YUPENG HAN

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EDUCATION & RESEARCH

Carnegie Mellon University, Robotics Institute, USA Oct 2019 - June 2021
Research Engineer (advised by Prof. Maxim Likhachev)
Topic Title: GPU-based Real-Time Object Pose Estimation System

Purdue University, USA Aug 2017 - Dec 2018
M.S. in Mechanical Engineering GPA: 3.96/4.00
Related Courses: Artificial Intelligence(A+), Algorithm(A), Robotics(A), Statistic Methods(A+), Numerical Analysis(A), Database(A), Programming in C(A), Data Mining(A-)

Shanghai Jiao Tong University (SJTU), China Aug 2013 - Jun 2017
Bachelor in Mechanical Engineering, Tsien-Hsue-Shen Honor Program GPA: 3.75/4.30

PROFESSIONAL EXPERIENCE

R&D Engineer Trifo Inc.
SLAM & Embedded System Programming *Jun 2021 - Present*
· Optimize the slam algorithm to improve the performance in indoor scenes.

Research Engineer - Robotics CMU Robotics Institute
Vehicle Detection Based-on Sensor Fusion *Oct 2019 - Jun 2021*
· Developed a fast, scalable, and accurate 3D vehicle detection framework for autonomous driving that combines the strengths of deep learning, computer graphics, and optimization.
· Benchmarked on the KITTI dataset. The results show that our approach achieves on par 3D detection localization performance with SOTA learning-based methods without using ground truth pose annotations.

Research Engineer - Robotics CMU Robotics Institute
Learning-Free Model-Based Object Pose Estimation *Jan 2021 - Jun 2021*
· Developed an object detection system using the object RGB feature and 3D model with a sensor fusion framework to detect object pose in real-time without labels.

Research Engineer - Robotics CMU Robotics Institute
Indoor Object-6DOF Pose Estimation *Oct 2019 - Jan 2021*
· Estimated object 6-DOF pose using object 3D model and RGB-D image. Experiment shows that my algorithm can detect objects in real-time.
· Developed the pose proposal generation module in an RGB-D 6-DOF pose estimation framework. Tested on the open dataset (YCB-Video), results show that our algorithm surpasses state-of-the-art 6-DOF pose estimation methods with great margins without the need for any ground truth pose annotations.

Computer Vision Engineer Deptrum Co.Ltd
Face Detection on Depth Images *Apr - Jul 2019*
· Independently developed a face detection for depth images, based on a multi-task cascaded CNN. Obtained 99.93% precision and over 97% recall.

HONORS & ACHIEVEMENTS

- Dean's List and Semester Honors All Semesters in Purdue
- Outstanding Individual of SJTU [Pressed by SJTU Academic News Website] Jun 2016
- The First Prize of National College Students Science and Technology Contest Aug 2014
- The First Prize of The National Mathematical Olympiad Jan 2013

PUBLICATIONS & MANUSCRIPTS

- **Y Han**, S Aine, M Likhachev, "Real-time 3D Perception via Search for Vehicle Detection with No Pose Annotated Training Data"
- A Agrawal, **Y Han** and M Likhachev, "PERCH 2.0:Fast and Accurate GPU-based Perception via Search for Object Pose Estimation", *IEEE International Conference on Intelligent Robots and Systems (IROS) 2021*
- J, Thekinen **Y Han** and J Panchal, "Designing Market Thickness and Optimal Frequency of Multi-Period Stable Matching in CBDM" *ASME International Design Engineering Technical Conferences (IDETC), 2018*

TECHNICAL STRENGTHS

Programming C++, CUDA, Python, MATLAB, ROS, RTOS
Technical RGB-D Perception, SLAM, Sensor Fusion, Parallel Computing