

# LUCAS BARBOSA

ENGINEERING (HONOURS) AND COMPUTER SCIENCE

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## ABOUT ME

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**Technical Skills** React, NodeJS, Typescript, MongoDB, PostgreSQL, Python, PHP, C/C++, Linux Servers, DevOps  
**Languages** Fluent in English and Portuguese  
**Interests** Finance, Cinematography, Surfing, Design, Poker, Tennis

## WORK EXPERIENCE

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### Full Stack Engineer

Progue Chartered Accountants Pty Ltd

Sydney, NSW (July 2021 – April 2022)

- Automated manual micro-services to optimize tax accountancy workflow, reducing the amount of non-billable hours.
- Built a platform using the MERN stack (with TypeScript) to create an ecosystem for cutting-edge productivity applications tailored to the business and deployed to a VPS with a CI/CD pipeline.
- Parsed the XML of 800+ page word documents into a MongoDB database for fast text-based search and PDF export features.

### Frontend and Product Developer

Cercle

Sydney, NSW (August 2021 – April 2022)

- Built a QR Scanner web app based on Figma User flow diagrams with React and Redux to work with a Flask backend. Deployed the web app to the internet using AWS EC2.
- Conducted User tests in person by approaching customers at a Cafe who showed interest, collecting their feedback systematically.
- Worked on conceptualising new ideas for future iterations of the product in a highly collaborative startup environment.

### Freelance Web Developer

Various clients

Sydney, NSW (October 2016 – April 2022)

- Proactively handled all verbal and written communications between hosting companies, clients and vendors.
- Designed, developed and shipped multiple Full stack products using the following technologies: HTML, CSS, PHP, MERN, MySQL, PostgreSQL, Flask, Linux Cloud Servers and DevOps.
- Performed regular administration such as hosting configuration, security checkups and database backups.

## EDUCATION

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### University of New South Wales

Sydney, NSW (2019 – Present)

- Engineering Honours (Mechatronic) and Computer Science (Artificial Intelligence)
- HD WAM average for Computer Science
- Marketing and Media Lead for UNSW CouchMobile Team

## PERSONAL PROJECTS

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### Personal AI Assistant

Stack: Nodejs, Python, Pandas, GraphQL, Postgres

- Applies Boltzmann's Entropy formula over multiple social signals (calendar events, to-do lists etc.) to estimate weekly and monthly levels of disorder/anxiety.
- Uses GraphQL to collect data from 6+ APIs and model them into micro-states as input to the above algorithm.
- Data is normalised and cleaned with Pandas from a Flask server with a process manager.

### Crypto HFT Algorithm

Stack: Python, Pandas, Google Cloud

- Fetches real-time crypto pricing data from the Binance Exchange with asynchronous Web sockets into a SQLite database. Data is cleaned with Pandas.
- Applied indicators (e.g. MACD, Vortex etc.) with other quantitative trading strategies to execute real-time market orders from a Python server.
- Built a CI/CD pipeline that backtests the algorithm against large historical datasets to maximise alpha and efficiency before live deployment.