# Chengyu Zhang

Shanghai, China · (+86)13817495450 · williamzhang0407@hotmail.com · https://mstxy.github.io

## EDUCATION

**University of California, Berkeley**, Electrical Engineering and Computer Sciences, CA    Aug 2023 – May 2024
*Master of Engineering*, Data Science and System

**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

**Boosting Few-Shot Segmentation via Instance-Aware Data Augmentation and Local Consensus**    Summer 2022
**Guided Cross Attention**, Summer Research
- 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.
- Submitted the paper to the IEEE Transactions on Circuits and Systems for Video Technology 2023.
- Sponsored by NYU Shanghai Deans' Undergraduate Research Fund (DURF).

**Towards Generalized Few-shot Segmentation: On Contrastive Learning and Background**    Fall 2022
**Information Modeling**, 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 and integrate with the temporal dimension in video tasks.
- Sponsored by NYU Shanghai Deans' Undergraduate Research Fund (DURF).

**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    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.
- Exhibited at *FutureLab 2020*.

## EXPERIENCE

**SLAM Algorithm Research Intern**, *DiFint Technology*, Shanghai, China    May 2023 – Present
- Develop, experiment SLAM algorithms on GPU server in unsupervised monocular depth estimation, using multi-task training and unified backbones (ViT and ResNet), paper submitted to IEEE ICRA 2024.
- Develop interactive SLAM datasets motion mask self-annotation based on Segment Anything and Gradio.
- Read and present literature on autonomous driving and neuromorphic computing SOTA algorithms.

**Artificial Intelligence Business Analyst**, *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.

**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.

**Interactive Media Arts Lab Technician**, *NYU Shanghai*, Shanghai, China                Oct 2019 – Apr 2022
- Manage computers (MacOS and Windows) using MDM software (Jamf).
- Provide audio-video system solution for classrooms, with layout design and equipment quotation.
- Be the inventory system admin, manage and maintain physical and virtual assets.
- Offer technical support to students and professors on computers and audio-video devices.
- Cooperate with the manager on IMA operation, including the hiring process and budget analysis.

**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, CSS, JavaScript, R, React.js, d3.js, p5.js, MySQL, Swift, Julia.
**Documenting**: Microsoft Office suite, Google Sheets, Google Slides, Google Docs.
**3D modeling**: Blender, Fusion360, Cinema 4D.
**Design and Creation**: Unity, Arduino, 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

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| 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

Guitar, Computer programming, Game ideas, Web development, Artificial intelligence, Hip hop music.