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
- **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 - Present*
  - 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. Subsequent work has focused on empirical evaluation of the system through a controlled human subject study.
- **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. *On the Readability of Abstract Set Visualizations.* Conditionally accepted for IEEE PacificVis 2021; short-listed for publication in TVCG

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, Spring 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