VINCENT WANG

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EDUCATION

Rice University   August 2023 – May 2027
- B.S. in Mathematics and Computer Science, GPA: 4.0/4.0
- Relevant Coursework: PDE Theory, Honors Linear Algebra, Topology, Algorithmic Thinking, Real Analysis I
- Activities: Honors Multivariable Calculus Grader, Math Directed Reading Program

PROJECTS/EXPERIENCE

PDE Numerical Methods Research at Rice CMOR   April 2024 – Present
- Implementing a high-performance Bernstein polynomial library for use in discontinuous Galerkin methods in **Julia**
- Benchmarked and optimized specialized matrix multiplication algorithms, resulting in up to 20.5x speedup over BLAS
- Mathematically and computationally verified existing formulae and wrote new algorithms to efficiently convert multi-indices

rchess [GitHub: https://github.com/vincentxwang/rchess]
- Developed open-source **Rust**-based library of chess using bitboards and ~1200 ELO engine that features alpha-beta tree pruning, Zobrist hashing, and a heuristic evaluation algorithm
- Constructed unit tests for move legality and performance tests for move search

RiceApps Developer [GitHub: https://github.com/rice-apps/texas-hearing-institute]   September 2023 – May 2024
- Developed speech therapy app in team of 12 for the Texas Hearing Institute to help children overcoming hearing loss
- Designed and implemented business logic in **TypeScript** for selecting sets of practice syllables from linguistic parameters
- Generated phoneme-based audio using **Google Cloud** and implemented **React Native** frontend for Android and iOS

Computational Polymer Modelling at SUNY Stony Brook   June 2022 – November 2022
- Collaborated in team of 4 as part of larger initiative to test biopolymer-strengthened soil as concrete alternative by simulating effects of charge distribution on hydrogel formation
- Accepted to and presented results at 2022 Fall Materials Research Society Conference
- Crafted molecular dynamics simulations to run on supercomputer and processed post-simulation data through original **C++** and **Python** scripts

Trivia Question Distributor [GitHub: https://github.com/vincentxwang/qbpacketdistro]
- Facilitated virtual quizbowl club practices by developing an open-source Discord bot in **JavaScript** to assign packets of trivia questions to pairs of club members
- Generated question database by web scraping HTML data using **Python**, and stored user data with **MongoDB**

SKILLS/AWARDS/INTERESTS

Skills: Rust, Python, Julia, LaTeX, C++, TypeScript, MongoDB, Node, Git, HTML/CSS, Chinese

Awards: Putnam Top 517 (Score: 28), US Physics Olympiad (Silver Medal; 2x Qualifier), 3x AIME Qualifier, USACO Bronze Top 15%

Interests: badminton, electronic music production/composition, sustainability, board games, recreational math