XIANG LIU

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Education

Stony Brook University   Expected May 2027
Majors (B.S.): Computer Science Honors Program; Mathematics   GPA: 3.95; Dean's List
Clubs & Orgs: Collegiate Science and Technology Entry Program *(CSTEP),* Diversity Professional Leadership Network *(DPLN)*
Coursework: Algorithms, Deep Learning, NLP, Linear Algebra, Multivariable Calc., Graph Theory, Real Analysis, Prob. & Statistics

Research & Projects

Summer Opportunity For Academic Research (REU)   Stony Brook, NY
REU Student Researcher (AI4Science); Funded by SUNY; (Forecasting Algo, PyTorch, Python)   May 2024 - Aug 2024
- Implemented Fourier Neural Operator, U-Net and Convolutional Neural Networks to predict temperature, and precipitation of the United States up to 24 hours with 99% accuracy on PyTorch
- Created program to automatically process and convert 100 GB of weather data for model training using Pandas and Xarray
- Visualized model predictions of over 10k data points into U.S. shaped heatmaps for better presentation using Numpy
- Presented poster "*Mapping the U.S. Weather: Climate Forecasting with Deep Learning*" to over 100 faculty members and deans
- **Impact**: Sped up weather prediction time by 200%+ from 3+ hours by supercomputers to minutes on personal computers

Stony Brook University   Stony Brook, NY
Undergraduate Research Assistant (LLM, Generative Models, Scikit Learn, Prompting)   Oct 2023 – Present
- Applying Lifelong Learning Machine Learning algorithms for robots to continue task learning after being trained
- Using LLM models at generating/planning sequential actions for robots to execute tasks autonomously
- Implementing Large Language Models/Transformers for molecular structures predictions and studying their reliabilities
- Collaborated with a group of senior students to stress test algorithms on a mechanical car prototype using ROS2
- Debugged algorithms' source code to adjust car's turning angles and speed for GapFollower, Wall Detection, Wall Following

Work Experience

Stony Brook University Department of Computer Science   Stony Brook, NY
Lead Undergrad Teaching Assistant: CSE 214 - Data Structures & Algorithms   Aug 2024 - Dec 2024
- Teach 2 one-hour recitations each with over 30 students every week to enhance students' problem-solving skills
- Explained and corrected recitation slides with 10+ practice questions to assist students' understanding each week
- Crafted 150 questions used on homework, exams & recitations on Array, Linked List, Trees, Stack/Queue, Graphs
- **Impact**: Improved students' average from C+ to B+ in my recitations

Stony Brook University Campus Residences   Stony Brook, NY
Resident Assistant   Aug 2024 - Present
- Spearheaded 4 campus-wide events each semester that drew over 600 attendees, 650% more than average attendance
- Supervising 40 residents consisted of first/second-year, international and transfer students to foster community building
- Handled and mediated 3 roommate conflicts to ensure the inclusivity inside dorm building
- **Impact**: 99% retention rate of residents returning next year and laid foundation for $1k+ extra funding for future events

Publications/Preprints

- Wenhan Gao, Jian Luo, Ruichen Xu, Fang Wan, **Xiang Liu**, Yi Liu. "There Is A Need for Interpretable Operator Learning – Can Data-Driven Dyanmics Reveal Hidden Physics?" *Under Review*, ICML 2025

Activities

Stony Brook Robotics Team (SBRT)   Stony Brook, NY
Partnership Director (e-Board); Computer Vision & Software Team Member   Feb 2024 - Present
- Created Arduino program for robot to detect depth and transmit data 30ft underwater with Python on Esp32 microcontroller
- Implemented Computer Vision on Robo Cup Rescue competition car for object detection and avoidance using Python
- Lead partnership team obtained 5 new companies for sponsorship on food/drinks and discounts on robot parts
- Planned and hosted events including General Body Meetings and Internal Competition that attracted >100 new members

Stony Brook Young Investigator's Review   Stony Brook, NY
Review Article Writer and Associate Editor of Campus Magazine   Sep 2023 - Present
- Authored and published an 8-pages review article on a data management system called MAPPPD to non-scientific readers
- Supervised and edited other Review Article writers' pieces and assisted at publishing 2 articles in two magazines
- **Impact**: Published 4 physical and digit journals that distributed 300+ copies across campus

Stony Brook College of Engineering and Applied Sciences (CEAS)   Stony Brook, NY
CEAS Peer Mentor; Social Media Team Lead   Aug 2024 - Present
- Serve as a mentor to lead and support 3 freshmen to transition into college through providing resources & guidance
- Lead the Social Media team to host professional events for career advancement and manage the official Instagram account

Skills

Languages: Python, C/C++, Java, JIRA, R, HTML, CSS, ROS2, OCaml, JavaScript; Native Proficiency in Mandarin
Libraries/Tools: PyTorch, Jupyter Notebook, Numpy, Pandas, Bash, Git, Flask, Bootstrap, .NET, LaTeX