Melbourne, Australia **BIDE HUANG** Email: [hbd730@gmail.com](mailto:hbd730@gmail.com)

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# **Skills**

**Programming Languages**: C/C++, Python, Objective C, Matlab, Labview, LaTex, Assembly, VHDL, HTML, CSS, Javascript, PLC.

**Projects**

**Udacity Self-Driving Car**

* Lane and vehicle detection with OpenCV and SVM, traffic sign recognition with TensorFlow, and simulate automated driving using behaviour cloning.
* Fuse Lidar/Radar sensor data with Unscented Kalman filter, vehicle localization using particle filter, PID, and model predictive control.
* Path planning on simulator, including automatic lane changing and adaptive speed control. Functional safety, and vehicle system integration with ROS.

**Quadcopter 3D Simulation and vision based position control**

* Simulated quadcopter dynamics and designed a controller to follow a given trajectory.
* Track and control quadcopter with an external camera. Youtube Demo: <https://www.youtube.com/watch?v=gsH1JjfWzX0>

**Virtual Billboard**

* Warped a 2D image logo onto a scene in the video stream with homographies computed in real-time.

# **Professional Experience**

**Blackmagic Design Melbourne, Australia**

*Software Engineer Jun 2014 – Present*

* Established Advanced Media Protocol component on the world’s smallest UltraHD broadcast deck - Hyperdeck Studio Mini. Responsible for designing RS422 serial driver, application and protocol platform abstraction layer for remote control. Contributed to transport application. Designed timeline control module and provided innovative solution to allow scheduling multiple clips with desired In/Out timecode preset, achieving frame-accurate remote shuttle/jog slow motion control, fast forward, rewind, seek and other playback functions.
* Video Assist 4K product development, including UI, Tri-linear interpolation algorithm for 3D LUT, thermal controller, RPC automatic testing, LCD calibration and Admin Utility software which allows users to download firmware, language, and 3D LUT onto the device over USB.
* Developed Qt based desktop application for real-time video/audio capture and playback, manufacturing tester, certification tools, etc.

**Welling & Crossley Melbourne, Australia**

*Electronics Engineer Jan 2011 – Jun 2014*

* Designed AS2941-2013 Diesel Fire Pump Controller. Developed a Qt application that runs on an embedded device with touch screen. Designed and implemented a USB protocol and device firmware Successfully deployed the first prototype into production.
* Designed ECU firmware for Honda 630 10kw Inverter Generator; Designed variable speed pump controller to maintain pump pressure.
* System level troubleshooting and tuning for Black Start 500KVA Mains Synchronization Generator. The half million dollar project is successfully commissioned for Queensland water treatment plant.
* Designed moving average digital filter for engine speed sensor. As a replacement of traditional magnetic pickup sensor, it significantly reduced annual production cost. The project won me an outstanding employee award.

**RMIT University Melbourne, Australia**

*Research Assistant Nov 2009 – Jan 2010*

* Designed and developed real-time video capture and display system with OV7620 digital camera on Analog Device BlackFin DSP development board.
* Still image capture and compression using JPEG with different quality level and transfer to PC.
* Presented to the managing director of Analog Device Australia, and successfully deployed at School of Electrical Engineering DSP labs.

**Education**

## **Udacity**

* *Self-driving Car Nanodegree Certificate Nov 2016 – Sep 2017*

**RMIT University, Australia**

* *Master of Electronics Engineering (HD). Graduate Diploma of Computer Science. Sep 2010 – Nov 2008*

**Fuzhou University, China**

* *Bachelor of Applied Physics (HD) Sep 2004 – June 2008*

Outstanding Graduate Award, Academic excellence, National undergraduate electronics contest second price.