Adarsh Iyer

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Education

Massachusetts Institute of Technology **May 2027**
- B.S. in Computation and Cognition (GPA 5.0 / 5.0) *Cambridge, MA*
- MIT CSAIL Scene Representation Group, NCAA Varsity Cross Country and Track & Field
- Coursework: Advances in Computer Vision (graduate), Flow and Diffusion Models (graduate), Machine Learning, Computer Graphics, Algorithms and Data Structures, Linear Algebra and Optimization, Probability and Statistics.

Experience

Machine Learning Research Intern **May 2025 – Aug 2025**
Continue.dev *San Francisco, CA*
- Single-handedly trained and shipped the world's best open model for next-edit prediction, improving over AI autocomplete.
- Secured $100K in compute grants by proactively contacting and partnering with NVIDIA and other industry leaders.
- Conducted literature review, problem framing, dataset collection, training, and production release within 12 weeks.
- Identified the need for real-world developer data and invented a scalable collection pipeline, creating a dataset of 9,000+ examples, an order of magnitude larger than the closest likeness in open-source.
- Conceptualized a practical dynamic-programming keystroke-distance metric which concretely demonstrated model usage to be at least 6.4x faster than manually typing edits.

Computer Vision Researcher **Jan 2025 – May 2025**
MIT CSAIL Scene Representation Group *Cambridge, MA*
- Pioneered diffusion models for computational photography in Professor Vincent Sitzmann's research group.
- Discovered fundamental properties of spatial conditioning in ControlNets and conceptualized a better alternative through principled analysis and open research discussions with mentors.
- Designed and orchestrated a novel method to synthetically generate defocused images via two-stage depth estimation, physical lens equations, and parallelized HDR-space blurring operations.

Deep Learning and Dynamical Systems Research Assistant **Jun 2023 – Aug 2023**
University of California, Santa Barbara *Santa Barbara, CA*
- Implemented custom neural network and gradients in PyTorch for symbolic identification of chaotic dynamical systems.
- Designed a novel fine-tuning algorithm for the network's symbolic expressions, leading to a 15% improvement in data fit.
- Built and ran 20+ principled evaluations, vizualizing multi-dimensional results intuitively and drawing on metrics from classical optimization, information theory, and chaos theory.
- Accelerated preprint release to only 6 weeks by communicating with mentors and rapidly pivoting based on feedback.

Publications

IEEE Award-Winning Intelligent Running Form Analysis (publication) **Feb 2023 – Jun 2024**
- Earned an international research award from the IEEE for my solo-authored Machine Learning paper, published in the International Conference on Pattern Recognition Systems.
- Presented a custom convolutional ResNet for time-series classification applied to intelligent biomechanical analysis and demonstrated its superiority over three other custom models.

Projects

Neural Computing Literature Review (paper) **Mar 2024 – May 2024**
- Authored a literature review synthesizing 80+ papers at the intersection of Neuroscience and Machine Learning, tracing historical trends, research breakthroughs, and guiding philosophies of intelligence.
- Systematized major technical results in neural dynamical systems, brain-inspired architectures, and learning algorithms.
- Created 25+ figures to communicate findings clearly, including independently re-implementing several algorithms.

FinishCam: Camera Program for Race Timing **Apr 2023 – May 2023**
- Developed end-to-end finish camera software for track-and-field race timing, including audio-based start detection, multi-threaded camera capture processing, and OCR system to detect runner's numbers.
- Planned large codebase and maintained close communication with 2 collaborators to finishing the project in only 7 weeks.

Core Technical Skills

Python, PyTorch, HuggingFace, TRL, CUDA, Blender, bpy, OpenGL, Typescript, Java, C++

Personal Interests

Long-distance Running; Music (Brass, Piano, Guitar, and Drums); 3D Computer Graphics and Animation; Woodworking; Philosophy