Gregory Darnell

Staff Machine Learning Scientist
insitro

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Education

2014–2019	Ph.D. Quantitative and Computational Biology	**Princeton University**
2015	M.A. Quantitative and Computational Biology	**Princeton University**
2013–2014	Ph.D. Student Computational Biology & Bioinformatics	**Duke University**
2008–2013	B.S. Computer Science, *minor* Bioinformatics	**University of California, Los Angeles**

Experience

2025-present Staff Machine Learning Scientist, **insitro** (Jan -)

2021-2025 Senior Research Scientist, Health AI, **Apple** (Mar - Jan)
2020-2021 Research Scientist, Health AI, **Apple** (June - Mar)
Applied Machine Learning Research for Health

2019–2020 Institute Postdoctoral Fellow, **ICERM, Brown University** (Sept - June)
Institute for Computational and Experimental Research in Mathematics
Mentors: Professors Sohini Ramachandran, Lorin Crawford, Sigal Gottlieb, Yanlai Chen
Program: Model and dimension reduction in uncertain and dynamic systems

2017 Research Internship, **Microsoft Research New England** (Sept - Dec)
Mentor: Dr. Nicolo Fusi
Project: Automated machine learning using parameter-free optimization

2016 Research Internship, **Microsoft Research New England** (June - Sept)
Mentors: Professor Jennifer Listgarten and Dr. Nicolo Fusi
Project: Output warping for improved prediction in machine learning models

2012 Research Assistant, **Rockefeller University** (June - Sept)
Mentors: Professors Robert Darnell and Chaolin Zhang
Projects: Accurate and efficient RNA-Seq read mapping &
Prediction of binding specificity of RNA-binding proteins

Publications

Refereed Journals

*Indicates equal authorship.

[1] Maxwell A. Xu, Jaya Narain, **Gregory Darnell**, Haraldur Hallgrimsson, Hyewon Jeong, Darren Forde, Richard Fineman, Karthik J. Raghuram, James M. Rehg, Shirley Ren. "RelCon: Relative Contrastive Learning for a Motion Foundation Model for Wearable Data." *ICLR*. April 2025

[2] Smith, Samuel Pattillo*, **Gregory Darnell***, Dana Udwin, Julian Stamp, Arbel Harpak, Sohini Ramachandran, and Lorin Crawford. "Discovering non-additive heritability using additive GWAS summary statistics." *Elife*. June 2024: e90459

[3] Achille Nazaret, Sana Tonekaboni, **Gregory Darnell**, Shirley You Ren, Guillermo Sapiro, Andrew C. Miller. "Modeling personalized heart rate response to exercise and environmental factors with wearables data." *NPJ Digital Medicine*. November, 2023

[4] Magda Amiridi, **Gregory Darnell**, Sean Jewell. "Latent Temporal Flows for Multivariate Analysis of Wearables Data." *Proceedings of Machine Learning Research - Machine Learning for Healthcare Conference (MLHC)*. August, 2022

[5] Jiacheng Zhu, **Gregory Darnell**, Agni Kumar, Ding Zhao, Bo Li, Xuanlong Nguyen, Shirley You Ren. "PhysioMTL: Personalizing Physiological Patterns using Optimal Transport Multi-Task Regression." *Proceedings of Machine Learning Research - Conference on Health, Inference, and Learning (CHIL)*. April, 2022

[6] Pinar Demetci, Wei Cheng, **Gregory Darnell**, Xiang Zhou, Sohini Ramachandran, Lorin Crawford. "Multiscale genomic inference using Biologically Annotated Neural Networks." *PLOS Genetics*. August, 2021

[7] Jordan Ash*, **Gregory Darnell***, Daniel Munro*, Barbara E Engelhardt. "Joint analysis of gene expression levels and histological images identifies genes associated with tissue morphology." *Nature Communications*. March, 2021

[8] Li-Fang Cheng, Bianca Dumitrascu, **Gregory Darnell**, Corey Chivers, Michael Draugelis, Kai Li, Barbara E Engelhardt. "Sparse multi-output Gaussian processes for online medical time series prediction" *BMC Medical Informatics and Decision Making*. July, 2020

[9] Bianca Dumitrascu, **Gregory Darnell**, Julien Aroyles, Barbara E Engelhardt. "Statistical tests for detecting variance effects in quantitative trait studies." *Bioinformatics*. July, 2018

[10] **Gregory Darnell**, Stoyan Georgiev, Sayan Mukherjee, Barbara E Engelhardt. "Adaptive Randomized Dimension Reduction on Massive Data." *Journal of Machine Learning Research (JMLR)*. 18(140):1-30, 2017

[11] **Gregory Darnell**, Dat Duong, Buhm Han, Eleazar Eskin. "Incorporating Prior Information into Association Studies." *Bioinformatics. 28(12):i47-53, Special Issue of the Proceedings of the Nineteenth International Conference on Intelligent Systems in Molecular Biology (ISMB-2012)* Long Beach, CA: July 15-27, 2012

Invited Talks

- "Finding missing epistasis: Partitioning marginal epistasis deconvolves nonlinear interactions from additive effects in GWA summary statistics." American Society of Human Genetics (ASHG) 2020, Platform Session. San Diego, California, October 27, 2020.

- "The path to exciting research directions and fulfilling mentorship in Bioinformatics" UCLA Bioinformatics Graduation Keynote Speaker. Los Angeles, California. June 7, 2017
- "Winner's Curse in Quantitative Genomics Studies" *Biological Data Science.* Cold Spring Harbor, NY. Oct 28, 2016
- "Winner's Curse in Quantitative Genomics Studies" *New York Area Population Genomics Workshop 2016.* Princeton University, NJ. Jan 21, 2016

Teaching

Fall 2015	COS 513: Foundations of Probabilistic Modeling	Princeton University
Fall 2014	COS 375: Computer Architecture and Organization	Princeton University

Technical Reviewing and Committees

- 2022 Program Committee Member ICLR (International Conference on Learning Representations).
- 2021 Program Committee Member ICML (International Conference on Machine Learning).
  Expert Reviewer
- 2020 Program Committee Member NeurIPS (Conference on Neural Information Processing Systems).
  Top 10% Reviewer
- 2020 Reviewer for the journal, PLOS Computational Biology.
- 2019, 2020 Program Committee Member IEEE International Conference on Bioinformatics and Biomedicine.
- 2016, 2017, 2018 Reviewer for the journal of *Bioinformatics*, Oxford Academics.

Academic Awards & Accreditations

- 2020 ASHG/Charles J. Epstein Award for Excellence in Human Genetics Research
  Postdoctoral SemiFinalist
- Selected for Institute Postdoctoral Fellowship at ICERM, 2019
- Selected for the 2017 NBA Hackathon, New York, NY
- Travel Fellowship to ISMB 2012, Long Beach, CA

Leadership

- Student leader of statistics/machine learning reading group at Princeton.
- Co-founder and president of the UCLA Powerlifting Club Sport Team.