Zekun Tong

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Education

National University of Singapore, ***School of Engineering*** — Kent Ridge, Singapore
PhD in Industrial Systems Engineering | Supervisor: Professor Andrew Lim — *Aug. 2018 – Present*

Xidian University, ***School of Computer Science and Technology*** — Xi'an, Shaanxi, China
BSc in Computer Science and Technology | Studied in Excellence Engineer Class — *Sept. 2014 – Jun. 2018*

Experience

Undergraduate Research Assistant — Jan. 2018 – Jun. 2018
National University of Singapore — *Kent Ridge, Singapore*

- Developed an indoor navigation system based on machine learning and multi-sensor detection.
- Implemented Android app to collect multi-sensor data fingerprint and machine learning back-end for matching and tracking.

Research Intern — Jan. 2017 – Mar. 2017
Sungkyunkwan University — *Suwon, Korea*

- Learned in the DATES lab to combine numerical methods with wafer/chip testing.
- Developed a Virtual Probe algo using Matlab to find min cost and analyse silicon characterization of Nanoscale IC.

Publications

Digraph Inception Convolutional Networks | *NeurIPS 2020, poster, acceptance rate: 20.1%* — Sept. 2020

- **Zekun Tong**, Yuxuan Liang, Changsheng Sun, Xinke Li, David S. Rosenblum, Andrew Lim

Campus3D: A Photogrammetry Point Cloud Benchmark for Hierarchical Understanding of Outdoor Scene | *ACM MM 2020, oral, acceptance rate: 8.9%* — Aug. 2020

- Xinke Li, Chongshou Li, **Zekun Tong**, Andrew Lim, Junsong Yuan, Yuwei Wu, Jing Tang, Raymond Huang

Fine-Grained Urban Flow Inference | *IEEE TKDE* — Jul. 2020

- Kun Ouyang, Yuxuan Liang, Ye Liu, **Zekun Tong**, Sijie Ruan, Yu Zheng, David S. Rosenblum

Projects

Campus3D | *A large-scale 3D point cloud dataset of NUS campus* — Jan. 2019 – May. 2020

- Collaborated to annotate point cloud data and propose an effective framework for Hierarchical Learning.
- Implemented DGCNN with proposed framework using PyTorch to obtain fine-grained hierarchical labels.
- Developed project website, including dataset downloads, visualization, benchmark, etc. The homepage is here.

IPPT Trainer | *An application for recording fitness tests using body posture recognition* — Jul. 2018 – Dec. 2018

- Co-developed with Singapore Ministry of Defence to monitor fitness training automatically. See demo at here.
- Collaborated to design real-time push- & sit-ups counting algo using keypoints detection based on OpenPose.
- Implemented low-latency image streaming module using WebRTC to reduce the computing load on edge phones.

Patents

An Anti-motion Sickness Seat and a balancing method | *China Invention Grant (ZL201510300557.1)* — Sept. 2017
An Image Stabilization and Service Software for Ships | *China Software Copyright (2016SR047532)* — May. 2016
An Anti-motion Sickness Seat | *China Utility Mode (ZL201520377894.6)* — Oct. 2015

Awards

Finalist Winner of Interdisciplinary Contest in Modeling (MCM/ICM) | *winning rate: 0.3%* — Mar. 2016
Third Prize in "Challenge Cup" National Science and Technology Innovation Contest — Nov. 2015
First Prize in Microsoft Imagine Cup (Shaanxi) — May. 2017

Honors

Research Scholarship at NUS — 2018 - 2022
Graduate Star of Xidian University (10 out of 5357 graduates) — Jun. 2018
Huawei Scholarship (two times) — 2017, 2018
National Scholarship — Oct. 2017
National Scholarship for Encouragement — Oct. 2016
China Aerospace Science and Technology Corporation (CASC) Scholarship — Apr. 2016

Programming Skills

Languages: Python, C/C++, Matlab, Java, SQL, LaTeX, JavaScript, HTML/CSS and others.
Frameworks: PyTorch, Keras, TensorFlow, React, Node.js and others.