

Chiyu Max Jiang

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INTERESTS	Computer Vision: Computer Vision; Object Detection and Segmentation; 3D Deep Learning: 3D Machine Learning for Graphics and Physics; Self-driving Cars: Algorithms for self-driving cars, perception and beyond.	
EDUCATION	University of California, Berkeley Berkeley, CA, USA Ph.D. in Mechanical Engineering ('20) 3D Deep Learning & Physics Informed Machine Learning Advisors: Philip Marcus, Matthias Niessner; Cornell University Ithaca, NY, USA B.S. in Bio Engineering ('15) Magna Cum Laude (GPA: 3.95) Zhejiang University Hangzhou, China B.Eng. in Bio Engineering ('15)	
EXPERIENCE	Waymo (formerly Google's self-driving project) Mountain View, CA Research Scientist Jan 2021 - Present <ul style="list-style-type: none">Applied research in 3D perception and beyond. Cruise San Francisco, CA Senior Applied Research Scientist Jun 2020 - Jan 2021 <ul style="list-style-type: none">Led the deployment of the current LiDAR based object detection system on the car, coordinating various cross-team collaborations for runtime optimizations.Improved the functional and runtime performance of the model, resulting in 138x improvement in point data processing speed. Google Mountain View, CA Research Intern May 2019 - Mar 2020 <ul style="list-style-type: none">Ph.D. student researcher at Google Research (Perception).Developed novel learning based implicit 3D geometry representation for large-scale scene reconstruction from point clouds (Local Implicit Grid - CVPR 2020).Collaborated on a project for generating enhanced texture for scanned 3D models (Adversarial Texture Optimization - CVPR 2020).Proficient with Google internal infrastructure and TensorFlow for ML development, and Apache Beam for massive data processing and ML inference workflows.Initiated and coordinated internal and external collaborations with research partners. Lawrence Berkeley National Lab Berkeley, CA Research Intern Jun 2018 - May 2020 <ul style="list-style-type: none">Research in physics-informed machine learning for spatial-temporal super-resolution (MeshfreeFlowNet - SC 20).Research on Spherical CNNs on Unstructured Grids and applications towards computer vision and climate science (Unstructured Grid Spherical CNN - ICLR 2019).	
SKILLS	<ul style="list-style-type: none">Machine Learning Tensorflow, PyTorch, Scikit-Learn;Programming Python, C/C++ (CUDA/OpenMP/MPI), Bash, Matlab;Tools Docker, Git, L^AT_EX, Apache Beam / Flume	
PROFESSIONAL SERVICE	Reviewer:	ICCV, AAAI, CVPR, ECCV, NeurIPS, ICLR, SIGGRAPH.

AWARDS	2020	Best Student Paper Award (Finalist), SC20
	2018	Chang-Lin Tien Graduate Fellowship, UC Berkeley
	2017	The Frank and Margaret Lucas Scholarship, UC Berkeley
	2017	Graduate Division Block Grant Award, UC Berkeley
	2015-16	The Jonathan Laitone Memorial Scholarship, UC Berkeley
	2013-15	Dean's List, CALS, Cornell University
	2011-13	Scholarship for Academic Excellence, Zhejiang University
	2011-13	Merit Student, Zhejiang University

PUBLICATION

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- [1] K. Kashinath, M. Mustafa, A. Albert, J. Wu, C. Jiang, S. Esmaeilzadeh, K. Azizzadenesheli, R. Wang, A. Chattopadhyay, A. Singh, and others, "Physics-informed machine learning: case studies for weather and climate modelling," *Philosophical Transactions of the Royal Society A*, vol. 379, no. 2194, p. 20200093, 2021.
- [2] C. Jiang*, J. Huang*, A. Tagliasacchi, and L. Guibas, "ShapeFlow: Learnable Deformations Among 3D Shapes," in *Advances in neural information processing systems (NeurIPS, Spotlight)*, 2020.
- [3] C. Jiang*, S. Esmaeilzadeh*, K. Azizzadenesheli, K. Kashinath, M. Mustafa, H. Tchelepi, P. Marcus, Prabhat, and A. Anandkumar, "MeshfreeFlowNet: A Physics-Constrained Deep Continuous Space-Time Super-Resolution Framework," in *International Conference for High Performance Computing, Networking, Storage and Analysis (SC, Best Student Paper Finalist)*, 2020.
- [4] C. Jiang, A. Sud, A. Makadia, J. Huang, M. Nießner, and T. Funkhouser, "Learning Local Implicit Grid Representation for 3D Scenes," in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020.
- [5] C. Jiang, K. Kashinath, Prabhat, and P. Marcus, "Enforcing physical constraints in CNNs through differentiable PDE layer," in *ICLR 2020 Workshop on Integration of Deep Neural Models and Differential Equations*, 2020.
- [6] J. Huang, J. Thies, A. Dai, A. Kundu, C. Jiang, L. Guibas, M. Niessner, and T. Funkhouser, "Adversarial Texture Optimization from RGB-D Scans," in *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020.
- [7] C. Jiang*, D. L. O. Lansigan*, P. Marcus, and M. Nießner, "DDSL: Deep Differentiable Simplex Layer for Learning Geometric Signals," in *IEEE International Conference on Computer Vision (ICCV)*, 2019.
- [8] C. Jiang, J. Huang, K. Kashinath, Prabhat, P. Marcus, and M. Niessner, "Spherical CNNs on Unstructured Grids," in *International Conference on Learning Representations (ICLR)*, 2019.
- [9] C. Jiang, D. Wang, J. Huang, P. Marcus, and M. Niessner, "Convolutional Neural Networks on Non-uniform Geometrical Signals Using Euclidean Spectral Transformation," in *International Conference on Learning Representations (ICLR)*, 2019.

- [10] B. Nadiga, C. Jiang, and D. Livescu, “Leveraging bayesian analysis to improve accuracy of approximate models,” *Journal of Computational Physics*, vol. 394, pp. 280 – 297, 2019.
- [11] S. Oh, C.-H. Jiang, C. Jiang, and P. S. Marcus, “Finding the optimal shape of the leading-and-trailing car of a high-speed train using design-by-morphing,” *Computational Mechanics*, Oct 2017.

INVITED
TALKS

NVIDIA	06/2020	MeshfreeFlowNet: A Physics-Constrained Deep Continuous Space-Time Super-Resolution Framework
Stanford	05/2020	Mesh ODE: A Robust and Scalable Framework for Mesh Deformation
Caltech	06/2020	MeshfreeFlowNet: A Physics-Constrained Deep Continuous Space-Time Super-Resolution Framework
Berkeley	09/2019	Deep Learning Methodologies and Tools for Scientific Problems
Berkeley	04/2019	Spherical CNNs on Unstructured Grids
Google	03/2019	Deep Learning of simplicial mesh-based geometric signals
LANL	03/2018	3D Deep Learning for Shapes and its Applications in Engineering
LBNL	02/2018	Physics Informed Machine Learning
PIML 2018	01/2018	A Deep Learning Framework for Constrained Shape Optimization.