Joseph Suarez
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Massachusetts Institute of Technology | PhD Computer Science *expected 2025*
Research: Simulated environments, multiagent intelligence, reinforcement learning. The focus of my current work, Neural MMO, seeks to create neural agents with broad general intelligence by simulating a massively multiagent virtual world

Stanford University | B.S. Computer Science | GPA: 3.8 / 4.0 *2019*
Research: Two academic years of full time research in natural language processing and computer vision in the labs of Prof. Andrew Ng and Prof. Fei-Fei Li.

PUBLICATIONS:
ICML 2020: *Neural MMO: Ingredients for Massively Multiagent Artificial Open Worlds (Joseph Suarez, Phillip Isola)*. Open-source state-of-the-art baseline policies for Neural MMO + infrastructure and utilities.

AAMAS 2020: *Neural MMO v1.3: A Massively Multiagent Game Environmentfor Training and Evaluating Neural Networks (Joseph Suarez et al.)*. Structured attentional observation/action processing for efficient training and inference in complex multiagent environments.

OpenAI Blog and arXiv 2019: *Neural MMO: A massively multiplayer game environment for intelligent agents (Joseph Suarez et al.)*. Framework tested to 100M agent lifetimes. Analysis of agent and species count as magnifiers of environment curriculum and niche formation.

arXiv 2019: *GAN you do the GAN GAN? (Joseph Suarez).* Demonstrates that generative adversarial networks can learn distributions over other generative adversarial networks.

arXiv 2018: *DDRprog: A CLEVR Differentiable Dynamic Reasoning Programmer (Joseph Suarez, Justin Johnson, Li Fei-Fei)*. State-of-the-art on CLEVR, differentiable hard attention and forking techniques for dynamic assembly and execution of neural program trees.

NIPS 2017: *Language Modeling with Recurrent Highway Hypernetworks (Joseph Suarez)*. State-of-the-art on Penn Treebank, detailed analysis of gradient flow in recurrent architectures.

arXiv 2017: *Efficient Approaches to Batch Parallelization for Dynamic Neural Architectures (Joseph Suarez, Clare Zhu)*. 10x speedup on state-of-the-art CLEVR visual question answering architecture. 1000x speedup on sparsely gated mixture of experts layers.

ADDITIONAL EXPERIENCE:
Summer 2018: 6 month full time machine learning research internship at **OpenAI**. Developed Neural MMO, a massively multiagent platform for training reinforcement learning agents.

Summer 2017: Worked with **Justin Johnson** in the **Stanford Vision lab** on differentiable and dynamic approaches to CLEVR Visual Question Answering.

Summer 2016: Intern at **LucidCam**. Prototyped augmented reality demos, assisted with various computer vision based tasks.