SHIBO ZHANG

Final-year Computer Science PhD

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EMPLOYMENT

Samsung Research America — Mountain View, CA
Research Intern in Digital Health Lab — 2021 Jan – May

- Designed and implemented a novel on-device *multi-centroid classifier* for fast time series classification using sensor fusion on earbuds platform.

OPPO Research US — Palo Alto, CA
Machine Learning Intern — 2019 Jul – Sep

- Improved RGB-D based hand pose estimation by developing a physical model based optimization method.

DJI Technology Co. — Shenzhen, China
Engineering Intern — 2015 Jul – Aug

SELECTED PROJECTS

Deep Generative On-body Sensor Synthesis from Video

2020 – 2021

- Proposed a deep generative cross-modal model to synthesize on-body sensor data from online YouTube videos.
- Conducted experiments on public sensor-based eating activity recognition datasets to illustrate the validity of synthetic data.

VibroScale: Turning Your Smartphone into a Weighing Scale

2020

- Proposed and realized a novel method that utilizes built-in vibration motor and accelerometer to turn an everyday smartphone into a weighing scale.
- Won the best poster award in Ubicomp 2020.

Deep Sensor Fusion for Complex Activity Detection

2019 – 2020

- Applied deep learning based sensor fusion algorithms (IMUs, respiration sensor) to detect daily activities including smoking and eating.
- Proposed and realized a novel time synchronization method to resolve the clock-sync issue between wearable camera and on-body accelerometer.
- Published a paper on top conference Ubicomp as a co-first author.

Machine Learning based Dietary Journaling from Necklace

2017 – 2019

- Proposed a novel eating detection approach that combines proximity sensor, IMU, and ambient light sensor in a necklace.
- Devised a novel periodic peak based segmentation method towards accurate eating episode recognition in free-living settings.
- Published a first-author paper on top conference Ubicomp and won the Best Presentation Runner-up Award.

CAREER OBJECTIVE

With a research focus on **machine learning** and **human activity recognition**, I have

- Rich experience in applying machine learning and deep learning techniques including CNN, RNN and LSTM in *real world* dataset;
- Several best paper/poster awards in top ubiquitous computing conferences;
- Proven abilities of creative thinking, technological innovation, model implementation, and presentation;
- Strong willingness to attack the most challenging problems and make a difference in life.

Expected to graduate in the **summer of 2021**.

EDUCATION

Northwestern University — Evanston, IL
Ph.D. & M.S. in CS — 2015 - 2021

Harbin Institute of Technology — China
M.S. & B.S. in EE — 2008 – 2014

AWARDS

2020 **Best Poster Award**, Ubicomp (2%)
2020 **Best Presentation Runner-up**, Audience Choice, Ubicomp (1.3%)
2019 **Distinguished Paper Award**, IMWUT
2018 Student Travel Scholarship, NSF
2017 Travel Grant, Northwestern
2016 **Best Paper Award**, ACM BodyNets
2013 Best Intern Award, Eaton
2012 Best Intern Award, Eaton
2012 Outstanding Thesis Award, HIT (3%)
2012 Eaton Innovation Scholarship

SKILLS

Deep Learning (CNN/RNN/LSTM) | On-device Machine Learning | Sensor Fusion | Physiological Sensing | Audio Processing | Computer Vision

Python | PyTorch | TensorFlow | Matlab | R | C & C++

PUBLICATIONS

20 publications in peer-reviewed conferences and journals.