LI Yefeng (李烨锋)

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Research Interests

My research interests lie in the broad area of Programming Languages and Software Systems. I am interested in formal verification for distributed programming and for compilation, type systems, proof assistants, functional programming, and so on. I hope to develop rigorously founded theories and tools at the service of reliable software.

Education

Purdue University West Lafayette, IN, USA
Doctor of Philosophy student in Computer Science

Hong Kong University of Science and Technology (HKUST) Hong Kong S.A.R.
Master of Philosophy in Computer Science and Engineering *Sept. 2018 – June 2020*
Bachelor of Engineering in Computer Engineering | Minor in Robotics *Sept. 2014 – June 2018*

Research Projects

Manifoldness Preserving Contraction VisGraph Lab, CSE, HKUST
M.Phil. thesis, advised by Prof. Quan Long *Aug. 2018 – May 2020*

- Designed a new contraction method that guarantees manifold output given a manifold input using augmentation and the separation of singularities. It can be applied to geometry processing as a replacement to the conventional contraction operation which may destroy topology and produce imperfect results.

Triangle mesh simplification VisGraph Lab, CSE, HKUST
Advised by Prof. Quan Long *Aug. 2018 – May 2020*

- Used new contraction techniques to improve triangle mesh simplification wherein traditional methods fail to effectively restrict the destruction of input topology.
- Facilitated the parallelization in the construction of Levels-of-Detail of 3D models using 2D-projection of tile boundaries.

Centralized Wireless Local Area Networks HKUST
Undergraduate final-year thesis, advised by Prof. Brahim Bensaou *Sept. 2017 – Mar. 2018*

- Specified a centralization protocol for Wireless LANs as an (software-defined networking) extension atop CSMA/CA to explore the improvement of resource utilization in dense indoor networks. It was partially implemented in C based on hostapd's source code and experimented on OpenWrt embedded Linux system.

Photograph capturing with drones VisGraph Lab, CSE, HKUST
Undergraduate Research Opportunity Program, advised by Prof. Quan Long *Aug. – Nov. 2016*

- Investigated in the application of Computer Vision and Graphics for Android devices as remote controls for drones, with a focus on human-drone interaction. An Android application was built to retrieve data from a geography database and visualize useful information on the screen according to the vision of the drone.

Professional Experience

Everest Innovation Technology (merged into Apple Inc.) Shenzhen & Hong Kong, China
Researcher & Software Developer *June – Aug. 2019*

- **Triangle mesh processing**: Transferred novel geometry processing techniques into *Altizure*, a world-class cloud-based 3D reconstruction platform; developed efficient mesh processing program in C++.
- **ZRPC**: Participated in the development of *ZRPC*, an RPC distributed computing framework, in Go.
- **Data management and visualization**: Developed a photographic data validation, management, and visualization desktop application in JavaScript.

Dash Serviced Suites Hong Kong
Part-time JavaScript Developer *Feb. – May 2018*

- **Web development**: Worked on the Web interface, API, and database management of *DASH2*, an online marketplace Web application by the startup company.

Teaching Experience

Department of Computer Science and Engineering, HKUST Hong Kong
Teaching Assistant *2018 – 2019*

- COMP1021: Introduction to Computer Science, Fall 2019
- COMP3311: Database Management Systems, Fall 2018

Extracurricular Activities

ACM SIGPLAN Symposium on Principles of Programming Languages New Orleans, LA, USA
Student Volunteer *Jan. 2020*

- Supported event organization.

RoboMaster Robotics Competition Shenzhen, China
Mechanical/Computer Engineer *Feb. – Aug. 2017*

- Co-designed the mechanical structure of *Hero*, the main-force in this multi-robot contest, for RoboMaster HKUST team. Our Hero robot was controlled remotely, capable of capturing, storing and shooting bullets, and climbing onto stairs with telescopic legs.

Chinese Folk-Art Society, HKUST Hong Kong
IT Secretary, Executive Committee *Feb. 2015 – Feb. 2016*

- Independently built the official website of our society and developed a Web application in JavaScript to assist the hosting of a knowledge competition named *Who is Still Standing*.
- Took charge of photographing and Internet platform promotions.
- Organized trips to the Yangzi, China and Dragon's Back, Hong Kong.