.
- Undergrads can participate in NSF Research Experience for Undergraduates (REU) program.

Interested?



- Visit <http://liangcheng.info>
- Email [cheng@cse.lehigh.edu](mailto:cheng@cse.lehigh.edu)



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