JACOB PHILLIPS

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Home Address

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EDUCATION

Massachusetts Institute of Technology (MIT) | Cambridge, MA   **2020 - 2021**

Master of Engineering with a Concentration in Artificial Intelligence

Massachusetts Institute of Technology (MIT) | Cambridge, MA   **2017 - 2020**

Majored in Computer Science and Electrical Engineering & Minor in Ancient and Medieval History

PROFESSIONAL EXPERIENCE

Themis AI (*Co-founder and CTO*)   **September 2021 - May 2022**

- Co-founded a VC-backed startup delivering debiasing solutions for machine learning algorithms, spanning from training dataset segmentation, debiased training sampling, and deployed model bias validation
- Spinning out research from MIT CSAIL based on my thesis; advised by Daniela Rus and The Engine

Distributed Robotics Lab - MIT CSAIL (*Graduate Thesis***)**   **December 2020 - January 2022**

- Graduate thesis "*Unsupervised Latent Debiasing of Time-Series Models*" exploring training unbiased LSTMs and Transformers from biased datasets without human labeling of the dimensions of bias
- Applied novel bias mitigation algorithms to natural language data and financial markets data to improve model performance on underrepresented regions of the dataset while maintaining accuracy on overrepresented regions

Scale AI (*Machine Learning Intern***)**   **June 2021 - August 2021**

- Prototyped and deployed novel ML architectures to help save a multi-million dollar deal with a large client
- Achieved higher F1 scores on tasks than human labellers; reducing spend and improving delivered accuracy
- Engineered a full-stack solution combining deployment on EC2 instances with Scale's frontend for labellers

Skydio (*Autonomy Intern***)**   **June 2020 - August 2020**

- Developed and tested deep-learning-based detection and tracking algorithms for use on the Skydio Dock
- Prototyped CNN architectures with novel loss functions and produced high-fidelity synthetic data for training
- Created a multi-camera platform capable of detecting and tracking aircraft at distances greater than 10km using existing drone hardware with accuracy and reliability greater than FAA standards

Distributed Robotics Lab – MIT CSAIL (*Undergraduate Researcher***)**   **June 2018 - June 2020**

- ICRA paper combining reinforcement learning with a novel data-driven simulator for photorealistic rendering
- Utilized the data-driven simulator to train deep reinforcement learning agents using Tensorflow, as well as perception, depth, and modular control neural networks for use in real-world autonomous driving
- Showed for the first time the success of end-to-end autonomous driving models trained entirely in simulation using reinforcement learning and tested on real-world tracks and obstacles on a full-scale Toyota Prius.

Wayve (*Machine Learning Intern***)**   **June 2019 - August 2019**

- Implemented and trained machine learning algorithms ranging from conditional imitation learning to actor-critic policy gradients in Pytorch for end-to-end autonomous driving of an altered Jaguar I-Pace
- Constructed high performance perception networks with multi-task losses for depth, segmentation, and flow
- Developed high-quality code as part of a large-scale mono-repository under continuous integration policies

LEADERSHIP, PUBLICATIONS, AND AWARDS

- Graduate thesis: "*Unsupervised Latent Debiasing of Time-Series Models*", advised by Daniela Rus
- Amini, A., Gilitschenski, I., **Phillips, J**., Moseyko, J., Karaman, S., Rus, D. (2020). *Learning Robust Control Policies for End-to-End Autonomous Driving from Data-Driven Simulation.* RA-L and ICRA.
- MIT Research and Innovation Scholar, MIT Varsity Swim Team, USA Swimming Scholastic All-American
- Aptiv Undergraduate Research and Innovation Scholar

Skills: Python, Java, Tensorflow, Pytorch, Machine Learning, Computer Vision, Teamwork, Leadership

Interests: Traveling, MIT Phi Beta Epsilon Fraternity, Swimming, Community Service, Ancient History

Minor in Ancient and Medieval History: focus on Roman architecture, Greek warfare, and Early Christianity