

Zhuoyan Yu

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EDUCATION

New York University Shanghai

Fall 2023 – May 2027 (expected)

B.S. in Computer Science; cumulative GPA: 3.938/4.000

NYU New York – Study Away, Fall 2025 – Spring 2026; GPA: 4.00/4.00.

New York coursework: Computer Vision (graduate, CSCI-GA 2271; A), Basic Algorithms (A), Parallel Computing (A).

Additional coursework: Machine Learning (A), Natural Language Processing (A-), Deep Learning (in progress).

Mathematical foundations: Linear Algebra (A), Probability and Statistics (A).

PUBLICATIONS

CodeFORGE: Framework for Orchestrated Rare Programming Language Generation and Evaluation

Zhuoyan Yu, Minghao Shao, Yijun Shen, Yichen Zhao, Boyuan Chen, Yik-Cheung Tam, Muhammad Shafique.

International Joint Conference on Neural Networks (IJCNN), 2026. [\[Paper\]](#) [\[Code\]](#)

RESEARCH EXPERIENCE

RepoRevive: Behavior-Preserving Repository Repair

Sep 2026 – Present

Advanced Capstone Project Contributor, NYU Shanghai

Co-advisors: Yik-Cheung (Wilson) Tam (NYU Shanghai), Muhammad Shafique (NYU Abu Dhabi)

- Built a candidate pool for research-code compatibility repair by extending team tooling with CVF/ECVA adapters: **15,343 paper records across 12 conference editions and 5,283 distinct candidate repository URLs** after matching and screening.
- Reconstructed historical and modern environments for an ICLR 2021 research-code component; compared forward outputs, input/parameter gradients, and one-step SGD updates across 14 configurations.
- Diagnosed circular-padding differences in an API-only migration that ran **14/14** configurations but preserved historical behavior in **10/14**; implemented a reference patch passing **14/14** behavior checks.

LLM Test Reliability and Cross-Model Fault Detection

Jun 2026 – Present

Research Project, Serendipity Research Group, NYU Shanghai

Co-advisors: Yik-Cheung (Wilson) Tam (NYU Shanghai), Muhammad Shafique (NYU Abu Dhabi)

Research mentor: Minghao Shao (Ph.D. student)

- Designed same-model versus cross-model testing with and without code visibility; built isolated execution and a proxy oracle requiring agreement among three qualified reference programs.
- Completed 432 candidate-generation attempts on a 36-problem LiveCodeBench expansion cohort, retaining 63 naturally faulty programs before reference qualification; **52 programs across 21 problems** supported strict test-strategy comparisons.
- Analyzed fault detection separately from structural coverage using paired comparisons and problem-level bootstrap intervals; only five problems supported three-source balanced bias analysis.
- Evaluated static three-model mixtures against repeated single-model sampling under a three-call protocol; observed no stable mixing advantage and did not establish a general same-model leniency effect.

Ant Technologies U.S. – Medical and Healthcare AI Lab

May – Aug 2026

Algorithm Engineer Intern (Research)

Research supervisor: Long Xie

- Developed nnU-Net v2 pipelines and controlled ablations for cerebral microbleed and lacune detection in multimodal MRI, including spatial alignment and data validation.
- Improved microbleed lesion-level F1 from **0.533 to 0.557** on 72 VALDO cases using internal five-fold out-of-fold evaluation with cross-fitted thresholds.
- Extended evaluation to 40 lacune cases with dual-rater label analysis and paired comparisons on completed folds; documented training and evaluation status for handoff.

RESEARCH EXPERIENCE (CONTINUED)

CodeFORGE: Rare and Legacy Code Generation

Sep 2025 – Apr 2026

Research Assistant, Serendipity Research Fellowship, NYU Shanghai

Co-advisors: Yik-Cheung (Wilson) Tam (NYU Shanghai), Muhammad Shafique (NYU Abu Dhabi)

Research mentor: Minghao Shao (Ph.D. student)

- Built a benchmark of **1,196 verified tasks across 12 rare and legacy languages**; separated canonical solution synthesis from input/output test generation with a two-model pipeline.
- Implemented Docker-based pass@k verification and evaluation with model cascading, feedback-driven resampling, and API cost controls.

LoVURE: Long Video Understanding and Reasoning

Sep 2025 – Jun 2026

Research Assistant, Serendipity Research Fellowship, NYU Shanghai

Faculty mentor: Chen Feng (NYU)

- Annotated 40+ assembly/disassembly videos and standardized object, part, and action labels to construct POSET/DAG task graphs supporting multimodal LLM evaluation of assembly order.

Agentic Figure Transcription for Scientific Papers

May – Aug 2025

Research Assistant, CSDSE Department, NYU Shanghai

Faculty mentors: Shengjie Wang, Hongyi Wen

Research mentor: Haoming (Hammond) Liu (Ph.D. student)

- Developed a prototype for converting scientific figures into editable PPTX slides, integrating OCR, SAM segmentation, region-level VLM labeling, and recursive crop-aware segmentation of small objects.

Segment-then-Report: Chest X-Ray Interpretation

May – Aug 2025

Undergraduate Researcher, DURF Program, NYU Shanghai

Faculty mentor: Xiang Liu

- Compared raw X-ray and mask-overlay report generation using nnU-Net v2/torchvision masks; BLEU and CheXbert-F1 declined with overlays, motivating analysis of lost context and mask quality.

ACADEMIC PROJECTS

MYGO: Geometry-Aware Depth ControlNet [Code]

Sep – Dec 2025

Computer Vision Course Project; Instructor: Saining Xie; Course grade: A

- Co-designed 18-channel depth conditioning for SD1.5 ControlNet (raw depth, 16 ordinal layers, and occlusion boundaries); contributed to initial code setup, maintenance, and the final report.
- Team evaluation on a 50k-image COCO subset reduced FID from **84.0 to 74.3** at 20k training steps (1k generated samples), with mixed depth and occlusion results.

Curistro: Learning-by-Teaching

Dec 2024 – Apr 2025

NYU Shanghai Digital Innovation Challenge (DIC); Best Innovation Award (team)

- Built an LLM-backed teaching app with structured quizzes, answer rationales, feedback, and knowledge maps.

ADDITIONAL EXPERIENCE

NYU Shanghai IT Services – Student Worker

Sep 2023 – May 2025

Managed equipment loans and IT assets; resolved user inquiries and basic technical issues.

Institute of Computing Technology, Chinese Academy of Sciences

Jul – Sep 2024

Intern. Bench-tested Maximal Information Coefficient implementations and authored a technical report.

HONORS & DISTINCTIONS

Computer Networks (NYU): 2nd overall; 1st excluding extra credit

Spring 2026

Best Innovation Award (Curistro team), NYU Shanghai Digital Innovation Challenge

NYU Shanghai Outstanding Student Worker Award

2025

NYU Shanghai Dean's List (academic years)

2023–24, 2024–25, 2025–26