Jesse He

Curriculum Vitae

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he-jesse

Education

UC San Diego, Halıcıoğlu Data Science Institute, San Diego, California
PhD Student

The Ohio State University, Columbus, OH
Bachelor of Science in Mathematics, Honors Specialization, *magna cum laude* May 2022
Bachelor of Arts in Computer and Information Science, *magna cum laude* May 2022

Research Experience

SU2021 **Emerging Issues in Cybersecurity REU**, *New Mexico Institute of Mining and Technology*, Sorocco, NM (online)

- Advised by Dr. Subhasish Mazumdar

Publications

Jesse He and Subhasish Mazumdar. "Comparing LIME and SHAP Using Synthetic Polygonal Data Clusters". In: (2021). DOI: 10.20533/iji.1742.4712.2021.0214.

Teaching Experience

AU2021-SP2022 **Undergraduate Grader, Math 5590H/5111: Honors Abstract Algebra I, Math 5591H/5112: Honors Abstract Algebra II**

The Ohio State University Department of Mathematics

- Graded weekly homework assignments for a combined honors undergraduate and master's level sequence in abstract algebra covering groups, rings, polynomials, modules, and Galois theory using Dummit and Foote's *Abstract Algebra*, Ch. 1-14.

AU2020-SP2021 **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
- Spring 2021 worked for experimental section combining material from AI II with greater emphasis on mathematical underpinnings of machine learning
- Held regular office hours

SP2020 **MMC Digital Sandbox Project Group Instructor**

Ohio State University Media, Marketing, and Communications Scholars

- Developed and taught a 7-week project-based course in LaTeXwhich covered document structure, mathematical typesetting, and standard packages
- Also served as a Professional Development Co-Curricular for OSU's Second Year Transformational Project Program

AU2019 **Undergraduate Grader, CSE 2221: Software Components**

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

Presentations

Conference Presentations

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

Seminar Presentations

Reading Classics SP2022 — "A History of Curvature"

What Is...? SU2021 — "What Is Arrow's Impossibility Theorem?"

Reading Classics SP2021 — "A History of Computational Linear Algebra: The Theory of Tables of Numbers Through Time"

Reading Classics AU2020 — "Tuning, Temperament, Timbre, and Twos: Why Rectifying Resonant Ratios Requires Roots"

Reading Classics SP2020 — "Deduced and Demonstrated Difficulties in Democratically Determining Decisions"

Technical Skills

Programming — Python, C, C++, C#, Java, Javascript/HTML/CSS, Matlab

Other — Git, LaTeX

Languages

Mandarin — Conversational

Japanese — Basic

Spanish — Basic

Selected Interests

Mathematics and Computing — Topological and Geometric Data Analysis, Algebraic and Differential Topology, (Discrete) Morse Theory, Manifold Learning and Nonlinear Dimensionality Reduction

Other — Digital Music Synthesis, Music Theory and Composition, Cooking, Swimming