Jesse He

Curriculum Vitae

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Education

The Ohio State University, Columbus, OH.
Expected May 2022

Bachelor of Science in Mathematics, Honors Specialization

Bachelor of Arts in Computer and Information Science

GPA: 3.876

Research Experience

Summer 2021 **Emerging Issues in Cybersecurity REU**, *New Mexico Institute of Mining and Technology*, Sorocco, NM (online).

- Advised by Dr. Subhasish Mazumdar, developed a tool to generate synthetic tabular data with geometrically defined classes
- Investigated the behavior of machine learning explanation framework LIME using generated synthetic tabular data

Publications

Jesse He and Subhasish Mazumdar. "Using Polygonal Data Clusters to Investigate LIME". In: *Proceedings of the 14th International Conference on Information Society (i-Society)*. Nov. 2021. (Pending).

Conference Presentations

"Using Polygonal Data Clusters to Investigate LIME," 14th International Conference on Information Society (i-Society). Dún Laoghaire, Ireland (virtual), October 2021.

Employment

Autumn 2021 **Student Grader, Math 5590H Honors Abstract Algebra I**, *The Ohio State University Department of Mathematics*.

- Graded weekly homework assignments for an honors undergraduate course in abstract algebra, covering groups, rings, and polynomials

Autumn 2020-Spring 2021 **Undergraduate Grader, CSE 3521 Survey of Artificial Intelligence I**, *The Ohio State University Department of Computer Science and Engineering*.

- Evaluated and gave feedback for assignments in introductory artificial intelligence including problem solving, knowledge representation, and machine learning
- Held regular office hours

Spring 2020 **MMC Digital Sandbox Project Group Instructor**, *Ohio State University Media, Marketing, and Communications Scholars*.

- Developed and taught a 7-week project-based course in LaTeX
- Also served as a Professional Development Co-Curricular for OSU's Second Year Transformational Project Program

Autumn 2019 **Undergraduate Grader, CSE 2221**, *The Ohio State University Department of Computer Science and Engineering*.

- Graded assignments in an introductory software engineering course covering design-by-contract principles, mathematical modeling of software functionality, component-based software from client perspective, and layered data representation

- Aided lab instruction and held regular office hours

Seminars

What Is...?, 17 June 2021	"What Is Arrow's Impossibility Theorem?"
Reading Classics, 16 Feb. 2021	"A History of Computational Linear Algebra: The Theory of Tables of Numbers Through Time"
Reading Classics, 6 Oct. 2020	"Tuning, Temperament, Timbre, and Twos: Why Rectifying Resonant Ratios Requires Roots"
Reading Classics, 25 Feb. 2020	"Deduced and Demonstrated Difficulties in Democratically Determining Decisions"

Technical Skills

Programming	Python, C, C++, C#, Java, Javascript/HTML/CSS, Matlab
Packages	NumPy, Javaplex, PyTorch, Matplotlib
Other	Git, Microsoft Office, LaTeX

Languages

Mandarin	Conversational
Spanish	Basic
Japanese	Basic

Interests

Mathematics and Computing	Topological Data Analysis, Algebraic and Differential Topology, (Discrete) Morse Theory, Manifold Learning
Other	Computer and Electronic Music Synthesis, Music Theory and Composition, Cooking, Swimming