

# Peter Wei

☎ (512) 810-0186 • ✉ wei.peter@columbia.edu  
🌐 <http://www.columbia.edu/~pw2428/>

Ph.D. candidate in electrical engineering with experience in conducting original research and applying machine learning and AI techniques to big data in real-time IoT systems and software systems.

## Education

---

<b>Columbia University (Expected Graduation May 2021)</b> <i>Ph.D. Candidate, Electrical Engineering, Presidential Fellowship, 3.7 GPA</i>	<b>New York, NY</b> <i>2016–Present</i>
<b>Carnegie Mellon University</b> <i>M.S. Electrical and Computer Engineering, 3.7 GPA</i>	<b>Pittsburgh, PA</b> <i>2015–2016</i>
<i>B.S. Electrical and Computer Engineering, University Honors, 3.9 GPA</i>	<i>2011–2015</i>

## Technical Skills

---

**Programming:** Python, C/C++, Matlab, Golang, Swift, Android, HTML, JavaScript, x86 Assembly, Arduino

**Tools and Software:** Hive SQL, MongoDB, Git, LaTeX, OpenCV, TensorFlow, SystemVerilog

## Experience

---

**Wish** **San Francisco, CA**  
*Engineering Intern* *Summer 2019*

- Implemented real-time user action logging and xgboost models to predict future merchandise profit.
- Designed daily tools to better analyze effects of new features on revenue and click through rate.
- Launched A/B testing experiments based on analysis of new user behavior with preliminary increases in GMV between 0.5 – 1%.

**Intelligent and Connected Systems Laboratory, Columbia University** **New York, NY**  
*Ph.D. Student* *2016–Present*

*Analysis and Visualization of Personal Energy Consumption*

- Deployed a web server for analyzing measured energy consumption data from a building sensor network.
- Designed a tripartite graph data structure and low runtime algorithms for computing energy consumption.
- Developed an iOS/Android application for visualizing real-time personal energy consumption.

*Recommender System for Energy Savings*

- Implemented a recommender system to output real-time energy saving recommendations using deep Q-Learning.
- Ran simulations and developed a mobile application for a focus group study to show potential energy savings.

**The Robotics Institute, Carnegie Mellon University** **Pittsburgh, PA**  
*Graduate Research Assistant* *Spring 2016*

- Developed an Android app module for logging car diagnostics data over Bluetooth.
- The module improved GPS localization accuracy through wheel RPM and accelerometer data.

**iRobot Corporation** **Bedford, MA**  
*Software Engineering Intern* *Summer 2015*

- Designed and implemented a low-power sensing system for detecting floor types for the Roomba.
- Trained random forest and SVM classifiers to differentiate 3 types of surfaces with > 90% accuracy.
- System and experiments served as a precursor to the Carpet Boost technology in newer Roomba models.

**GRASP Laboratory, University of Pennsylvania** **Philadelphia, PA**  
*Undergraduate Research Assistant* *Summer 2014*

- Implemented a heuristic search algorithm (D\* Lite) for a mobile robot in an cluttered, unknown environment.
- Algorithm enabled real-time map updates as the robot traverses the environment.

## Teaching

---

### Columbia University

E6765 *Internet of Things- System and Physical Data Analysis*

New York, NY

Spring 2018 and Spring 2019

### Carnegie Mellon University

18100 *Introduction to Electrical and Computer Engineering*

18290 *Signals and Systems*

15122 *Principles of Imperative Computation*

18100 *Introduction to Electrical and Computer Engineering*

Pittsburgh, PA

Spring 2016

Fall 2015

Summer and Fall 2014

Fall 2012

## Awards

---

BuildSys 2017 Best Paper Runner-Up Award

BuildSys 2016 Best Poster Award

Fu Foundation School of Engineering and Applied Science Presidential Fellowship

## Publications

---

**Wei, Peter** and Xiaofan Jiang. Data-driven energy and population estimation for real-time city-wide energy footprinting. In *Proceedings of the 6th ACM International Conference on Systems for Energy-Efficient Built Environments*. ACM, 2019 (In Press).

**Wei, Peter**, Haocong Shi, Jiaying Yang, Jingyi Qian, Yinan Ji, and Xiaofan Jiang. City-scale vehicle tracking and traffic flow estimation using low frame-rate traffic cameras. In *Adjunct Proceedings of the 2019 ACM International Joint Conference on Pervasive and Ubiquitous Computing and the 2019 International Symposium on Wearable Computers (UbiComp/ISWC '19 Adjunct)*. ACM, 2019.

**Wei, Peter** and Xiaofan Jiang. Poster abstract: A data-driven system for city-scale personal energy footprint estimations. In *Proceedings of the 5th ACM International Conference on Systems for Energy-Efficient Built Environments*. ACM, 2018.

**Wei, Peter**, Xiaoqi Chen, Jordan Vega, Stephen Xia, Rishikanth Chandrasekaran, and Xiaofan Jiang. A scalable system for apportionment and tracking of energy footprints in commercial buildings. In *ACM Transactions on Sensor Networks (TOSN)*. ACM, 2018.

**Wei, Peter**, Stephen Xia, and Xiaofan Jiang. Energy saving recommendations and user location modeling in commercial buildings. In *Proceedings of the 26th Conference on User Modeling, Adaptation and Personalization*, pages 3–11. ACM, 2018.

**Wei, Peter**, Xiaoqi Chen, Jordan Vega, Stephen Xia, Rishikanth Chandrasekaran, and Xiaofan Jiang. eprints: a real-time and scalable system for fair apportionment and tracking of personal energy footprints in commercial buildings. In *Proceedings of the 4th ACM International Conference on Systems for Energy-Efficient Built Environments*, page 6. ACM, 2017.

**Wei, Peter**, Xiaoqi Chen, Rishikanth Chandrasekaran, Fengyi Song, and Xiaofan Jiang. Adaptive and personalized energy saving suggestions for occupants in smart buildings. In *Proceedings of the 3rd ACM International Conference on Systems for Energy-Efficient Built Environments*, pages 247–248. ACM, 2016.

Christopher Clingerman, **Wei, Peter J**, and Daniel D Lee. Dynamic and probabilistic estimation of manipulable obstacles for indoor navigation. In *2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 6121–6128. IEEE, 2015.

Natasa Miskov-Zivanov, **Wei, Peter**, and Chang Sheng Clement Loh. Thimed: Time in hierarchical model extraction and design. In *International Conference on Computational Methods in Systems Biology*, pages 260–263. Springer, 2014.