Wentao (Todd) Jiang

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EDUCATION

Master of Electrical and Computer Engineering Expected May 2026
Rice University – Houston, TX
GPA: 4.0/4.0

B.S. in Applied Mathematics May 2024
B.S. in Computer Science, High Distinction May 2024
University of Rochester – Rochester, NY
GPA: 3.54/4.0; Dean's List: 2022 - 2024

RESEARCH AND TEACHING EXPERIENCE

Graduate Teaching Assistant Jan 2025 – Present
COMP 665: Data Visualization, Department of Computer Science, Rice University

- Conduct weekly office hours to support students with coursework and debugging code. Provided rapid technical support and debugging help via Piazza across Spring and Summer 2025.
- Offer expertise in Python libraries, including Pandas, NumPy, Scikit-learn, Matplotlib, and Plotly.

Research Assistant Jan 2025 – May 2025
Department of Dermatology, Baylor College of Medicine

- Designed and implemented ASPIRE, a customized UNet-based deep learning model (PyTorch) with DeepLabv3-ResNet50 backbone and ASPP module, achieving segmentation of vitiligo lesions (mIoU: 0.7226, Dice: 0.8182); results considered state-of-the-art, with co-authored manuscript in preparation.
- Led a two-phase training strategy with data augmentation, curriculum learning, and hybrid Dice - CrossEntropy loss, ensuring robust performance across diverse skin tones and annotation quality.
- Proposed and designed an end-to-end ML pipeline and AI-powered annotation platform, with planned on-premises deployment at Baylor to support real-time clinical diagnostics and dermatological decision-making.

Research Assistant May 2024 – Aug 2024
Active Perception Laboratory, University of Rochester

- Implemented the Determinant of Hessian method in C++ for blob detection in an eye-tracking system, improving processing speed by over 98% compared to Python, while maintaining 92% accuracy through efficient pruning.
- Developed a Synthesis Data Generation API. Generated Gaussian images of the first and fourth Purkinje Images, improving image analysis by enabling configurable parameters (e.g., randomness, view angle, noise level).
- Utilized Low-Resolution Detection with High-Resolution Localization for Blob Tracking. Contributed to coarse detection with position estimation using a Non-linear Kalman Filter to improve speed and robustness, especially in noisy conditions.
- Streamlined project interaction and usage through intuitive UI and API interfaces.

Undergraduate Research Assistant Jul 2023 – Aug 2023
Goergen Institute for Data Science, University of Rochester

- Conducted Exploratory Data Analysis on seizure data, applying statistical techniques to identify critical trends and anomalies and contributing to enhanced understanding of underlying patterns.
- Developed predictive models using ARIMA and Fourier analysis to improve event forecasting accuracy and identify critical trends and anomalies in seizure time-series data.
- Implemented CNN and LSTM networks for time-series analysis, enhancing model performance and robustness in processing large datasets.
- Collaborated in a team project to streamline data preprocessing and optimize epilepsy prediction models, significantly improving the robustness and accuracy of analytical outcomes.

CSUG Tutor Jan 2023 – Apr 2024
Computer Science Undergraduate Council, University of Rochester

- Guided undergraduates in Math and CS concepts through weekly sessions in collaboration with course instructors.
- Received positive feedback from both instructors and students and for improving understanding of algorithm optimization and debugging techniques.

PROFESSIONAL EXPERIENCE

Computer Vision Project Intern Jun 2023 – Jul 2023

Shanghai Sensemi Tech Co., Ltd., Shanghai, China

- Optimized object detection performance by transitioning from YOLO v3 to v8, improving accuracy by 14% (measured by IoU), speeding up model convergence, and enhancing bounding box precision.
- Leveraged Azure Kinect DK's Time-of-Flight (TOF) lens, resolving lighting and scaling issues, improving high-fidelity depth data quality and enhancing scale-recovered mesh video generation for CNN-based semantic segmentation.

Data Engineering Intern, Back End Jun 2021 – Aug 2021

New H3C Group, Shanghai, China

- Developed a predictive analytics system using Random Forest Regression to accurately forecast memory requirements in Electronic Design Automation (EDA) simulation design, achieving an R^2 score of 0.89 in model accuracy, with data sourced and managed through MongoDB.
- Optimized hardware setups and resource allocation for over 20,000 tasks, streamlining new employee integration and improving overall computing resource efficiency.

TECHNICAL SKILLS

- **Programming Languages:** Proficient: Python | Intermediate: C++, JavaScript, SQL, MATLAB.
- **Machine Learning & Computer Vision:** PyTorch, OpenCV, ROS, Eigen, scikit-learn, plotly.
- **DevOps & Automation:** Bash scripting, Linux service automation, environment provisioning, database retrieval, CI/CD pipeline management.
- **Systems & Tools:** Docker, Git, Linux (Debian, RHEL), AWS, LaTeX.

LABORATORY AND RESEARCH SKILLS

- Familiar with fundamental laboratory procedures, including basic circuit assembly and signal measurement. Advanced experience in data cleaning, analysis, and modeling, with hands-on expertise in designing and optimizing machine learning models. Fluent in using data management tools and techniques essential for accurate data processing and maintenance, including experience in developing, testing, and enhancing AI applications.
- Samples of completed or ongoing projects can be reviewed in [my GitHub Repositories].

COMMUNITY EXPERIENCE

Student Volunteer Jun 2019

Shanghai 22nd International Film & 25th TV Festival, Shanghai, China

- Served as a volunteer English interpreter.

Student Delegate, Villa Madonna Academy Mar 2019

2019 10x10 Teen Art Expo, Cincinnati Art Museum, Cincinnati, OH

- My "Pop Art" acrylic painting was recognized by 10x10 committee from Cincinnati teen submissions.
- Highlighted among top 100 at the Great Hall expo in the Museum.

SAMPLE COURSEWORK

Data Visualization, Intro to Modern Robotics, Deep Learning for Vision and Language, Computational Photography, Generative AI for Image Data, Machine Vision, Graduate Tools and Models for Data Science, Deep Learning, Data Mining, Complex Analysis, Operations Research, Numerical Analysis, Intro to Mathematical Statistics, Design and Analysis of Efficient Algorithms, Database Systems, Tools and Infrastructure for Data Science, Intro to Probability, Linear Algebra, Predictive Analytics for Business, Mechanics, Electricity and Magnetism, Computer Models and Limitations, Differential Equations, Foundations of Higher Mathematics, Overview of Computer Systems, Discrete Structures, Data Structures Using Java, Calculus and Multidimensional Calculus.