Keir Simmons

Applied Scientist · Machine Learning Engineer · UK Citizen · Japan Permanent Resident

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Summary

Accomplished engineer & scientist with a proven track record of delivering scalable, production-grade solutions that drive measurable business impact while managing relationships with a broad range of global stakeholders up to executive leadership.

At Amazon, I spearhead end-to-end projects across global teams, transforming complex technical challenges into innovative, data-driven programs that have realised a combined $100M+ USD annual revenue gains. My expertise in ML, MLOps, and robust software engineering practices, combined with strategic stakeholder engagement enables me to successfully lead initiatives from ideation to global deployment.

Previously, I led the Adversarial AI team at *Ascent Robotics* with the goal of validating fully autonomous vehicles, where we were successful in obtaining the first Level 3 self-driving certification in Japan. I also completed a research internship at the internationally-renowned *AIST AI Research Center* & AI energy company *Informetis* in Tokyo, been awarded the prestigious *Daiwa Scholarship*, and earned Master's degrees with highest merit from three top 10 global universities, Imperial College London, UCL & NUS.

Inspired by my experiences and proven track record, I am committed to using machine learning as a catalyst for societal transformation, striving to make a genuine, lasting difference in people's lives.

Experience

Amazon

Tokyo, Japan

Senior Applied Scientist | Promoted from Applied Scientist II in Jun. 2024 — *Apr. 2020 - Present*

- Spearheaded 5+ end-to-end ML projects that established a strategic charter in Japan, launching innovative programs and personally driving their global expansion through managing 50+ stakeholders (VP to director level) across JP, US, IN, and CN.
- Engineered production-grade pipelines using AWS leveraging orchestration, serverless processing, and real-time monitoring with solutions in Python, SQL, and Scala—to deliver scalable, end-to-end ML systems.
- Authored an influential ML paper presented at our internal conference that introduced a novel contrastive learning framework to fine-tune item embeddings within the context of *replaceability*. Implementation resulted in a 26.2% improvement in coverage of an internal dataset.
- Trained & validated multiple causal inference models to deliver 6M+ action recommendations to vendors across Amazon globally daily, with a combined daily potential estimate of $9.4B+ USD uplift.
- Realised an annual uplift of $21M+ USD through an ML-based improvement in JP address resolution, reducing failed deliveries by 81.2%.

Ascent Robotics

Tokyo, Japan

Team Lead Research Engineer | Promoted from Research Engineer in Apr. 2019 — *May 2017 - Feb. 2020*

- Led the *Adversarial AI* team of 8 other scientists, focusing on exposing and proposing solutions to incapabilities in the vehicle AI through simulation prior to testing in the real world.
- Launched a foundational dataset of driver-behaviour clusters to aid adversarial simulation. Clusters were learned from hundreds of hours of 4K aerial drone footage over various highways in Japan. Employed a combination of ML techniques in computer vision & reinforcement learning.

Informetis

Tokyo, Japan

Research Engineer | UCL Master's Thesis — *June. 2018 - Sept. 2018*

- Developed an optimal control policy for *peak-demand* energy management as part of my Master's thesis at at *UCL*, employing reinforcement learning (PPO) to strategically shift consumer demand and optimise battery storage.
- Achieved perfect peak-shifting, reducing energy consumption and utility costs by over 20%.

AI Research Center - National Institute of Advanced Industrial Science & Technology

Tokyo, Japan

Machine Learning Researcher | Courtesy of the Daiwa Scholarship — *Oct. 2016 - Mar. 2017*

- Earned a competitive research placement as the only non-doctorate researcher, implementing core ML algorithms—including reproducing & fine-tuning DeepMind's Atari results.
- Led and delivered a reinforcement learning reading group for 50+ researchers to study the *Reinforcement Learning* book by Sutton & Barto.

The Daiwa Anglo-Japanese Foundation

Tokyo, Japan

Daiwa Scholar — *Aug. 2015 - Mar. 2017*

- Awarded the prestigious Daiwa Scholarship, a unique and highly competitive programme valued at approximately 11M JPY. I was selected as one of six scholars from over 1,000 candidates to represent the United Kingdom in machine learning in Japan.
- Completed an intensive language course, achieving business level fluency in Japanese (JLPT N2).

National University of Singapore *Kent Ridge, Singapore*

Undergraduate Researcher *Jan. 2014 - Jun. 2014*

- Developed a custom sound pressure level meter application for Android using Java to monitor aircraft engine noise, incorporating a real-time graphical frequency analyser that meets aviation industry standards.

Volunteering *London, UK*

Web Developer *Jan. 2007 - Dec. 2014*

- Created over 100 advanced open-source modifications in JavaScript and PHP for use with the popular message-board services *Invision Power Board* and *ZetaBoards*, including one that was used by over 1M people. Some have now been ported to *GitHub* for posterity.

Education

University College London (UCL) *London, UK*

MSc Computational Statistics and Machine Learning (CSML) | **Distinction** *Sept. 2017 - Sept. 2018*

- Developed a strong mathematical foundation in statistical modelling and machine learning on this world-renowned degree.
- Completed rigorous projects in NLP, reinforcement learning and machine vision, including advanced language modelling, sentence ordering for coherence, biomedical feature extraction and augmented reality tracking, using Python and TensorFlow.
- Learned from leading *DeepMind* researchers including *David Silver* on the *Advanced Deep Learning & Reinforcement Learning* course.

Imperial College London *London, UK*

MEng Aeronautical Engineering with a Year Abroad | **First Class** *Oct. 2011 - Jun. 2015*

- Graduated with a strong 1st class degree with honours (80% average) and a final grade in the top 5%.
- Specialised in computational methods, achieving 100% credit in *Computational Fluid Dynamics* and *Numerical Analysis* coursework.
- Completed my Master's thesis titled *Design Synthesis of Small Unmanned Aircraft*, using numerical optimisation in Matlab for appropriate selection of aerodynamic properties of an autonomous drone, resulting in a 9% weight reduction of the final design.

National University of Singapore (NUS) *Kent Ridge, Singapore*

MEng Aeronautical Engineering with a Year Abroad | **First Class** *Aug. 2013 - May. 2014*

- Achieved a record high grade of 4.5/5.0 as the inaugural student for this exchange, selected based on academic merit.
- Self-taught Java to excel in two advanced *MIT*-based modules on computing fundamentals (for the curious, CS1101S).

Skills

Technical

Expert Python, SQL, AWS

Proficient Scala, Spark, PyTorch, JavaScript, Matlab, git, Flask/Streamlit

Familiar Tensorflow, C++, Java, R, FORTRAN

Miscellaneous

Core Related Skills Machine learning, end-to-end deployment, LLMs, causal inference, reinforcement learning, stakeholder management

Natural Languages English (native), Japanese (conversational; N2)

Honours & Awards

Junction Tokyo Hackathon (Winner of both Softbank Robotics & IBM BlueMix paths) - 400,000 JPY *Tokyo, Japan*

Hacked SoftBank's Pepper robot into a smart personal sales assistant using machine learning (image recognition & recommendation systems). Asia's largest international hackathon. *2017*

Aeronautics Scholar - Imperial College London *London, UK*

Achieved a 1st class result every year throughout the 4 year degree. *2015*

SumoBot Champion - National University of Singapore (*CS1101S Contest*) *Kent Ridge, Singapore*

Awarded 1st place against 100 other students in an AI-powered sumo-style robot showdown. *2013*

Best AS Student & Best A2 Student - The Hollyfield School & Sixth Form Centre *Surrey, UK*

Achieved the best A level grades in the college's history (A*A*AA, 520 UCAS points). *2011*