

# Xiaodan Du

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## EDUCATION

### Ph.D. in Computer Science

Toyota Technological Institute at Chicago

Expected: Sep. 2026

GPA: 3.95/4.00

### Master of Science in Computer Science (within Ph.D. program)

Toyota Technological Institute at Chicago

Sep. 2022

### 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

### Teaching an Agent to Sketch One Part at a Time

Xiaodan Du, Ruize Xu, David Yunis, Yael Vinker, Greg Shakhnarovich

arXiv preprint, 2026

### SHuBERT: Self-Supervised Sign Language Representation Learning via Multi-Stream Cluster Prediction

Shester Gueuwou, Xiaodan Du, Greg Shakhnarovich, Karen Livescu, Alexander H. Liu

ACL, 2025

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

Shester Gueuwou, Xiaodan Du, Greg Shakhnarovich, Karen Livescu

ACL, 2025

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

Xiaodan Du, Nicholas Kolkin, Greg Shakhnarovich, Anand Bhattad

arXiv preprint, 2023

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

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

(\* indicates equal contribution)

CVPR, 2023

### 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

## INTERNSHIPS

### Machine Learning Research Intern, Computer Vision

Toyota Research Institute

Los Altos, CA

Jun. 2024 – Aug. 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:**

- ICLR
- WACV
- ECCV
- CVPR
- SIGGRAPH

### **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*

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

- 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

## **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*