# ZHEKAI (SCOTT) JIN

(929) · 354 · 6799 ⊙ zhekaij@andrew.cmu.edu ⊙ zhekaijin.github.io ⊙ Pittsburgh, PA

## EDUCATION

**Carnegie Mellon University** *Projected May 2021*
M.S. in Robotic Systems Development

**The Cooper Union for the Advancement of Science and Art** *Sept. 2015 - May 2019*
B.Eng, Major in Electrical Engineering, Minor in Computer Science, cum laude

## PROFESSIONAL EXPERIENCE

**Biorobotics Laboratory, CMU : Research Assistant** May - Aug. 2018
*SLAM Team on a modular Perception system based on DJI's Livox Lidar* *Pittsburgh, PA*

· Established a robust Lidar SLAM framework for Livox with its non-repetitive scanning patterns
· Incorporated intensity-based features into scan matching for high resistance to aggressive motion

**Momenta.ai : Lidar Research & Development Intern** May - Aug. 2018
*Lidar Team & HD map Team on an end-to-end Lidar Perception system* *Beijing, China*

· Devised efficient Ground Detection & Semantic Road Segmentation algorithms with 98% precision
· Refactored Object Segmentation Modules with 20% memory usage drop by specialized data structures
· Designed and implemented a robust Real-Time Object Tracking pipeline which is able to track even sparse point clouds based on 3D Interpolation, now deployed at Momenta's L4 self-driving solution

**Totem Power Inc. : System Research & Development Intern** Jun. - Aug. 2017
*Independent Research Project on a complete wireless charging system for Drones* *Bedford Hills, NY*

· Designed monocular-vision-based precise landing algorithm to counter the charging range limitation
· Developed REST APIs and real-time distributed charging status monitoring system with visualization

**Didi Chuxing Technology Co. : Software Research & Development Intern** Apr. - Jun. 2017
*Dispatch Team on intelligent dispatching and dynamic pricing* *Hangzhou, China*

· Worked on automatic feature extraction on probabilistic time series forecasting models (PCA, LSTM)
· Turned Redis sentinel mode to proxy + consistent hashing mode with Redis latency reduced by 20%
· Automated tests with TestNG and Mockito and reached code coverage of 99%

## ACADEMIC PROJECTS

**Cooper Mapper : Self-Driving Robot with MultiSensor Data Fusion** Sept. 2018 - May. 2019

· Implemented real-time 2D Lidar SLAM and Stereo Visual SLAM based on Cartographer & ORBSLAM
· Refactored and extended LOAM with map management, relocalization, and pose-graph optimization
· Developed robust resolution matching algorithms to reduce extrinsic multisensor calibration effort

**Tap News : Real-Time News Scraping and Recommendation System** Mar. - May. 2018

· Implemented a data pipeline which monitors, scrapes and dedupes latest news (Redis, RabbitMQ)
· Built a web application for users to browse news (React, Node.js, RPC, SOA, JWT)
· Implemented a click event log processor which collects users' click logs to update preference models
· Designed and built an offline training pipeline for news topic modeling (Tensorflow, DNN, NLP)
· Deployed an online classifying service for news topic modeling using the trained model

**Cooper-IoT : Generic IoT Platform with Telepresence Utilty** Jun. - Dec. 2017

· Led a team of five designing IoT network for human traffic flow study with a stochastic queuing model
· Implemented real-time WiFi & Bluetooth address tracking and peripheral parameters acquisition.
· Designed human detection algorithm with OpenCV to count and monitor human traffic flow in a WSN
· Implemented real-time data-driven scheduler of lighting & heat and Achieved average 2% energy saving
· Realized Telepresence by implementing Mixed Reality and Stereo Rendering: integrating camera feed from robots & peripheral environmental data to head-mounted displays (S-PTAM, Unity, C#, C++)

## COMPUTER SKILLS

| | |
|---|---|
| **Languages** | C++, C, Java, Python, Go, Matlab, HTML5, CSS3, JavaScript, SQL, Shell Scripting |
| **Technology** | MRPT, PCL, g2o, gtsam, Webots, scikit-learn, NLTK, PyTorch, Kafka, Hadoop, Spark |
| **Training** | Robotics Software Engineer Nanodegree, Self Driving Engineer Nanodegree @ Udacity |