

Chengyu Zhang

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EDUCATION

University of California, Berkeley, Electrical Engineering and Computer Sciences, CA Aug 2023 – May 2024

Master of Engineering, Computer Science – Data Science and System

Relevant Courses: Machine Learning, Deep Learning, Computer Vision, Computer Graphics

Research Interests: Computer vision, Perception, 3D reconstruction, Video segmentation

New York University Shanghai, Shanghai, China Aug 2019 – May 2023

Bachelor of Science, Data Science in Artificial Intelligence (Major Honor), Interactive Media Arts (double major)

Overall GPA: 3.969; Major GPA: 4.0

Relevant Courses: Data Structures, Machine Learning, Database Design and Implementation, Information

Visualization, Artificial Intelligence, Linear Algebra, Probability and Statistics, Multivariable Calculus,

Econometrics, Linear and Nonlinear Optimization, Art in Generative Models (GPT&GAN).

SELECTED PROJECTS AND RESEARCH

Scalable Indoor Novel-View Synthesis using Drone-Captured 360 Imagery with 3D Gaussian Splatting, Summer 2022

Master Capstone Research, CVPR 2024 Workshop

- Perform 360° data capture, cubemapping and inpainting, structure-from-motion, 3DGS, coarse-to-fine alignment.
- Propose a divide-and-conquer method to scale our method to large-scale complex indoor scenes.

Boosting Few-Shot Segmentation via Instance-Aware Data Augmentation and Local Consensus Guided Cross Attention, Summer 2022

Summer Research, IEEE TCSVT 2023

- Propose data augmentation and attention mechanisms to reduce few-shot data's distribution inconsistency.
- Review literature, implement algorithms in PyTorch, run intense experiments on HPC server, conclude to paper.

Towards Generalized Few-shot Segmentation: On Contrastive Learning and Background Information Modeling, Fall 2022

Data Science Capstone Research

- Propose a more practical new task: Generalized Few-Shot Segmentation (GFSS) based on existing approaches.
- Implement baseline algorithm using background information and contrastive pretrain for tackling domain shift.

Video Semantic Segmentation with Temporal-Spatial Attention, Summer Research Summer 2021

- Explore different spatial attention mechanisms, such as asymmetric pyramid-pooled attention, spatial and channel dual attention, criss-cross attention, and integrate with the temporal dimension in video tasks.

Finding Liminality in the Datafication Dystopia, Interactive Media Arts Capstone Project Spring 2023

- Develop PoseNet, BodyPix in ONNX format to work with Unity for multi-camera human segmentation.
- Model and render liminal space via Blender, implement HCI via Arduino, construct a 1:1 art installation.

Emojified Social Media, <https://github.com/MstXy/Emojified-Social-Media>, FutureLab 2020 Spring 2020

- Scrape Twitter data using Python and filtered them to only include tweets with emojis.
- Use Python library and datasets to determine text sentiment and emoji sentiment.
- Design website using d3.js to visualize the result with respect to emoji combinations, position, spam, sentiment.

INTERNSHIPS AND WORK EXPERIENCES

Autonomous Driving Algorithm Research Intern, DiFint Technology, Shanghai, China May 2023 – Dec 2023

- Develop perception algorithms on Linux GPU server in unsupervised monocular depth estimation, using multi-task training and unified backbones (ViT and CNNs), paper to be submitted to IEEE ICRA 2024.
- Develop interactive SLAM datasets motion mask self-annotation based on Segment Anything and Gradio.
- Research and present literature on autonomous driving and neuromorphic computing SOTA algorithms.

Computer Vision Research Assistant, NYU Shanghai, Mentor: Li Guo, Shanghai, China Apr 2022 – May 2023

- Conduct individual and teamed research in image/video semantic segmentation, object detection, meta/low-shot learning, transfer learning and image classification.
- Design algorithms and run experiments on Linux GPU servers, do ablation studies and conclude to papers.
- Research, conclude, share and experiments different SOTA algorithms in computer vision.

Artificial Intelligence Business Analyst Intern, Yitu Technology, Shanghai, China Dec 2022 – Apr 2023

- Build knowledge graph using Relational Triple Extraction (BERT-CasRel); crawl, annotate, process raw news data, design and tune model, generate knowledge graph with Neo4j after word-sense disambiguation.
- Collect, process, and analyze business data in facial recognition, AIGC and LLM products, assist in AI project management (including demand benchmarking, product positioning and technical preparation).
- Research in and write AI national standards, such as trustworthy AI and unified interface of AI accelerator.

Interactive Media Arts Lab Technician, NYU Shanghai, Shanghai, China Oct 2019 – Apr 2022

- Deploy MDM (Jamf) to manage MacOS and Windows computers, manage physical and virtual assets.
- Provide audio-video system solution for classrooms, with layout design and equipment quotation.
- Offer technical support to student and faculty, including MCUs, sensors, computers and audio-video devices.
- Cooperate with the manager on IMA operation, including the hiring process and budget analysis using Excel.

Research Assistant at the Human-Data Interaction Lab, NYU Abu Dhabi, Abu Dhabi, UAE Oct – Dec 2021

- Design and visualize database algorithms and data structures (including extendible hashing, linear hashing and bloom filter) in D3.js and JavaScript. Document and maintain the versions on shared GitHub repository.

ACTIVITIES

Member of the Media Committee, OnMagnoliaSquare, Shanghai, China Jul 2020 – Aug 2021

- Help to maintain the website based on WordPress using HTML, CSS, JavaScript and basic PHP.
- Design and publish news to websites and WeChat official account.

Volunteer, Weland, Beijing, China Jul – Aug 2019

- Volunteered for 7 days in Beijing, helping staffs to manage the Youth Leadership Summer Camp. Tasks involving translation for classes, activity arrangement and management, blog posting.

Assistant Director of Model United Nation, Weland, Beijing, China Aug 2019

- Participated in WeMUN EXPO 2019 UNDP conference on the topic of accessible water as an Assistant Director, directing and recording the conference for 3 days and a half.

SKILLS

Programming: Python, PyTorch, HTML, JavaScript, C#, R, React.js, d3.js, MySQL, MongoDB, Swift, Julia, Linux.

Documenting: Microsoft Office suite, Google Sheets, Google Slides, Google Docs.

Design & Creation: Unity, Arduino, Blender, Fusion360, Cinema 4D, Adobe Audition, Photoshop, Premiere, Illustrator.

GRE: 166 (Verbal) + 170 (Quantitative) + 4.5 (Analytical Writing)

TOEFL: 116 (Reading: 30, Listening: 30, Speaking: 28, Writing: 28)

HONORS

Summa cum laude, *NYU Shanghai* May 2023

NYU Shanghai Excellence Award, *NYU Shanghai* May 2023

Dean's List for Academic Year, *NYU Shanghai* June 2022, 2021, 2020

Recognition Award, *NYU Shanghai* July 2022, 2021, 2020

NYU Shanghai Global Elite Scholarship, *NYU Shanghai* Aug 2019

INTERESTS

Deep learning, Computer vision, Autonomous driving, Game development, Web development, Guitar, Hip hop music.