Ben Jacobsen

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Education

- **University of Arizona (Honors College)** — Tucson, AZ
  B.A., Mathematics, minor in Computer Science (GPA: 4.0) — *Expected May 2021*
  - Relevant courses: Algorithms, Group Theory, Graph Theory, Theory of Probability, Analysis of Discrete Structures, Software Development, Cryptography, Symbolic Logic, Formal Mathematical Reasoning and Writing, Undergraduate Research Seminar in Mathematics
  - In progress: Field Theory, Theory of Statistics, Linear Algebra
- **Central New Mexico Community College** — Albuquerque, NM
  A.S. with Highest Honors, Mathematical Sciences (GPA: 4.0) — *May 2017 - August 2019*
  - Relevant courses: Mathematical Foundations of Computer Science, Linear Algebra, Ordinary Differential Equations, Calculus III, Programming in MATLAB, Calculus-Based Physics

Research Experience

- **MetroSets** — Tucson, AZ
  Undergraduate Research Assistant — *Sep 2019 - Jan 2021*
  - Designed and implemented a novel system for set visualization using the metro map metaphor, with sets drawn as subway lines and elements drawn as stations. Subsequently conducted a controlled user study which found that MetroSets outperformed other publicly available open source tools.
- **Authorship Attribution** — Tucson, AZ
  Honors Thesis — *May 2020 - Present*
  - We are studying the robustness of machine learning systems designed to classify the author of a binary file. My current work has focused on using non-standard compiler optimizations and black-box global optimization techniques to create adversarial inputs for state of the art attribution tools.

Publications

Jacobsen, B., Wallinger, M., Kobourov, S., and Nollenburg, M. (2020). *MetroSets: Visualizing Sets as Metro Maps.* IEEE Transactions on Visualization and Computer Graphics.

Wallinger, M., **Jacobsen, B.**, Kobourov, S., and Nollenburg, M. (2021). *On the Readability of Abstract Set Visualizations.* IEEE Transactions on Visualization and Computer Graphics.

Awards

CRA Outstanding Undergraduate Researcher Honorable Mention	2020
Phi Theta Kappa Honors Society	2018-Present
Phi Theta Kappa Transfer Scholarship ($24,000)	2019-2020
Dean's List With Distinction	Fall 2019 - Fall 2020
Highest Academic Distinction	2019-2020
Galileo Circle Scholarship ($1,000)	2020
Best Poster GD2020	2020

Skills

Programming Languages: Python, Java, MATLAB, Haskell

Natural Languages: English, Mandarin (intermediate)

Operating Systems: Linux (Arch, Ubuntu), Windows 7/10

Tools: LaTeX, Git

Miscellaneous: creative problem solving, public speaking, formal and persuasive writing