Bryant Duong

CONTACT INFORMATION

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EDUCATION

University of Pennsylvania — Matirculating August 2025
PhD in Genomics & Computational Biology

University of Pennsylvania — 2024
Masters in Computer and Information Technology
Coursework: Algorithms and Computation, Imaging Informatics, Statistics for Data Science, Artificial Intelligence, Principles of Deep Learning

University of California, Davis — 2022
MBA

University of California, Berkeley — 2018
BA in Cognitive Science

RESEARCH EXPERIENCE

The Wistar Institute — December 2023 — July 2025
Research Assistant
Principal Investigator: Noam Auslander

- Packaged a bioconda package that quantifies Human Endogenous Retrovirus (HERV) short read RNA sequencing expression data by aligning short reads to a curated subset of HERVs, thus resolving ambiguity in alignment using a pre-computed HERV phylogenetic tree.
- Developed exploratory KNN and bagging regressor models to associate melanoma mutations with gain of function and loss of function from AlphaMissense structural embeddings
- Plotted survival curves and calculating hazard ratios for ER+ ovarian cancer patients and feature selecting gene signatures using genetic algorithm.
- Assisted with analysis on HLA serotypes and sequencing data to provide insight into mechanistic support for protein association using netMHCpan I/II

National Library of Medicine, National Institutes of Health — June 2023 — August 2023
Summer Research Intern
Principal Investigator: Zhiyong Lu
Mentor: Qingyu Chen

- Pretrained BERT large language model for domain specificity on clinical case notes and biomedical literature to capture patient representation
- Assisted another student in debugging and extending DeepSeeNet to train on AREDS 2 database

POSTERS

Lucas A, Reale M, **Duong B**, Zhang Y, Wickramasinghe J, Amaravadi R, Mitchell T, Huang A, Auslander N. "Exploring Novel Associations Between Bacterial Proteins and Clinical Response to Immunotherapy in Melanoma Patients". 2024 Jun 24-26. Presented at The University of Pennsylvania 15th Annual Cancer Biology Retreat. Skytop, PA. [Poster]

Duong B, Chen Q, Lu Z. "Foundational Models to Capture Patient Representation". 2023 Aug 24-26. Presented at 2023 NIH Summer Poster Day. Bethesda, MD. [Poster]

PREPRINTS

Shao C, Indeglia A, Leung J, Modarai SR, Leu IJ J, **Duong B**, Mes-Masson AM, Sims-Mourtada J, Auslander N, Drapkin R, Murphy ME. "Mutant p53 binds and controls estrogen receptor activity to drive endocrine resistance in ovarian cancer" 2025 April 4. (under review at *Genes Development*)

Lucas A, Reale M, Wolf YI, **Duong B**, Zhang Y, Wickramasinghe J, Behlman L, Jones SM, Higgins S, Moustafa AM, Elbasir A, Amaravadi R, Mitchell T, Huang A, Auslander N. "Taxonomy-free fecal microbial predictors of immune checkpoint inhibitor benefit and adverse events in melanoma" 2025 Feb 12. (submitted to *Nature Medicine*)

Tsingas K*, Thomas M*, **Duong B***, Xiao M*, Wickramasinghe J, Chen Y, Reale M, Thacker G, Li H, Mou H, Ramirez-Salazar E, Villanueva J, Xu X, Flowers A, Karakousis GC, Miura JT, Mitchell TC, Amaravadi RK, Schuchter LM, Liu S, Long Q, Hoon DSB, Ramos RI, Bustos MA, Gershenwald JE, Simon JG, Wargo JA, Davies MA, Lu Y, Mills GB, Cohen S, Lawless A, Sharova T, Frederick DT, Flaherty KT, Hacohen N, Boland GM, Auslander N#, Herlyn M#. "The Landscape of Gain and Loss of Function Mutations in Melanoma". 2024 Oct 3. (under review at *Nature Communications*)

Chen Q, Keenan TD, Agron E, Allot A, Guan E, **Duong B**, Elsawy A, Hou B, Xue C, Bhandari S, Broadhead G, Cousineau-Krieger C, Davis E, Gensheimer WG, Grasic D, Gupta S, Haddock L, Konstantinou E, Lamba T, Maiberger M, Mantopoulos D, Mehta MC, Nahri AG, AL-Nawaflh M, Oshinsky A, Powell BE, Purt B, Shin S, Stiefel H, Thavikulwat AT, Wroblewski KJ, Chung TY, Cheung CMG, Cheng CY, Chew EY, Hribar MR, Chiang MF, Lu Z. "Towards Accountable AI-Assisted Eye Disease Diagnosis: Workflow Design, External Validation, and Continual Learning". 2024 Sep 23. arXiv. doi: 10.48550/arXiv.2409.15087. (under review at *JAMA Network Open*) [Preprint]

* and # denote equal contribution

INDUSTRY EXPERIENCE

UnitedHealth Group (Optum), Remote 2019 — 2025
Senior Software Engineer/Software Engineer/Associate Software Engineer

- Oversaw and developed 4 data visualization dashboards for IT support ticket intake and service availability/data processes (e.g. Amundsen)
- Applying exploratory data analysis techniques, data cleaning methods, and natural language processing techniques to better represent over 100,000 IT support ticket issues
- Maintained and implemented Apache Airflow using Python to automate the scheduling of our production and non-production pipelines, consisting of over 80,000 jobs written as Windows batch, Linux shell scripts, and IBM Mainframe JCL
- Delegated daily tasks to 10 junior engineers in an Agile workflow and gave feedback for technical presentations to senior leadership

National Security Agency, Fort Meade, MD 2015 — 2018
Metadata Analyst

- Maintained a TS/SCI clearance
- Designed and developed a metadata extraction module for digital communication protocols
- Performed analysis on a wide variety of raw traffic to query database results effectively

AWARDS

University of Pennsylvania - Fontaine Scholar 2025 — Present

UC Berkeley Regents' and Chancellor's Scholarship 2015 — 2018

Stokes Educational Scholarship 2015 — 2018

ACTIVITIES

UnitedHealth Group (Optum) 2019 — 2023
Interviewer/Mentor - Technology Development Program

- Led 4 consecutive teams of undergraduate summer interns that modernized existing data pipelines and file processing applications

- Conducted over 50 technical interviews for undergraduate and graduate-level junior software engineer candidates

Encorps 2021 — 2022
STEMx Tutor
- Taught math to dedicated students for 2–3 hours a week in underprivileged schools in Los Angeles, California

TECHNICAL SKILLS

Programming	**Expert**: Python, C/C++, SQL
	Experienced: Java, Go
	Novice: R, Javascript/React
Tools	**Expert**: git, command line & bash, HPC (Slurm), REST APIs, pytest, scikit-learn, PyTorch, numpy, pandas, Unit Testing (codeQL, pytest)
	Experienced: LaTeX, HuggingFace, TensorFlow, cloud computing (Azure, Kubernetes), Kanban/Jira, Jenkins, Prometheus, Docker, Postman, Linux, netMHCpan
	Novice: Cytoscape, networking and security, vulnerability finding/reverse engineering
Techniques	Regression, machine learning, deep learning, principal component analysis, feature selection, package development, unit testing
Visualization	matplotlib, seaborn, Cytoscape, Illustrator, Photoshop, basic video editing
Systems	Experience in working with Oracle Databases and related design tools
	Experience in extracting data from CBioPortal and Uniprot
	Experience in working with key-based databases, such as MongoDB and Apache
	Experience with system administration and infrastructure maintenance (data storage, transfer, networking, and dependency installations)
	Experience with AlphaFold database to extract protein structure predictions
	Knowledge of HIPAA and best safety/data practices
	Previously cleared for a Top Secret/Secret Compartmented Information clearance at the National Security Agency