Alexander K. Le

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Brown University: *Computational Biology Sc. B (Computer Science, Applied Math, and Biology)*   GPA: 3.83 (Expected: May 2023)
Relevant Coursework: Software Engineering, Computational Linguistics, Computer Vision, Computational Molecular Biology, Managerial Decision Making, Industrial Design, UI/UX, Linear Algebra, Statistics, Biomaterials, Biochemistry, Organic Chemistry I/II

WORK EXPERIENCE

Insitro (Biotech): *Software Engineering and Advanced Imaging Intern*   *San Francisco, CA | May 2022—Present*
- Developed and validated a new implementation of the Differential Phase Contrast imaging algorithm that allows for dynamic modification and parallel computing, thereby reducing image reconstruction runtime by 70%.
- Implemented a computational imaging pipeline with the DPC algorithm for continuous 24/7 data acquisition.

Brown University: *Undergraduate Teaching Assistant*   *Providence, RI | Aug 2020—Present*
Developed technical workshops, course material, and homework. Held weekly office hours and graded exams.
- **Computational Linguistics**: Overhauled course material from scratch by developing new projects focused on natural-language processing algorithms such as word embeddings, sentiment analysis, machine translation, recurrent neural networks, hidden Markov models, and generative adversarial networks.
- **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.

Harvard University: *Neuroscience Machine Learning 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 using a variational auto-encoder and biomechanics with 70% accuracy.

Pointz: *Full Stack Developer*   *Providence, RI | Jun 2020 – Aug 2020*
- Generated mapping and routing capabilities to find the safest bike route by managing database architectures, designing login functionalities, incorporating APIs, and implementing the ability to mark points of interest.

RESEARCH

Center for Computational Molecular Biology: *Deep Learning Research Assistant*   *Providence, RI | May 2022—Present*
- Supervised the counterfactual auto-encoder project that deploys explainable artificial intelligence to better understand the effects of gene expression in single-cell RNA sequencing in Professor Ritambhara Singh's Lab.

Brown University Medical School: *Artificial Intelligence Radiology Lab Assistant*   *Providence, RI | Jun 2021–Dec 2021*
- Awarded an UTRA grant to predict the COVID mortality rate in the ICU by analyzing physician text and MRI datasets from hospitals by implementing natural language processing, deep learning, and computer vision.

University of California, Davis: *SARS-CoV-2 Vaccine Development Assistant*   *Davis, CA | Jun 2020–Aug 2020*
- Determined the 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.

PROJECT MANAGEMENT AND TECHNICAL PROJECTS

Google Biodesign Contest First Place 2021: *Team Mobius*
- Engineered a methodology to develop a biodegradable, eco-friendly printed circuit board using chitin from local shellfish by working cross-functionally in collaboration with two RISD classmates. Google-Biodesign Award link

Computational Biology Undergraduate Head: *Academic University Club Leadership*
- Managed events for undergraduate students to gain professional resources, connections, and experiences.

Debiasing Melanoma Images: *Deep Learning Project*
- Generated pigmented melanoma skin images to debias predominant caucasian medical databases by developing a computer vision program using two convolutional neural networks. Melanoma link

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

Technical Skills

Software Engineering: Python, Java, JavaScript, MATLAB, AWS, GCP, Docker, SQL, React, NodeJS, CSS/HTML, SQLite, Git
Machine Learning: TensorFlow, Keras, PyTorch, Jax **Management**: Agile, SCRUM, Kanban, Jira, Confluence, decision trees