

Marianne Arriola

New York, NY | marriola@cs.cornell.edu | m-arriola.com | [Google Scholar](#) | [GitHub](#)

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

Education

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

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

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] Yair Schiff, Omer Belhasin, Roy Uziel, Guanghan Wang, [Marianne Arriola](#), Gilad Turok, Michael Elad, Volodymyr Kuleshov. "[Learn from Your Mistakes: Self-Correcting Masked Diffusion Models.](#)" *arXiv preprint* (2026).
 - [6] Guanghan Wang, Gilad Turok, Yair Schiff, [Marianne Arriola](#), Volodymyr Kuleshov. "[d2: Improved Techniques for Training Reasoning Diffusion Language Models.](#)" *arXiv preprint* (2025).
 - [7] [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).
 - [8] [Marianne Arriola](#) & Kadina Johnston "[Identifying Optimal Proteins by Their Structure Using Graph Neural Networks.](#)" *Caltech URJ* (Jun 2022).

Employment

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| NVIDIA , Research Intern. Santa Clara, CA | Feb 2026–Aug 2026 |
| 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

Block Diffusion Language Models ([GitHub](#)). 960 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

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

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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| Meta Fundamental AI Research (FAIR) | Feb 2026 |
| 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