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YINUO XU

EDUCATION

M.S IN COMPUTER AND INFORMATION SCIENCE **Aug 2024 - May 2026**
University of Pennsylvania ***Philadelphia***

B.A. IN COMPUTER SCIENCE | B.A. IN MATHEMATICS **Feb 2021 - May 2024**
New York University ***New York City***

- University Honors Scholar,
- Dean's List for Academic Year (2020-2023),
- Cum laude Latin Honor
- Relevant Coursework:

  Algorithms, Machine Learning, Graphics, Computer Systems Org, OOP, Web Design, Computer Simulation, Data Management and Analysis, Applied Internet Technology, Parallel Computing, Numerical Analysis,

  Applied Cryptography & Network Security, Analysis, Discrete Math, Ordinary Differential Equations

RESEARCH EXPERIENCE

RESEARCH ASSISTANT IN COMPUTER-ASSISTED DIAGNOSIS **Jun 2024 - Present**
Capital Normal University ***Beijing***

- Enhance segmentation accuracy for small abdominal organs, achieving notable gains on diverse datasets.
- Improve pre-trained models to capture organ geometrical features, enhancing clinical application reliability.
- Increase model differentiation between small organs and adjacent structures, improving diagnostic precision.

STUDENT RESEARCHER **Jun 2024 - Jul 2024**
Microsoft Research Lab ***New York City***

- Completed intensive data science program, acquiring, cleaning, and analyzing real-world data.
- Collaborated on research projects with Microsoft Research scientists, enhancing teamwork skills.
- Applied machine learning to assess CitiBike's impact in NYC, providing measurable insights.
- Utilized **Python** and **R** for data analysis, delivering actionable insights on CitiBike deployment.

RESEARCH ASSISTANT ON DATA ANALYSIS **Apr 2023 - Mar 2024**
New York University Shanghai ***Shanghai***

- Pre-processed CSV/JSON data with **pandas**, ensuring precise analysis and reporting.
- Enhanced data collection by utilizing **BeautifulSoup** for web scraping.
- Cleansed and inspected over **50,000** CUSMA data points, improving data quality with pandas and numpy.

RESEARCH ASSISTANT ON BILATERAL TRADE **Aug 2023 - Feb 2024**
New York University Shanghai ***Shanghai***

- Conducted advanced econometric analysis on U.S. import data using Stata, improving model accuracy.
- Developed maximum likelihood estimation models, enhancing predictive insights for trade quality.
- Analyzed trade costs and created visualizations to identify trends, supporting strategic decisions.

RESEARCH ASSISTANT ON WEB NAVIGATION **Sep 2023 - Jan 2024**
New York University ***New York City***

- Automated data extraction from **1M** ProQuest files using Python, improving efficiency and accuracy.
- Implemented **Selenium** for web navigation to retrieve current files, enhancing data relevancy.
- Programmatically extracted and manipulated text from PDFs with **PyPDF2**, streamlining data processing.
- Cleaned and prepared data using **pandas**, ensuring high-quality datasets for analysis.

STEM OUTREACH AND MENTORSHIP COORDINATOR **Jun 2022 - May 2024**
NYU Women in Science (WINS) ***New York City***

- Guide NYC high school girls in STEM learning and competitions, fostering academic growth and confidence.
- Plan events connecting students with top scientists, enhancing learning and networking opportunities.
- Contribute to programs featuring women leaders and inspiring peers on women's contributions in STEM.
- Mentor WINS Scholars academically and in research, supporting their STEM career paths.

SELECTED PROJECTS

FINGERTIPS POSITION ESTIMATION OF A ROBOTHAND **Nov 2022 - Dec 2022**

bit.ly/FingeripsEstimation

- Developed a guided learning approach to predict fingertip locations on a robotic hand using color and depth images.
- Enhanced model performance through a series of image transformations and customized data loader for 12-channel input.
- Fine-tuned a pre-trained **ResNet50** model, optimizing with MSELoss function over **70** epochs.
- Achieved **99.7%** localization accuracy and ranked in the **top 12%** in a Kaggle competition.

DECIDER **Oct 2022 - Dec 2022**

bit.ly/DMA-Decider

- Designed a **full-stack** web application to help people make decisions, including features such as user registration, login, password change, adding/selecting tasks on the whiteboard, and selecting a random number within a specified range.
- Used **Sass, React, and Bootstrap** to optimize the main interface and customer input interface.
- Implemented real-time multi-user interaction and data retention on the website using **socket.io**.
- Used **Selenium** as the Automated functional testing to test password reset, login, add new items on the form, random number generator

SIMULATION OF PIANO **Mar 2023 - May 2023**

github.com/YinoXu/Piano_Simulation

- Utilized **MATLAB**, **finite difference methods**, and **second-order wave equations** to simulate piano strings.
- Applied **finite difference methods** and a **time-stepping scheme** to discretize the wave equation.
- Designed functions to handle the construction of complex musical compositions, demonstrating the practical applicability of the simulation model.
- Conducted validation by comparing the synthesized sounds against actual piano recordings, optimizing parameters like the number of points per string to balance simulation accuracy and computational efficiency.

SKILLS & PROFICIENCY

- **Programming Languages:** Python, Java, Javascript, C++, C, HTML, CSS, MATLAB, Stata
- **Frameworks & Libraries:** Numpy, PyTorch, Pandas, Matplotlib, TensorFlow, Node.js, Express.js
- **Technologies & Tools:** Selenium, SQLAlchemy, Sass, Jupyter Notebook, LaTeX, Mocha, Chai, Figma, Git
- **Databases:** MySQL, PostgreSQL, MongoDB, Neo4j
- **Languages:** English, Mandarin