Patrick Nasr

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Education

University of New South Wales — Kensington, NSW
Bachelor of Electrical Engineering (Honours) | Bachelor of Science in Computer Science — *Feb. 2020 – Aug 2025*

- Honours thesis: *Explainable AI for Speech-Based Alzheimer's Disease Prediction*

Experience

Electrical Engineer Intern — Dec 2023 – Mar 2024
Saluda Medical Pty Ltd — *Macquarie Park, NSW*

- Architected an automated solution to deliver QMS documentation using Python 3.12 and MVVM design pattern
- Automated the collection of power consumption data derived from a class 3 medical device using C# and SQL
- Developed and justified a power model using historical patient data, device power consumption and battery models
- Validated the functionality of automated systems to develop a synthesised power model using *pytest*
- Developed design verification, and tool manual reports in line with QMS standards prescribed for ISO 13485

Software Engineer Intern — Jul 2022 – May 2023
Quickli Pty Ltd — *Bondi, NSW*

- Developed QA automated web-scraper using TypeScript, and Puppeteer to reduce QA daily workload by 12%
- Curated software requirements for a project by harnessing communications skills with international QA team
- Led development of a client-facing product by liaising with senior engineers to define scope and improve design
- Designed and maintained product using TypeScript and React, reflecting 99% accuracy in back-end logic

Student Projects

Electronics Manager — Nov 2021 – Dec 2022
UNSW Redback Racing (FSAE) — *Kensington, NSW*

- Led development of schematic capture and PCB design for FSAE rules-mandated hardware using Altium Designer
- Iterated on existing agile methodologies to improve achievement of sprint planning timeline goals by 25%
- Communicated technical retrospectives through written documentation to facilitate improved future upskilling
- Mentored junior engineers regarding the development of hardware design and manufacturing best practices

Student Biomedical Engineer — Jan 2022 – Feb 2022
Ugandan Internship Experience (Engineering World Health)

- Liased with an international team to design, prototype and service medical equipment in low-resource environment

Technical Skills

Languages: TypeScript, Rust, Python, Java, C, C#, SQL (MySQL, PostgreSQL), HTML/CSS, MIPS, Verilog
Frameworks: CI/CD, RESTful API, React, Next.js, Express.js, .Net, JUnit, Agile (Scrum), SOLID Patterns
Developer Tools: Linux, Git, AWS, MongoDB, Docker, Vercel, Yarn, Jest, Firebase, Jupyter Notebook, Hugging Face
Libraries: Scikit Learn, PyTorch, TensorFlow, pandas, NumPy, Matplotlib, Puppeteer, Jinja2, wav2vec

Personal Projects

Backgammon.ai | *Python, Flask, React, PyTorch, MongoDB, Docker, unittest*

- Developed a full-stack interactive game using Flask serving a REST API with React as the front-end
- Trained a neural network using TensorFlow to play backgammon at different competencies against a human-player
- Codebase available at github.com/patricknasr/backgammon-ai

Certifications

Andrew Ng's Machine Learning Specialization
Linear Regression | Supervised Learning | Gradient Descent | Artificial Neural Network | Unsupervised Learning

- Improved ML models through learning rate, plotting learning curve, feature engineering, polynomial regression
- Implemented regularization to improve both regression and classification models