Alexander K. Le

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EDUCATION

Brown University: Computational Biology B.S. (Honors, Dean of College Award), RISD coursework — Grad: 2023
Berkeley Haas School of Business: Deferred Early Access MBA — Start: 2028

SKILLS

Project Management: Jira, Trello, Confluence, Monday.com, Miro, Figma, Agile, Scrum, Kanban, Gantt Charts
Software Engineering: Python, Java, JavaScript, MATLAB, SQL, CSS, HTML, React, AWS, GCP, Docker, GitHub
AI/ML/DL: TensorFlow, Keras, PyTorch, Scikit-learn, SpaCy, NLTK, Jax, Ray, XGBoost, NumPy, Pandas, Matplotlib
Github: https://github.com/AlexKaiLe

WORK EXPERIENCE

Amazon: *Software Development Engineer* — Seattle, WA | *Jan 2024*

Fulcrum Bionetworks: *Founder and CEO* — *San Francisco, CA | May 2023—**Present***

- Developing a platform to reduce the computational overhead for biologists. Offers an intuitive low-code interface to access data cleaning software and complex AI algorithms for analytics and insights.

Center for Computational Molecular Biology: *Deep Learning Lead Researcher* *Providence, RI | May 2022—**Present***

- Developed and managed the counterfactual generation engine project deploying explainable artificial intelligence. The algorithm improves the interpretability of black box models for genomic data by 80%. Publication pending

Brown University: *Undergraduate Teaching Assistant* — *Providence, RI | Aug 2020—Dec 2022*

Developed technical workshops, course material, and homework. Held weekly office hours and graded exams.

- **Computational Linguistics**: Overhauled course material from scratch by developing 5 new projects focused on natural language processing algorithms such as transformers, sentiment analysis and machine translation.
- **Computer Vision:** Improved course material by designing flow diagrams for projects and implementing new workshops teaching feature detection, 3D image reconstruction, and convolutional neural networks.
- **Introduction to Engineering:** Mentored students in human-centered design and technical machine proficiency.

Insitro: *Software Engineering and Advanced Imaging Intern* — *San Francisco, CA | May 2022—Aug 2022*

- Developed, validated and implemented the Differential Phase Contrast imaging algorithm that allows for dynamic modification and parallel computing. The new implementation reduces the image reconstruction runtime by 70%.

Brown University Medical School: *Artificial Intelligence Radiology Researcher* *Providence, RI | Jun 2021–Dec 2021*

- Awarded a research grant to predict the COVID mortality rate in the ICU by analyzing physician text and MRI datasets from hospitals. I implemented natural language processing and computer vision for multimodality.

Harvard University: *NSF Quantitative Systems Biology Intern* — *Cambridge, MA | Jun 2021–Aug 2021*

- Analyzed correlations between neurological activity and physical behavior in rats by designing a neural network to identify unmarked 3D rat joints using spatial, temporal, and behavioral data with 80% accuracy.
- Predicted coordinates of missing joints with 85% using a variational autoencoder and biomechanics.

University of California, Davis: *Vaccine Development Assistant* — *Davis, CA | Jun 2020–Aug 2020*

- Determined optimal cell confluence to grow COVID vaccines, reducing laboratory resources and time by 50%.
- Analyzed antibody generation efficacy of adenovirus vector vaccines by designing plasmids, growing cell lines, operating flow cytometry, and performing ELISA tests on COVID-infected *rhesus macaque* blood samples.

LEADERSHIP AND PROJECTS

Google Biodesign Contest (First Place): *Material Science Scientific Lead*

- Engineered a methodology to develop a biodegradable, eco-friendly printed circuit board using chitin from local shellfish by working cross-functionally with two RISD classmates. Google-Biodesign Award

Debiasing Melanoma Images: *Deep Learning Lead*

- Generated pigmented melanoma skin images to debias predominantly light-skinned medical databases by developing a machine learning program using a style-transfer architecture for various ethnicities. Melanoma link

Maestro: *Computer Vision Lead*

- Identified hand gestures with a 90.58% accuracy and correlated them with music controls with real-time audio and video capabilities using deep learning feature extraction and image recognition algorithms. Maestro link

Pointz: *Full Stack Lead*

- Generated routing capabilities to find the safest bike route by conducting market research, managing database architectures and optimizing routing algorithms for a Brown University-based startup.