Prince Patel

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EDUCATION:

Massachusetts Institute of Technology *Expected 2026*

BS, Computer Science, Artificial Intelligence, and Mathematics, GPA: 4.7, SAT Math: 800, SAT Reading: 740

- Relevant Coursework: Advanced Algorithms (6.1220), Computer Vision (6.8300), Statistics (18.650), Deep Learning (6.S898), Machine Learning (6.390), Optimization Methods (6.7201), Differential Equations (18.03), Algorithms and Data Structures (6.1210), Probability and Random Variables (18.600), Linear Algebra (18.06)
- Organizations: South Asian Association of Students (Big Events Committee), Phi Kappa Theta (Risk Manager)

WORK EXPERIENCE:

Mach Industries *Jan. 2024*

Software Engineer Intern

- Enhanced range on an autonomous glider plane by 10x by developing a flight controller in C++ using PID loops
- Engineered a 10-fold increase in displacement measurement accuracy by fusing a CNN-powered optical flow calculator with IMU readings and applying an EKF, overall improving VTOL hovering stability
- *Skills: C++, PyTorch, object-oriented programming, TypeScript*

Epicore Biosystems *June 2023 – Sep. 2023*

Data Science Intern

- Improved accuracy of a hydration-tracking wearable to 95% by implementing a generalized linear model for forecasting sweat rate with accelerometer and temperature data inputs
- Presented outcomes of implementing new predictive model to company executives and potential investors
- *Skills: TensorFlow, pandas, numpy, statistical analysis, data processing*

Biomechatronic Group, MIT Media Lab *Mar. 2023 – Dec. 2023*

Undergraduate Researcher

- Attempting to predict intentions of upper extremity amputees and translating to continuous prostheses control
- Saved five hours per data collection session by developing computer vision hand tracking for data validation
- *Skills: PyTorch, pandas, numpy, computer vision, brain-computer interfaces*

Marine Robotics Lab, MIT CSAIL *Dec. 2022 – Apr. 2023*

Undergraduate Researcher

- Trained a locomotion policy for a quadruped robot in Isaac Gym using a PPO reinforcement learning program
- Accessed the robot's onboard cameras and LiDAR sensors to add data inputs to the existing RL policy
- *Skills: PyTorch, C/C++, reinforcement learning, robotics*

EXTRACURRICULAR EXPERIENCE:

MIT Class Council *Mar. 2023 – Present*

Vice President

- Expanding the impact of class-wide initiatives by collaborating with campus organizations to forge partnerships
- Fostered class unity, promoted inclusivity, and cultivated a welcoming environment for all students with initiative

MIT Capital Partners *Mar. 2023 – Present*

Sourcing Principal

- Demonstrated expertise in analyzing industry trends, competitive landscapes, and growth potential of startups
- Employed strong communication skills to establish mutually beneficial partnerships with startups and VC clients

PROJECTS:

Multimodal Embeddings for High-Fidelity Image Compression *May 2024*

- Outperformed current SOTA methods by 12% using a unique combination of image segmentation and LLM captioning for encoding and a multimodal diffusion model for decoding
- Achieved 80% compression rate while reconstructing images with <5% loss in visual quality scores
- *Skills: computer vision, research, PyTorch, communication*

Denoising EMG Signals *Dec. 2023*

- Reduced noise in raw sEMG data by 300% by developing and training a denoising autoencoder model with self-attention in the encoder
- *Skills: deep learning, data processing, PyTorch, brain-machine interfaces*