YIRAN (STEVEN) SHI

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EDUCATION

Middlebury College Class of 2023 Applying to Master Programs in CS — Middlebury, VT
*BA, Computer Science; BA, Mathematics; **College's Scholar All Semesters*** — *GPA 3.97/4.00*
Relevant Coursework: *Algorithms & Complexity, Data Structures, Operating Systems, System Programming, Computer Graphics, Geometric Modeling, Numerical Analysis, Statistical Learning, Discrete Math, Linear Algebra*

INDUSTRY EXPERIENCE

Laiye AI — Beijing, China
Software Engineering Intern **[Django, MySQL, Baidu AI Platform]** — *Jan. 2021 – May 2021*
- Delivered a process-automation software to improve online recruiting efficiency by 50%. Extensively tested components with Pytest; conducted API testing with Postman; collaborated with senior engineers throughout the process.
- Explored and adapted data augmentation techniques in natural language processing for the use cases in the Chat Bot team. Constructed organization-specific knowledge graphs to improve model prediction accuracy.

OVR Technology — Burlington, VT
Data Science Intern **[Caret, Ggplot2, Dplyr, Tidyverse]** — *Feb. 2022 – July 2022*
- Investigated multiple Convolution Neural Network architectures to classify powder burst images; helped the manufacturing team to improve malfunction detection accuracy by 30%.
- Use supervised random forest models to select optimal VR sensory components. Results presented at Middlebury College Spring Symposium.

Yakera — Remote
Full-Stack Engineer **[React, NodeJS, Express, MongoDB, AWS]** — *Feb. 2022 – Present*
- Led the integration and maintenance of multiple online payment methods; Incorporated government sanction list API for authenticating donation requests. Constructed user login/registration pages and respective database.

Middlebury College — Middlebury, VT
Teaching Assistant - CSCI150 Computing for the Sciences / MATH226 Differential Equations — *Feb. 2022 – Present*
- Engaged students in learning the impact of computer algorithms in a biological setting by providing coding support. Created interactive MATLAB projects on differential equation models, both linear and non-linear.

RESEARCH EXPERIENCE

Middlebury College (Computer Vision & Computational Genomics) — Middlebury, VT
Research Assistant **[TensorFlow, Keras, Google Cloud]** — *June. 2022 – Present*
- Collaborated with Dr. Micheal Linderman to classify Structural Variants (SVs) in genome short-read sequencing data using deep learning. Compared computer vision approaches such as object detection and image segmentation in their efficacy to predict the location and genotype of SVs.
- Assisted in creating an algorithm to filter out irrelevant SV proposals using k-mer counting tools on distributed computing environment. Extended the method to extract unique k-mers from putative SVs.

Chinese Academy of Science (Computer Graphics) — Beijing, China
Research Assistant **[NumPy, SciPy, Pandas, MATLAB]** — *Aug. 2021 – Dec 2021*
- Design and implemented an easily modifiable user interface for the Space Science Center that allows for flexible design of heat map visualization chains to quickly test hypothesis on spacecraft data.
- Explored high performance interpolation methods for triangle mesh to develop multi-viewpoint visualizations. Constructed parallel pre-processing pipeline to accelerate simulation computation time by 50%.

SELECTED PROJECTS

Linear Solver for PDE (Demo, GitHub): Simulate heat flow on 2D plane described by Possion's Equation.
Recursive Ray Tracer (GitHub): Rendered multiple 3D objects through the ray-tracing algorithm using WebGL.

SELECTED SKILLS

Languages: Proficient in Python, C++, MATLAB, R; Familiar with JavaScript, HTML/CSS
Packages: Python – Proficient with Keras, Tensorflow, Scikit-Learn. JavaScript – Proficient with React, NodeJS, WebGL
Technologies: Proficient in Git, Docker; Familiar with Google Cloud, Amazon Web Services