

Gianluca Bencomo

 [gianlucabencomo.github.io](https://github.com/gianlucabencomo) |  [@gianlucabencomo](https://twitter.com/gianlucabencomo)

EDUCATION

- 2023 - present** Ph.D. (Computer Science) at **Princeton University**, *Advisor*: Thomas L. Griffiths
- 2021 - 2023** M.S.E. (Computer Science) at **Princeton University**, *Advisor*: Thomas L. Griffiths, *Thesis*: Bayesian Filtering for Neural Networks
- 2017 - 2021** B.A. (Biochemistry) at **Whittier College**, *Minors*: Computer Science, Mathematics, *Thesis*: Drug-Drug Interaction Prediction with Gaussian Processes

AWARDS & HONORS

- 2025** NSF AI Institute for Artificial and Natural Intelligence (ARNI) Research Grant, \$125 000
- 2024** NSF AI Institute for Artificial and Natural Intelligence (ARNI) Research Grant, \$125 000
- 2023** Princeton First Year Fellowship
- 2021** Pi Mu Epsilon Math Honor Society Inductee
- 2021** Nu Mu Rho Chemistry Honor Society Inductee
- 2021** W. Roy Newsome Award in Chemistry
- 2019** Harvard-Amgen Scholars Fellowship Recipient
- 2018** Keck Undergraduate Research Fellowship Recipient

PRE-PRINTS

- 2025** Veselovsky, V.*, Stroebel, B.*, Bencomo, G.*, Arumugam, D., Schut, L., Narayanan, A., Griffiths, T. Hindsight Merging: Diverse Data Generation with Language Models. *Pre-Print. Under review at UAI 2025.*
- 2024** Marjieh, R., Kumar, S., Campbell, D., Zhang, L., Bencomo, G., Snell, J., Griffiths, T. Using Contrastive Learning with Generative Similarity to Learn Spaces that Capture Human Inductive Biases. *Pre-Print.*

PUBLICATIONS

- 2025** Bencomo, G., Gupta, M., Marinescu, I., McCoy, R. T., & Griffiths, T. Teasing Apart Architecture and Initial Weights as Sources of Inductive Bias in Neural Networks. *Annual Meeting of the Cognitive Science Society (CogSci).*
- 2024** Snell, J., Bencomo, G., & Griffiths, T. (2024). A Metalearned Neural Circuit for Nonparametric Bayesian Inference. *Advances in Neural Information Processing Systems.*
- 2023** Bencomo, G., Snell, J., & Griffiths, T. (2023). Implicit Maximum a Posteriori Filtering via Adaptive Optimization. *International Conference of Learning Representations.*
- 2023** Pasarkar, A., Bencomo, G., Olsson, S., & Dieng, A. B. (2023). Vendi Sampling For Molecular Simulations: Diversity As A Force For Faster Convergence And Better Exploration. *Journal of Chemical Physics*, 159(14): 144108.
- 2021** Born, R. & Bencomo, G. (2021). Illusions, delusions, and your backwards bayesian brain: a biased visual perspective. *Brain Behavior and Evolution*, 95(5), 272-285.

TECHNICAL REPORTS

- 2018** Bencomo, G. & Jones, S. (2018). Electrochemical Production of Oxygen and Methane on Mars by In-Situ Resource Utilization. *NASA Technical Reports Server: NTRS. [Washington, D.C.]*
- 2016** Gunasekara, O., Jia, Z., Twagirayezu, F., Bencomo, G., Garcia, A., Nikaido, B., Garcia, J., &

EMPLOYMENT

Efference, CEO & Founder

July 2025 - present

Helping robots see like humans do by developing a models and cameras that mimic the constraints of human visual perception. Participant of Y Combinator Fall 2025 Batch.

Princeton University, Department of Computer Science (on-leave) September 2021 - present

Fulfilled duties as an assistant instructor (Fall 2021 - Spring 2023) while concurrently pursuing a research program in Bayesian filtering and meta-learning. At present, I am pursuing my research interests in (1) considering Bayesian inference as optimization (implicit Bayesian inference), and (2) endowing neural networks with human-like inductive biases and other prior distributions of interest. *Supervisor:* Dr. Thomas L. Griffiths.

Ludus Laboratories, President & Co-Founder

April 2025 - July 2025

Developing of physically-simulated environments where embodied agents can train and compete. Accepted to Y Combinator Summer 2025 Batch.

Harvard Medical School, Department of Neurobiology

June 2019 - August 2021

Conducted a time-varying behavioral analysis of primate visual decision-making data using dynamic logistic regression and other Bayesian methods. Studied topics including V2/V3 cortical feedback, multi-task learning, illusions, dopamine, and Schizophrenia. *Supervisor:* Dr. Richard T. Born.

NASA Jet Propulsion Laboratory, Electrochemical Technologies

June 2018 - August 2018

Assisted in the successful design and construction of an electrochemical cell for the conversion of CO₂ to O₂ using a novel synthetic route. Research was in the interest of in-situ resource utilization requirements for life support on Mars. *Supervisor:* Dr. Simon C. Jones.

Whittier College, Department of Biology

January 2018 - March 2020

Explored and analyzed induced changes in anatomy, physiology, and the gene expression profile in PC-12 cells exposed to concentrations of commonly used agricultural pesticides. *Supervisor:* Dr. Erica Fradinger.

NASA Ames Research Center, Intelligent Systems

June 2016 - August 2016

Assisted in the design and analysis of small Unmanned Aerial Vehicles (sUAVs) flying in urban settings under adverse weather conditions. *Supervisor:* Dr. Ben Nikaido.

TEACHING

Fall 2021 Assistant Instructor, Princeton University, Introduction to Computer Science

Spring 2022 Assistant Instructor, Princeton University, Introduction to Computer Science

Fall 2022 Assistant Instructor, Princeton University, Introduction to Computer Science

Spring 2023 Assistant Instructor, Princeton University, Foundations of Probabilistic Modeling