Bide (Peter) Huang

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Summary

A result-driven software and system engineer with over 8 years experience in software engineering, possess strong competency and industrial experience in areas of mapping and localization, machine learning and vision.

Experience

Bosch Melbourne, Australia

Lead Software & System Engineer *Jun 2018 – Present*

Reporting to engineering manager, responsible for delivering software product/service for various customers including Victoria government and OEMs. Define engineering tasks as per project requirements, design system software architecture and develop feature, integrate algorithms, conduct testing and manage relase, organise customer meetings and cross-regional collaborations.

- Successful PoC eHorizon application, designed and implemented horizon APIs, RViz/DeckGL visualization, and behaviour layer map enrichment framework in crowd-sourced mapping pipeline for L2+ vehicle functions.
- Regional number 1 in successful demonstration of full automated driving system for 2 million dollar government funded project - Connected Automated Vehicle over two years. Successfully integrate Bosch Radar Road Signature into AD system; Lead team in development of HD planner and feature maps creation to achieve highly accurate radar and video only localization on Victoria rural highway in GPS dennied environment. Conduct end to end mapping activities, creation of first lidar and Radar Road Signature localization feature maps in Australia.
- Designed novel approach for developing HD planner map creation pipeline to achieve centimetre accuracy. Achieve centimetre accuracy of localization and mapping through multi-beam lidar intensity calibration, multi-sensor calibration, fusion of GPS inertial sensor and vehicle odometry, and optimization of multi-modal localizer.
- Research and develop graph based visual SLAM algorithm using stereo video camera for Vehicle Odometry fusion; Deep learning based lane marker detection using semantic segmentation; Creation and deployment of multi-layer spatial data visualization website for analysis and critical decision making.
- Second runner-up of machine learning business innovation competition.

Blackmagic Design Melbourne, Australia

Software Engineer *Jun 2014 – Jun 2018*

Reporting to software engineering manager, responsible for real time RTOS-based embedded software development for high performance video post-production product, development of drivers, API and multi-threaded cross platform Qt application, audio and video analytic software and tools.

- Worked closely with other engineers to develop and release the world's smallest Ultra HD broadcast deck with professional 10-bit video/audio dual disk SD/UHS-II recording and playback.
- Lead engineer for successful delivery of Disney customer release for HyperDeck Mini Studio; Designed and implemented Advanced Media Protocol which enables video playback synchrounization, frame-accurate timeline and slow motion control over serial and ethernet.
- Lead engineer for Video Assist 4K product, successfully delivered and demonstrated 3D LUT color correction preview feature and multi-language display and update in CES 2017.

Welling & Crossley Melbourne, Australia

Electronics Engineer *Jan 2011 – Jun 2014*

Reporting to chief R&D engineer, responsible for research and develop electronic schematics and PCBs, embedded software/device drivers for engine control unit, Qt based touch screen controller, variable speed pump controller, and remote controller for irrigation and power generator system.

- Outstanding employee achievement award for successful design and deployment of engine speed sensor for diesel and petrol power generators, which saves significant manufacturing cost.
- Successful demonstration of AS-2941 compliant touch screen fire pump controller to company CEO and stakeholders.
- Critical troubleshooting for half million dollar "Black Start" 500KVA power generator for Queensland water treatment plant.

Qualification

Freiburg University — Online
Robot Mapping — *Sep. 2018*

Udacity — Online
Self-Driving Car Nano Degree Certificate — *Nov. 2016 – Sep. 2017*

Coursera — Online
Machine Learning, Robotics Specialization — *June. 2015*

RMIT University — Melbourne, Australia
Graduate Diploma in Computer Engineering (High Distinction) — *Sep. 2010 – Nov. 2010*

RMIT University — Melbourne, Australia
Master of Electronics Engineering (High Distinction) — *Aug. 2008 – Jul. 2012*

Fuzhou University — Fuzhou, China
Bachelor of Science in Applied Physics — *Sep 2004 – Jun 2008*

Professional Skills

- **Programming Languages**: C/C++, Python, Bash, HTML, CSS, Javascript, SQL, Objective C, Matlab, VHDL, PLC, Assembly, LaTeX, LabView
- **OS/Middleware**: Linux, Windows, FreeRTOS, ROS
- **Software Framework/Libraries**: Qt, OpenGL, Protobuf, Boost, Matplotlib, Numpy, Scipy, Pcl, Eigen, Sophus, G2O, Ceres, OpenCV, Pytorch, Tensorflow
- **Software Tools**: CMake, SCon, Conan, Gitlab, Jenkins, Docker, AWS, Git, Confluence, Jira, Office365
- **Technical Stack**:Ultrasonic/Radar/Video/Lidar knowledge, Embedded Software Design, Data Analysis and Visualization, modeling and simulation, SLAM, Sensor Fusion, Nonlinear Optimization, Machine learning, Deep learning, Computer Vision