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 – Jun

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.
- Conducting experiments on public sensor-based eating activity recognition datasets to illustrate the validity of synthetic data.

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 and released code and dataset publicly.

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.

Machine Learning based Dietary Journaling from Necklace and Smartwatch

📅 2016 – 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.
- Code and dataset released publicly.

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
2020	**Best Presentation Runner-up**, Audience Choice, Ubicomp
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
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.