# Danny Huang

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## Professional summary

**Full-stack developer** currently working as a **Cloud Engineer at National Australia Bank** with a background in **Electrical Engineering specialising in Machine Learning.** Built and deployed **multiple ReactJS web application** from **scratch to production** for NAB bankers utilising AWS services. Heavily involved as a **Quantitative Trader hobbiest** developing **Recurrent Neural Network models** for predictive analysis.

## Education

| The University of Melbourne | *Melbourne,VIC,Australia* |
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| M.Eng, Major:Electrical Engineering, specialising in Optimisation and Machine Learning | *Jan 2019- December 2020* |

- WAM:81.6% , First Class Honours
- Thesis: Optimal path-planning/following for Autonomous Vehicles using Partial Environment Information
- Award: - 2nd-place People's Choice Award. ( /182 Final Year teams)
        - 3rd-place Road to Endeavour Award. ( /182 Final Year teams)

| B.S, Major: Electrical Engineering | *February 2016-December 2018* |
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- WAM:76.1% , Second Class Honours Division A

| Exchange Program | *Los Angeles, USA* |
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| University of California, Los Angeles | *September 2017-June 2018* |

- Technical GPA:3.12

## Work Experience

**National Australia Bank**

- **Associate Cloud (Software) Engineer – Business Lending**  *01/08/2021 - Present Full-Time*
- **Junior Cloud (Software) Engineer – Business Lending**  *11/01/2021-01/08/2021 Full-Time*
  - Full-stack web application development using Backend For Frontend(BFF) alongside DevOps role and Unit Testing using ReactJS, Typescript, GraphQL,PostgresQL, Jest, Enzyme.
  - Built 2 production ready web applications used by all bank branches in Australia.
  - Setup CI/CD Jenkins pipeline infrastructure for app deployment integrating quality checks such as SonarQube, Checkmarx and Deputy.
  - Mentored external contractors (Accenture & DXC) NAB-specific UI development.
  - Completed internal 2 week hackathon building app on house price evaluation using Machine Learning (Convolutional Neural Network) based on current housing market features (No.Rooms, carspace, proximity to facilities etc.).
  - Full stack developer confident in ReactJS, AWS infrastructure hosting, serverless and scalable solutions (e.g. ECS, DynamoDB, autoscaling etc).

| **Jacobs Engineering Consultancy** | *26/11/2019- 21/02/2020 Full-Time* |
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| **Undergraduate Electrical Engineer (Rolling Stock)** | *22/02/2020-01/11/2020 Part-Time* |

  - Assisted in a 200k life extension project for V/Line in data analysis for fault finding and providing recommendations to the client.
  - Worked on a $600 billion dollar project for Victorian Government 2050 metro vision procuring rolling stock(trains) in a consortium of 4 engineering consultancies and government agency.
  - Time-managed 4 concurrent projects ensuring deadlines are met.
  - Prepared 5 final reports for clients in a span of 3 months.
  - Independent on site-visit to client to inspect project progression and updates.

| **Commonwealth Scientific and Industrial Research Organisation (CSIRO)** | *19/11/2018-01/03/2019* |
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- **Vacation Student Researcher - InterFloat**
  - Develop & test capacitive sensing method to measure properties of mineral solution within the flotation unit.
  - Use SPICE simulation to develop circuits, Schematic design & PCB layout for test.
  - Laboratory based circuit assembly & practical test.

## Project Design

**Building a ReactJS App hosting on AWS – Workshop**                                 *2021 working at NAB*
- Designed and taught a ReactJS workshop to University students teaching them how to create web app and host on AWS using AWS services specifically S3, DynamoDB, Elastic Load Balancer, Elastic Container Service.

**Optimal path-planning for autonomous vehicles using partial information**                         *Capstone 2020*
- Develop novel advanced control strategies( via machine learning) for autonomous driving (minimise lap time, power consumption, and guarantee collisions avoidance) with partial information of the environment.
- Real-time collision avoidance for static and dynamic obstacles using Mixed-Integer Quadratic Programming.
- Object Identification
- Designed novel optimisation-based controller using SLAM (Simultaneous Localisation and Mapping) that ensures real-time optimal car maneuvering, speed, and safety.

**Algorithmic Trading U.S Market Equity Strategy**                         *Year-long Personal Project 2020-2021*
- Research/develop/test trading strategies using signal indictor and Neural Network models. Backtesting strategies on BackTrader platform in Python with a sharpe ratio averaging 2.4.

**AI Planning for Autonomy**                                                                 *Semester 1 2020*
- Developed full autonomous agent with 3 other students for Pac-man game that ensures completion based on time/score/ghost avoidance.

**Measuring froth depth in flotation units**                                           *Summer Internship 2019*
- **Research Assistant**-develop & test capacitive sensing. **Schematic design & PCB layout** for test. **Written Report** describing work and outcomes. **Verbal presentation** describing results and experience.

**Exoskeleton**                                                                             *Semester 2 2018*
- Student-based **proof of Concept** designing light-weight and Inexpensive exoskeleton that assists human body movement and **research** into human mechanisms in order to provide assistance efficiently.

**Controller for Self-driving Car**                                                     *Spring Quarter 2018*
- Designed a controller that allows a model car to adjust its position relative to its projected position in order to stay in track (**lane keeping**).

**Speech Classification**                                                                 *Fall Quarter 2017*
- Designed a deep neural network algorithm that detects, trains, and predicts audio signal speech recognition of male/female voices with **99.4% accuracy**.

## Technical Skills

**Frontend Tech Stack**
- HTML, CSS, JavaScript, Typescript, ReactJS, React Native, Jest, Enzyme

**Backend Tech Stack**
- Python,Pandas,NumPy,MatplotLib, Java, C, SQL, MATLAB, TensorFlow, Sagemaker, Keras, DynamoDB, NoSQL, PostgreSQL, EC2, S3, GraphQL, Adobe Analytics, Google Analytics, PEGA CRM,

**DevOps Tech Stack**
- Jenkins, Docker ,ECS , Kong , Nginx

**Hardware**
- FPGA, PCB Design, Soldering PCB & Dev board, Microchip SAM C MCU, Arduino Uno, Raspberry Pi

**Amazon Web Services (AWS) Certification**
- Machine Learning - Specialty
- Solutions Architect - Associate
- Cloud Practitioner

## Leadership & Extra-Curricular

**Coffee Appreciation for Enthusiasts – Social Media Director**                         *09/2019-Present*
- Managing society's social media accounts with weekly posts on events and meetups whilst directing 2 supporting officers.

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## References

| **Satbir Singh** | **Agustian Agustian** |
|---|---|
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