Eric Ryan Chan

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EDUCATION

Stanford University (Fall 2021 - Present)
- Ph.D. Candidate in Computer Science (Artificial Intelligence). GPA: 4.15/4
- Advised by Prof. Gordon Wetzstein and Prof. Jiajun Wu

Stanford University (2019 - 2021)
- M.S. Computer Science (Artificial Intelligence). GPA: 4.09/4

Yale University (2014 - 2018)
- B.S. Mechanical Engineering Sciences with distinction, B.S. Computer Science with distinction. *Cum laude, Tau Beta Pi*, GPA: 3.85/4

WORK EXPERIENCE

Nvidia, Research Intern (Summer 2021, Summer 2022, Spring 2023)
- 2021: Lead research project investigating generative models for 3D scenes. Joint work with Stanford, culminating in *Efficient Geometry-aware 3D Generative Adversarial Networks (EG3D)*.
- 2022: Exploring score-based generative modeling for 3D scenes.

Google, Software Engineering Intern (Summer 2020)
- Designed CNN models for predicting the computational cost of Google's OCR systems to streamline distribution of computational resources. The resulting pipeline demonstrated significant improvements over prior heuristic-based system, particularly for non-Latin languages.

NASA Jet Propulsion Laboratory (JPL), Intern (Summer 2018)
- Implemented software related to the simulation, visualization, and control of the Curiosity and Perseverance rovers. Created API's for calculations such as inverse kinematics for Curiosity's robotic arm and wrote algorithms to help simulate and evaluate the safety of potential paths used in automated rover pathfinding.

Neuro-Electronics Research Flanders, Visiting Scholar (Summer 2017)
- Designed and executed experiments, utilizing techniques including optogenetics, to identify neural pathways and examine learning and memory in mice.

LEADERSHIP & ACTIVITIES

Yale Formula Hybrid Racing Team, Project Manager and EECS Team Lead (2016-2018)
- Ensured Bulldogs Racing's five engineering sub-teams, three management sub-teams, and 30+ members stayed on track and operated as a cohesive unit. As Electrical and Computer Systems Team Lead, in charge of design and fabrication of power and logic systems.

Championship Robotics Team Founder, Captain, Mentor (2011 - 2019)
- Back-to-back Vex World Championships division champions, out of more than 10,000 teams from 22 countries worldwide, and 3x California State Champions, out of over 500 California-based teams.

TEACHING EXPERIENCE

Stanford CS 103: Mathematical Foundations of Computing, Teaching Assistant (2019)
Yale CS 201: Introduction to Computer Science, Undergraduate Learning Assistant (2017)

PUBLICATIONS & WORKS

Efficient Geometry-aware 3D Generative Adversarial Networks, **Eric R. Chan***, Connor Z. Lin*, Matthew A. Chan*, Koki Nagano*, Boxiao Pan, Shalini De Mello, Orazio Gallo, Leonidas Guibas, Jonathan Tremblay, Sameh Khamis, Tero Karras, and Gordon Wetzstein, 2022, Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR, Oral)

pi-GAN: Periodic Implicit Generative Adversarial Networks for 3D-Aware Image Synthesis, **Eric R. Chan***, Marco Monteiro*, Petr Kellnhofer, Jiajun Wu, Gordon Wetzstein, 2021, Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR, Oral)

MetaSDF: Meta-Learning Signed Distance Functions, Vincent Sitzmann*, **Eric R. Chan***, Richard Tucker, Noah Snavely, Gordon Wetzstein, 2020, Conference on Neural Information Processing Systems (NeurIPS, poster).

Generative Neural Articulated Radiance Fields, Alexander W. Bergman*, Petr Kellnhofer*, Wang Yifan*, **Eric R. Chan***, David B. Lindell, Gordon Wetzstein, 2022, Conference on Neural Information Processing Systems (NeurIPS)

3D Neural Field Generation using Triplane Diffusion, J. Ryan Shue*, **Eric R. Chan***, Ryan Po*, Zachary Ankner*, Jiajun Wu, Gordon Wetzstein, 2023, Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)

ACORN: Adaptive Coordinate Networks for Neural Scene Representation, Julien Martel*, David Lindell*, Connor Lin, **Eric R. Chan**, Marco Monteiro, Gordon Wetzstein, 2021, ACM Transactions on Graphics (SIGGRAPH, Journal)

GeNVS: Generative Novel View Synthesis with 3D-Aware Diffusion Models, **Eric R. Chan***, Koki Nagano*, Matthew A. Chan*, Alex W. Bergman*, Jeong Joon Park*, Axel Levy, Miika Aittala, Shalini De Mello, Tero Karras, Gordon Wetzstein, 2023, (Under Submission)

Single-Shot Implicit Morphable Faces with Consistent Texture Parameterization, Connor Lin, Koki Nagano, Jan Kautz, **Eric R. Chan**, Umar Iqbal, Leonidas Guibas, Gordon Wetzstein, Sameh Khamis, 2023, ACM Transactions on Graphics (SIGGRAPH, Conference)

Real-Time Radiance Fields for Single-Image Portrait View Synthesis, Alex Trevithick, Matthew Chan, Michael Stengel, **Eric R. Chan**, Chao Liu, Zhiding Yu, Sameh Khamis, Manmohan Chandraker, Ravi Ramamoorthi, Koki Nagano, 2023, ACM Transactions on Graphics (SIGGRAPH, Journal)

Diffusion in the Dark: A Diffusion Model for Low-Light Text Recognition, Cindy Nguyen, Eric R. Chan, Alexander W. Bergman, Gordon Wetzstein, 2023, (Under Submission)

DiffDreamer: Consistent Single-view Perpetual View Generation with Conditional Diffusion Models, Shengqu Cai, **Eric R. Chan**, Songyou Peng, Mohamad Shahbazi, Anton Obukhov, Luc Van Gool, Gordon Wetzstein, 2022, (Under Submission)

3D GAN Inversion for Controllable Portrait Image Animation, Connor Z. Lin*, David B. Lindell*, **Eric R. Chan**, Gordon Wetzstein, 2022, ECCV Workshop on 3D Scene Generation

Object-Centric Neural Scattering Functions for Relightable and Compositional Appearance Modeling from Images, Hong-Xing Yu, Michelle Guo, Alireza Fathi, Yen-Yu Chang, **Eric R. Chan**, Ruohan Gao, Thomas Funkhouser, Jiajun Wu, 2023, Transactions on Machine Learning Research (TMLR Journal)

Passive Mechanical Stabilization of Body Rotations in Jumping, Venkadesan, Madhusudhan, Alexander Lee, and **Eric R. Chan**, 2019, 9th International Symposium on Adaptive Motion of Animals and Machines (Abstract)

* Equal Contribution

INVITED TALKS & PRESENTATIONS

GAMES: Graphics And Mixed Environment Symposium, 3D Generative Models
MIT 3D Representation Reading Group, pi-GAN
CMU Graphics Seminar, EG3D
Stanford Graphics Cafe, 3D Generative Models
ICLR 2023 Neural Fields Across Fields Workshop, Invited speaker

AWARDS

Yale University: Distinction in the Major, Computer Science; Distinction in the Major, Mechanical Engineering; *Cum laude*; *Tau Beta Pi*
2022 Snap Research Fellowship
2023 Nvidia Graduate Fellowship
2023 Meta Research PhD Fellowship (declined)

STUDENTS SUPERVISED

Shengqu Cai, ETH Zurich
Ryan Shue, Milton Academy