

# Marianne Arriola

New York, NY | [marriola@cs.cornell.edu](mailto:marriola@cs.cornell.edu) | [m-arriola.com](http://m-arriola.com) | [GitHub](#)

**Interests:** Deep Learning, Generative AI for text, Discrete Diffusion

## Education

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**Ph.D. student in Computer Science**, Cornell University Sept 2023–Jun 2027

*Advisor:* Volodymyr Kuleshov

**B.S., Computer Science**, University of California, Santa Barbara Aug 2019–Jun 2023

## Current Research

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### Diffusion Language Models

*Committee:* Volodymyr Kuleshov (Chair), Mohamed Abdelfattah, Fei Wang

- I explore diffusion LMs which enable faster & more controllable generation with better benchmark performance for math & planning compared to traditional LLMs
- I design novel parameterizations and architectures to improve model quality [1,2,3,4], training efficiency [1,3,4], and inference speed [1,3]

## Publications

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### Selected Papers

- [1] [Marianne Arriola](#), Aaron Gokalsan, Justin Chiu, Zhihan Yang, Zhixuan Qi, Jiaqi Han, Subham Sahoo, Volodymyr Kuleshov. "[Block Diffusion: Interpolating between Autoregressive and Diffusion Language Models](#)." *ICLR 2025*. **Oral presentation (Top 1.77%)**.
  - [2] Subham Sahoo, [Marianne Arriola](#), Yair Schiff, Aaron Gokaslan, Edgar Marroquin, Justin Chiu, Alexander Rush, Volodymyr Kuleshov "[Simple and Effective Masked Diffusion Language Models](#)." *NeurIPS 2024*.
  - [3] [Marianne Arriola\\*](#), Yair Schiff\*, Hao Phung, Aaron Gokaslan, Volodymyr Kuleshov "[Encoder-Decoder Block Diffusion Language Models for Efficient Training and Inference](#)." *NeurIPS 2025*.
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- [4] [Marianne Arriola](#), Naveen Venkat, Jon Granskog, Anastasis Germanidis. "[Adapting Autoregressive Vision Language Models for Parallel Diffusion Decoding](#)." *Runway Research Blog*.
  - [5] [Marianne Arriola](#), Weishen Pan, Manqi Zhou, Qiannan Zhang, Chang Su, Fei Wang. "[Joint Analysis of Single-Cell Data across Cohorts with Missing Modalities](#)." *arXiv* (Feb 2024).
  - [6] [Marianne Arriola](#) & Kadina Johnston "[Identifying Optimal Proteins by Their Structure Using Graph Neural Networks](#)." *Caltech URJ* (Jun 2022).

## Employment

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**Runway AI**, Research Intern. New York, NY Jun 2025–Sept 2025

**MIT CSAIL**, Research Intern. Cambridge, MA Jun 2022–Nov 2022

**Caltech**, Research Intern. Caltech, Pasadena, CA Jun 2021–Aug 2021

## Open-Source Contributions

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**Block Diffusion Language Models** ([GitHub](#)). 940 stars.

- Led development of a diffusion LM with arbitrary-length generation and KV caching

**Encoder-Decoder Diffusion Language Models** ([GitHub](#)). 35 stars.

- Co-led development of a diffusion LM with an encoder-decoder architecture for faster inference

## Projects

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**Runway AI**, New York, NY

Jun 2025 – Sept 2025

- Developed a distillation framework to adapt a 7B autoregressive vision-language model for parallel diffusion decoding while maintaining benchmark performance
- Built an end-to-end pipeline for data creation, model adaptation, and benchmarking, and shared the work in a [technical blog post](#)

**MIT CSAIL**, Cambridge, MA

Jun 2022 – Nov 2022

*PI*: Justin Solomon

- Designed a memory-efficient point cloud representation using geometric primitives
- Developed a graph neural network for hybrid point clouds that matches state-of-the-art segmentation performance while using 50% less memory

**Caltech**, Pasadena, CA

Jun 2021 – Aug 2021

*PI*: Frances Arnold

- Proposed a data-driven method to iteratively refine existing protein structures toward desired properties (e.g., substrate specificity)
- Built a graph neural network to predict protein function from structural graph representations

## Patents

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Xiangru Huang, Marianne Arriola, Yue Wang, Vitor Campagnolo Guizilini, Rares Andrei Ambrus, Justin Solomon. ["Hybrid Geometric Primitive Representations for Point Clouds."](#) U.S. patent pending.

## Selected Talks

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International Conference on Learning Representations (ICLR)

Apr 2025

Amazon Artificial General Intelligence (AGI)

Apr 2025

## Awards

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Top Reviewer, NeurIPS 2025

Oct 2025

NSF Graduate Research Fellowship

Mar 2023–Jun 2028

Bowers CIS Dean's Excellence Fellowship, Cornell University

Mar 2023–Jun 2029

**Skills:** Python, PyTorch, C++, MATLAB, Bash