Deqing Fu

Email: deqingfu@usc.edu   Address: Ginsburg Hall, USC, Los Angeles, CA 90089
Website: www.fudeq.ing   Office: GCS 403E

Education		
	University of Southern California *Ph.D. in Computer Science* Advisors: Vatsal Sharan & Robin Jia	2022 - Present
	University of Chicago *M.S. in Statistics*	2020 - 2022
	University of Chicago *B.S. in Mathematics* with Honors *B.S. in Computer Science* with Honors *B.A. in Statistics*	2016 - 2020

Experience		
	Simons Institute at UC Berkeley *Visiting Graduate Student* Program: Modern Paradigms in Generalization	Fall 2024
	Research Scientist Intern $\rightarrow$ **Student Researcher**, Meta Team: Llama Team @ Meta GenAI. Host: Lawrence Chen; Peers: Tong Xiao, Rui Wang, and Pengchuan Zhang.	May – Dec., 2024
	Software Engineering Intern, Google Teams: Image Search (Lens); Knowledge Engine; Bard Multilingual.	Summer 2021, 2022, 2023
	Summer Student Researcher, Argonne National Laboratory Hosts: Paul Hovland & Sri Hari Krishna Narayana.	Summer 2017

Publications

* denotes equal contribution

TLDR: Token-Level Detective Reward Model for Large Vision Language Models Deqing Fu, Tong Xiao, Rui Wang, Wang Zhu, Pengchuan Zhang, Guan Pang, Robin Jia, Lawrence Chen	ICLR 2025
Transformers Learn Low Sensitivity Functions: Investigations and Implications Bhavya Vasudeva*, Deqing Fu*, Tianyi Zhou, Elliot Kau, You-Qi Huang, Vatsal Sharan	ICLR 2025
DeLLMa: Decision Making Under Uncertainty with Large Language Models Ollie Liu*, Deqing Fu*, Dani Yogatama, Willie Neiswanger *ICLR 2025 Spotlight (Top 5.1%)*	ICLR 2025
DreamSync: Aligning Text-to-Image Generation with Image Understanding Feedback Jiao Sun*, Deqing Fu*, Yushi Hu*, Su Wang, Royi Rassin, Da-Cheng Juan, Dana Alon, Charles Herrmann, Sjoerd van Steenkiste, Ranjay Krishna, Cyrus Rashtchian	NAACL 2025
Transformers Learn to Achieve Second-Order Convergence Rates for In-Context Linear Regression Deqing Fu, Tian-Qi Chen, Robin Jia, Vatsal Sharan *SoCalNLP Symposium 2023 Best Paper Award*	NeurIPS 2024

Pre-trained Large Language Models Use Fourier Features to Compute Addition

Tianyi Zhou, Deqing Fu, Vatsal Sharan, Robin Jia   NeurIPS 2024

IsoBench: Benchmarking Foundation Models on Isomorphic Representations

Deqing Fu★, Ruohao Guo★, Ghazal Khalighinejad★, Ollie Liu★, Bhuwan Dhingra, Dani Yogatama, Robin Jia, Willie Neiswanger

Huggingface 🤗 : [Dataset]   COLM 2024

SCENE: Self-Labeled Counterfactuals for Extrapolating to Negative Examples

Deqing Fu, Ameya Godbole, Robin Jia   EMNLP 2023

Harnessing the Conditioning Sensorium for Improved Image Translation

Cooper Nederhood, Nicholas Kolkin, Deqing Fu, Jason Salavon   ICCV 2021

Preprints

Zebra-CoT: A Dataset for Interleaved Vision Language Reasoning

Ang Li★, Charles L. Wang★, Kaiyu Yue★, Zikui Cai★, Ollie Liu★, Deqing Fu★, Peng Guo★, Wang Bill Zhu★, Vatsal Sharan, Robin Jia, Willie Neiswanger, Furong Huang, Tom Goldstein, Micah Goldblum

Huggingface 🤗 : [Dataset]   Under Review

Textual Steering Vectors Can Improve Visual Understanding in Multimodal Large Language Models

Woody Haosheng Gan★, Deqing Fu★, Julian Asilis★, Ollie Liu★, Dani Yogatama, Vatsal Sharan, Robin Jia, Willie Neiswanger   Under Review

FoNE: Precise Single-Token Number Embeddings via Fourier Features

Tianyi Zhou, Deqing Fu, Mahdi Soltanolkotabi, Robin Jia, Vatsal Sharan   Under Review

VisualLens: Personalization through Visual History

Wang Bill Zhu, Deqing Fu, Kai Sun, Yi Lu, Zhaojiang Lin, Seungwhan Moon, Kanika Narang, Mustafa Canim, Yue Liu, Anuj Kumar, Xin Luna Dong   Under Review

Awards

Viterbi Best Research Assistant Award *(one per department)*	USC, 2025
SoCalNLP Symposium 2023 Best Paper Award	SoCalNLP, 2023
Provost's Fellowship	USC, 2022
Susanne H. Rudolph Scholarship	UChicago, 2020
Liew Family College Research Fellows Fund	UChicago, 2020
Dean's List	UChicago, 2016-2020

Invited Talks

Closing the Modality Gap:
Benchmarking and Improving Visual Understanding in Multimodal LLMs
Stanford NLP Seminar   May 22, 2025

Algorithmic Perspectives on Understanding Transformers
UChicago/TTIC NLP Seminar   May 08, 2025

Tutorial on the interplay between Theory and Interpretability
USC ML/NLP Joint Seminar   Apr 25, 2025

Algorithmic Perspectives on Understanding Transformers
Duke NLP Seminar   Feb 12, 2025

Guest Lecture on Interpretability and AI Safety
DSO 575: Driving Business Transformation with GenAI   Oct 24, 2024

Simplicity Bias of Transformers to Learn Low Sensitivity Functions
USC NLP Lunch   Feb 22, 2024

Aligning Text-to-Image Generation with Image Understanding Feedback
USC NLP Lunch   Oct 19, 2023

Transformers Learn to Achieve Second-Order Convergence for In-Context Linear Regression
USC NLP Lunch   Mar 29, 2023

Services	**Reviewer** for ICLR 2025, NeurIPS (2024, 2025), ICML 2025, COLM 2024, EMNLP (2023, 2024), ACL ARR 2024, ECCV 2022, CVPR (2023, 2024, 2025)

Organizer of USC ML/NLP Joint Reading Group   Jan 2025 – Present

Organizer of USC AI Safety Club   Jan 2024 – Jan 2025

Students Supervised

Master's and Undergraduate Students

Gustavo Carvalho (USC MS)	Feb 2024 – Present
Qilin Ye (USC UG $\rightharpoonup$ Duke MS)	Sep 2023 – Present
Woody Haosheng Gan (USC UG)	Sep 2023 – Present
You-Qi Huang (USC UG)	Sep 2023 – Mar 2024
Elliot Kau (USC MS)	Sep 2023 – Mar 2024
Tian-Qi Chen (USC MS)	Mar 2023 – Sep 2023

Teaching Experience

Teaching Assistant, CSCI 467: Introduction to Machine Learning
University of Southern California, Los Angeles, CA   Spring 2025

Teaching Assistant, CSCI 566: Deep Learning and its Applications
University of Southern California, Los Angeles, CA   Spring 2023

Teaching Assistant, BUSN 41301: Statistical Insight
Booth School of Business, University of Chicago, Chicago, IL   Fall 2021

Course Assistant, CMSC 31230: Fundamentals of Deep Learning
University of Chicago, Chicago, IL   Fall 2021

Course Assistant, MATH 20300: Analysis in Rn - I
University of Chicago, Chicago, IL   Spring 2018

Skills

C/C++, Python, LaTeX, MATLAB, R, Java, CUDA
PyTorch, TensorFlow, Keras, JAX, HuggingFace