

Bryant Duong

CONTACT INFORMATION

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EDUCATION

University of Pennsylvania
PhD in Genomics & Computational Biology
Advisors: Li Shen and Noam Auslander

August 2025 — Present

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 MBA

2022

University of California, Berkeley BA in Cognitive Science

2018

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

Tsingas K*, Thomas M*, Xiao M*, **Duong B**, 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". 2025 Jun 16-18. Presented at The University of Pennsylvania 16th Annual Cancer Biology Retreat. Skytop, PA.

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](#)]

PUBLICATIONS

Maurer J, Suzuki-Horiuchi Y, **Duong B**, Ramirez MV, Chen A, Prouty SM, Milman T, Lee V, Cheng Y. "Spatial Transcriptomics Recontextualizes the Cellular Environment of Conjunctival Melanoma" 2026 Jun 25. (submitted to *Ocular Oncology & Pathology*) [[Preprint](#)]

Lucas A, Schneider C, 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 microbiome profiles predict immunotherapy response and toxicity in melanoma" 2026 May 5. (in review at *Genome Medicine*) [[Preprint](#)]

Tsingas K*, Thomas M*, Reale M*, Xiao M*, Wickramasinghe J, Chen Y, **Duong B**, Lucas A, Thacker G, Li H, Mou H, Ramirez-Salazar E, Elbasir A, Villanueva J, Xu X, Flowers A, Karakousis GC, Miura JT, Mitchell TC, Amaravadi RK, Schuchter LM, Liu S, Long Q, Hoon DSB, Ramos RI, Catbagan JJ, 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#. "melp-DomiX: A Multi-Omics Melanoma PDX Resource Uncovers Gain- and Loss-of-Function Programs" *Cell Reports*. 2026;45(6).

Patterson A, **Duong B**, Yoon L, Foster M, MacMullen L, Wickramasinghe J, Lucas A, Srivastava A, Jacobson S, Murphy ME, Soldan S, Lieberman P, Auslander N. "ERVmancer: A phylogenetic approach to quantification of human endogenous retrovirus expression" (in revision at *Genome Biology*) [[Preprint](#)]

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. *Genes Development*

Chen Q, Keenan TD, Agron E, Allot A, Guan E, **Duong B**, Elsayy 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-Nawafli 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. "AI Workflow, External Validation, and Development in Eye Disease Diagnosis". *JAMA Network Open*. 2025;8(7):e2517204. doi:10.1001/jamanetworkopen.2025.17204 [[Paper](#)]

* and # denote equal contribution

ABSTRACTS

Anastasia Lucas, Tiffany Chang, Andrew Patterson, Pearl Zhou, **Bryant Duong**, McKenna Reale, Noam Auslander. "Context-dependent separation of germline and somatic mutations in cancer driver genes" 2026 May 6. (Intelligent Systems for Molecular Biology, 2026)

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
	<i>Interviewer/Mentor - Technology Development Program</i>	

- 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

TEACHING	CIT 5960 - Algorithms	Spring 2026
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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 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