

Dalton Omens

Curriculum Vitae

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EDUCATION

2020 ~ 2025	Stanford University Ph.D in Computer Science (SAIL) Advisor: Ron Fedkiw	Stanford, CA
2016 - 2020	University of California, Berkeley B.S. in Computer Science and Electrical Engineering <i>Summa Cum Laude (4.0)</i>	Berkeley, CA

RESEARCH INTERESTS

Virtual Humans - Using generative AI models, differentiable rendering, physical simulation, and optimization techniques to capture human performance, create animatable human avatars, and retarget animation to non-human characters.

Democratizing Artistic Pipelines - Leveraging cutting-edge tools to enable traditionally prohibitive workflows such as avatar creation, content creation/generation, and animation synthesis.

EMPLOYMENT

2021 - Present	Epic Games Virtual Humans research including facial performance capture, natural language agents, and avatar creation using the latest optimization and AI techniques.
Summer 2023	Sony Corporation of America Trained high quality physically-based neural simulations of loose clothing on human characters in conjunction with a small research team.
Summer 2020	Unity Labs Worked with a research team to develop facial inverse rendering systems for animated characters using novel neural network techniques.
Summer 2019	Blizzard Entertainment Used machine learning to predict render times and instantiating new pipelines for scientific computing in the Blizzard Animation studio.
Summer 2018	NVIDIA Developed internal and production software for GeForce graphics card drivers. Designed an internal application to analyze DisplayPort messages.

PUBLICATIONS

- 2024 **A Neural-Network-Based Approach for Loose-Fitting Clothing.** Yongxu Jin, Dalton Omens, Zhenglin Geng, Joseph Teran, Abishek Kumar, Kenji Tashiro, Ronald Fedkiw. arXiv, 2024.
- 2023 **Democratizing the Creation of Animatable Facial Avatars.** Yilin Zhu, Dalton Omens, Haodi He, Ron Fedkiw. arXiv, 2023.
- 2021 **Fast and Feature-Complete Differentiable Physics Engine for Articulated Rigid Bodies with Contact Constraints.** Keenon Werling, Dalton Omens, Jeongseok Lee, Ioannis Exarchos, C. Karen Liu. Robotics: Science and Systems (RSS), 2021.
- 2020 **Fast and Deep Facial Deformations.** Stephen W. Bailey, Dalton Omens, Paul D'Amico, and James F. O'Brien. ACM Transactions on Graphics, 39(4):94:1–15, August 2020. Presented at SIGGRAPH 2020, Washington D.C.

TEACHING

2022 - 2024	CS 205L: Continuous Mathematical Methods with an Emphasis on Machine Learning	TA
2021 - 2024	CS 148: Introduction to Computer Graphics and Imaging	TA
2018 - 2020	CS 61A: The Structure and Interpretation of Computer Programs	uGSI
2017	CS 61A: The Structure and Interpretation of Computer Programs	Tutor
2017 - 2018	CS 198: Going Down the EECS Stack	Facilitator

HONORS AND AWARDS

2020	Stanford Reid Weaver Dennis Fellowship in the School of Engineering
2020	UC Berkeley Outstanding Graduate Student Instructor Award
2016 - 2019	UC Berkeley Dean's List
2017 - 2020	IEEE Eta Kappa Nu EECS Honor Society
2016	BD Academic Achievement Scholarship