

Xiaodan Du

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EDUCATION

Ph.D. in Computer Science

Toyota Technological Institute at Chicago

Expected: May 2026

GPA: 3.94/4.00

Master of Science in Computer Science

University of Illinois Urbana-Champaign

May 2020

GPA: 4.00/4.00

Bachelor of Science in Civil Engineering

University of Illinois Urbana-Champaign

May 2018

GPA: 3.96/4.00

Summa Cum Laude

Minor in Computer Science

PAPERS

SignMusketeers: An Efficient Multi-Stream Approach for Sign Language Translation at Scale

Shester Gueuwou, **Xiaodan Du**, Greg Shakhnarovich, Karen Livescu

Submitted at NeurIPS, 2024

Generative Models: What do they know? Do they know things? Let's find out!

Xiaodan Du, Nicholas Kolkin, Greg Shakhnarovich, Anand Bhattad

Submitted at ECCV, 2024

Score Jacobian Chaining: Lifting Pretrained 2D Diffusion Models for 3D Generation

Haochen Wang*, **Xiaodan Du***, Jiahao Li*, Raymond A. Yeh, Greg Shakhnarovich

CVPR, 2023

(* indicates equal contribution)

Text-Free Learning of a Natural Language Interface for Pretrained Face Generators

Xiaodan Du, Raymond A. Yeh, Nicholas Kolkin, Eli Shechtman, Greg Shakhnarovich

arXiv preprint, 2022

PATENTS

US Patent 11093736, "Systems and methods for machine vision based object recognition"

Inventors: Ujjval Patel, **Xiaodan Du**, Lucas McDonald

Jan. 22, 2021

INTERSHIPS

Machine Learning Research Intern, Computer Vision

Toyota Research Institute

Los Altos, CA

Jun. 2024 –

- Train a large-scale action/video diffusion model on diverse robotics datasets for better action prediction accuracy

Research Scientist/Engineer Intern

Adobe Research

San Francisco, CA

Feb. 2023 – May 2023

- Proposed a method to do personalized scene reconstruction and stylization by jointly learning a radiance field representation of the scene and a ControlNet together
- Achieved better scene reconstruction quality than Instant-NGP by leveraging score-based model's prior knowledge to remove blurry artifacts
- Developed a new mechanism to stylize the scene during inference time without the need for finetuning

Machine Learning and Computer Vision Research Internship

Synchrony Financial

Urbana-Champaign, IL

May 2019 – Aug. 2019

- Developed an online real-time customer tracking system using YOLOv3 deep neural network and Deep SORT algorithm for Synchrony's cashier-less store
- Proposed a card-less payment solution with real-time facial recognition
- Integrated computer vision and deep learning technologies to perform real-time multi-target multi-camera tracking

OTHER PROJECTS

Self-Attention Generative Adversarial Networks for Video Generation

Advisor: Professor Svetlana Lazebnik

*Urbana-Champaign, IL
Jan. 2019 – May 2020*

- Propose a novel self-attention-driven GANs framework for conditional video generation
- Extend the application of self-attention to video generation and prediction
- Visualize attention maps to prove effectiveness and usefulness of self-attention layers
- Use PyTorch platform to implement the proposed GANs framework

Caption Aided Image Classifier for Unusual Images

Advisor: Professor Svetlana Lazebnik

*Urbana-Champaign, IL
Aug. 2018 – Dec. 2018*

- Trained a ResNet50 image classifier on a highly unbalanced “unusual” image dataset
- Created an RNN text classifier based on the image captions
- Integrated the two classifiers to perform combined classification

Computer Vision Based Recognition of Human-Object Interaction

Real-time and Automated Monitoring and Control Lab, Advisor: Professor Mani Golparvar-Fard

*Urbana-Champaign, IL
Sep. 2017 – May 2018*

- Developed evaluation functions to evaluate trained models based on mean average precision
- Created a Python API that helps in loading and parsing the annotations
- Wrote scripts to transform annotations of HICO-DET dataset into JSON file

Modeling of Tsunamis and Breaking Waves and their Impact on Built Infrastructure

National Center for Supercomputing Applications (NCSA), Advisor: Arif Masud

*Urbana-Champaign, IL
Aug. 2016 – May 2018*

- Parallel simulation for CFD (computational fluid dynamics) and FSI (fluid-structure interaction) simulations on Blue Waters supercomputer
- Developed code for fast generation of signed distance field as initial conditions in immersed boundary or free-surface problems
- Presented at Undergraduate Research Symposium on “A Novel Way for Converting 3D images to Finite Element Models”

PROFESSIONAL SERVICES

Journal/Conference Reviewer:

- ECCV 2024
- CVPR 2024 (Workshops)
- SIGGRAPH 2024

Workshop Co-organizer:

- ECCV Workshop on “Knowledge in Generative Models”
- Toyota Research Institute Multi-University Workshop

*Sep. 2024
Apr. 2024*

Panelist:

- Toyota Research Institute Multi-University Workshop Student Panel

Apr. 2024

TEACHING EXPERIENCE

Teaching Assistant

TTIC31020: Introduction to Machine Learning

*Chicago, IL
Oct. 2022 – Dec. 2022*

- Developed and authored comprehensive assignments
- Conducted weekly tutorial sessions and held office hours
- Recipient of the “Outstanding Teaching Assistant Award”

Teaching Assistant

CS101: Introduction to Programming for Engineers and Scientists

*Urbana-Champaign, IL
Aug. 2018 – May 2020*

- Hosted and helped improve lab sections throughout the semester
- Composed and reviewed new course materials ahead of time
- Held office hours every week

Leadership

Structural Engineers Association - UIUC Chapter

President

*Urbana-Champaign, IL
Jan. 2015 – May 2018*

- Invited engineers from structural design firms to present their recent projects to students
- Built connections between students and the industry
- Presented civil engineering knowledge to the public at Engineering Open House

UIUC Civil China

Co-founder and Vice President

- Created connections between students and alumni to promote their career developments
- Negotiated with the Civil Engineering Department for co-hosting events on traditional Chinese holidays to enhance communication between Chinese and local students
- Lead public communication, planned event logistics, and raised funding

Urbana-Champaign, IL

Jan. 2015 – May 2018

HONORS

2023 Outstanding TA Award

Sep. 2023

Bronze Tablet – Top 3 percent of the graduating class

May 2018

Ira O. Baker Prize – First Prize (Outstanding Senior)

Feb. 2018

Bowman, Barrett & Associates Outstanding Scholar Award

Feb. 2017

Wayne C. Teng Scholarship

Feb. 2017

Concrete Reinforcing Steel Institute Scholarship

Feb. 2016

Anna Lee and James T.P. Yao Scholarship

Mar. 2015