Alexander Gao

Web - cs.umd.edu/people/awgao
Email - gaoalexander@gmail.com
Mobile - (734) 358-7379

Education

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PhD, Computer Science, University of Maryland, College Park	**Aug 2021 - Present**
(Advised by Dinesh Manocha, GAMMA Lab)	
MS, Computer Science, New York University (GPA 3.97 / 4.0)	**2018 - 2020**
BA, Cinematic Arts - Film Production, University of Southern California	**2007 - 2011**

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Relevant Coursework: Algorithm Design & Analysis, Robotics, Computer Graphics, Probability and Statistics, Computational Geometry, Computer Vision, Machine Learning, Deep Learning, 3D Computer Animation

Professional Experience

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Software Engineer, Simulation — AWS Robotics (Remote)   **Feb 2021 - Present**
- Build simulator to generate synthetic image data at unlimited scale for robotics perception applications.
- Translate feedback from ML scientists into concrete, interactive controls on image quality and statistics.

Software Engineering Intern — Amazon Web Services (Seattle)   **June 2020 - Aug 2020**
- Implemented well-tested, secure cryptographic time-stamping service for digital signing service.
- Defined project requirements, service architecture, and design.

Software Engineering Intern — AI Foundation (San Francisco)   **June 2019 - Aug 2019**
- Developed computer vision algorithms for generating facial textures for photorealistic human avatars.

Motion Graphics Artist — Contend (Los Angeles)   **Sept 2016 - Aug 2018**
- Modeled, animated, and rendered 2D and 3D content for commercial ad campaigns and installations.

Cinematographer — Beachbody (Los Angeles)   **Jan 2014 - Jan 2016**
- Planned and orchestrated lighting and camera for weekly on-location productions (managed crew of 5).

Motion Graphics Artist — The Ant Farm (Los Angeles)   **July 2011 - July 2012**
- Animated computer graphics for games, film trailers and interactive experiences.

Technical Skills

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Programming Languages: C++, C#, Java, Javascript, Python, MATLAB, Ruby, LaTeX
Mathematical Foundations: Probability, Statistics, Multivariable Calculus, Linear Algebra, Geometry
Computer Graphics: Unreal Engine, Unity, Blender, OpenCV, OpenGL, Cinema 4D, After Effects

Research Experience

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Visiting Research Assistant • NYU, CILVR Robot Learning Lab (Advised by Lerrel Pinto)   **Fall 2020**
- Evaluated reinforcement learning algorithms on POMDP robotic additive manufacturing tasks.
- Created interactive game for benchmarking human performance (open-sourced on Python PI).
- Studied rigid body simulation and learning-based methods for humanoid planning and control.

Visiting Research Assistant • NYU, Future Reality Lab (Advised by Ken Perlin)   **Spring 2019**
- Designed and built prototype for Mixed Reality Classroom, a multimodal multiuser AR education platform.
- Presented live demonstration in June 2019 at the Verizon 5G EdTech Summit.

Publications

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Simultaneous Navigation and Construction Benchmarking Environments
Wenyu Han, Chen Feng, Haoran Wu, Alexander Gao, Armand Jordana, Dongdong Liu, Lerrel Pinto, Ludovic Righetti
Published on arXiv, 2021. https://arxiv.org/abs/2103.16732

Scholarships and Awards

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Dean's Fellowship • University of Maryland	**2021 - 2023**
Engineering Scholarship • New York University	**2018 - 2020**
Presidential Scholarship • University of Southern California	**2007 - 2011**
National Merit Scholar • NMSC	**2007**

Teaching Experience

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Teaching Assistant, CMSC320 Intro to Data Science • University of Maryland	**Fall 2021**
Teaching Assistant, CS6513 Big Data • New York University	**Fall 2019, Spring 2020**
Section Leader, CS106A Code In Place • Stanford University	**Spring 2020**