

YINGCHENG LIU

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EDUCATION

Massachusetts Institute of Technology 2019.9 - present

Ph.D. in Computer Science, Computer Science and Artificial Intelligence Lab

Graduate course: Advances in Computer Vision (A+), Computer Networks, Advanced Natural Language Processing, Theory of Computation

Peking University 2015.9 - 2019.6

B.S. in Computer Science, Summa Cum Laude, School of Electronics Engineering and Computer Science

PUBLICATIONS

- 1. Through-Wall Human Mesh Recovery Using Radio Signals**
Mingmin Zhao, **Yingcheng Liu**, Aniruddh Raghu, Tianhong Li, Hang Zhao, Antonio Torralba, Dina Katabi
International Conference on Computer Vision (ICCV), 2019
- 2. Making the Invisible Visible: Action Recognition Through Walls and Occlusions**
Tianhong Li*, Lijie Fan*, Mingmin Zhao, **Yingcheng Liu**, Dina Katabi
International Conference on Computer Vision (ICCV), 2019
- 3. Unified Perceptual Parsing for Scene Understanding**
Yingcheng Liu*, Tete Xiao*, Bolei Zhou*, Yuning Jiang, Jian Sun (*: indicates equal contribution)
European Conference on Computer Vision (ECCV2018)

RESEARCH EXPERIENCE

Graduate Research Assistant, Dina Katabi's Lab, MIT CSAIL 2019.9 - present

Project I: Non-Invasive and Passive Assessment of Parkinson's Disease Severity, Progression, and Medication Response

- **Largest and longest** continuous observational study of Parkinson's disease using passive monitoring sensor (≥ 60 participants for ≥ 1 year)
- Design and implement a **full stack telehealth system** (frontend interactive website and backend machine learning engine) that monitors patients' behavior and analyze PD disease severity.

Project II: Understanding the long-term trajectory of respiratory and behavioral phenotypes in COVID-19 using radio-sensing and artificial intelligence

- 3-month observational study of **COVID-19** patients ($n = 3$) with a focus on respiration, sleep, gait, and activity.

Undergraduate Research Assistant, Dina Katabi's Lab, MIT CSAIL 2018.7 - 2019.3

Project I: Demo: Real-Time Through-Wall Human Pose Estimation Using Radio Signal

- Design and implement a radio signal based intelligent system that tracks human and estimates skeletons. The system operates in real time and performs robustly in the wild.
- Demonstrated on **SIGCOMM2018**.

Project II: Through-Wall Human Mesh Recovery / Action Recognition Using Radio Signal

- Design and build a radio signal based intelligent system that estimates human mesh and recognizes activity. The system operates robustly in the wild despite bad lightings or occlusions.

- 2 paper accepted to **ICCV2019**

Research Intern, Megvii (Face++) Inc.

2017.11 - 2018.6

Project I: Unified Perceptual Parsing for Scene Understanding

- Design a unified framework, UPerNet, that parses multi-level visual concepts (i.e. scene, objects, parts, textures, and materials) all at once in a single inference.
- Open sourced the project in **MIT CSAIL Vision Organization**.
- 1 paper accepted to **ECCV2018**.

Project II: Human Pose Estimation under Heavy Occlusion

- Achieved the **state-of-the-art** (2018) on COCO human pose estimation benchmark.

PATENTS

1. **Yingcheng Liu**, Mengxiao Lin, and Xiangyu Zhang
2D Grid Recurrent Neural Network for Multi-Person Pose Estimation,
China patent, CN201811000563.5.

HONORS & AWARDS

1. **Guanghua Scholarship**, Peking University, 2018
2. **Lee Wai Wing Scholarship**, Peking University, 2017
3. **Silver Medal Winner**, Chinese Physics Olympiad, 2014

ACADEMIC SERVICE

1. **Conference reviewer**: CVPR, ICCV, ACCV, WACV

SKILLS

1. **Programming Languages & Tools**: Python, C/C++, TensorFlow, PyTorch, Git, \LaTeX
2. **Language**: Chinese & Japanese (bilingual proficiency), English (professional working proficiency)

OPEN-SOURCED PROJECTS

1. Unified Perceptual Parsing for Scene Understanding (\sim **250** ★).
2. CheXNet for Classification and Localization of Thoracic Diseases (\sim **350** ★).