Andrew M. McNutt

PhD Student in HCI & Visualization

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EDUCATION

University of Chicago
PhD, Computer Science, 9/2017 to Present — Advised by Ravi Chugh
Masters of Science, Computer Science, 9/2017 to 10/2019 — GPA 3.9 / 4

Reed College
Bachelor of Arts, Physics, 2010 to 2014 — GPA 3.3 / 4

PROFESSIONAL & RESEARCH EXPERIENCE

Tableau Research
Intern (Visual Analytics) — June 2019 to September 2019
Developed software combining metamorphic testing techniques with contemporary visualization theory to investigate difficult to identify problems in visual analytics systems. Our efforts produced an academic paper and a pending patent. Gave presentations in the research workshop and to the company at large.

University of Chicago
Graduate Researcher — September 2017 to Present
Developed a mixed modality low-code/no-code visual analytics application, an algorithm for generating a particular novel visualization using gradient descent, and a system for automated analysis of matplotlib charts. Constructed methods for displaying multi-tag digital humanities data, debugging distributed clustering algorithms, and visualizing threaded conversations on the internet.

Uber
Data Visualization Engineer II — October 2015 to May 2017
Developed webGl-based mapping and charting systems that enable users to dynamically interact with millions of data points, an analytics platform for monitoring business outcomes for AB testing experiments, and a system for visualizing simulations about Vertical Takeoff and Landing devices. Acted as the lead maintainer for an open source charting library, which during my tenure gained thousands of Github stars and is downloaded hundreds of thousands of times per month.

Collaborative Drug Discovery
Scientific Visualization Developer — November 2014 to October 2015
Constructed a visualization platform for high dimensional data that was subsequently developed into an academic publication. Optimized a Bayesian machine learning system for human-machine teaming in the drug discovery process. Founded and ran a lunch and learn collaborative educational program.

Reed College
Undergraduate Researcher — May 2013 to August 2013
Studied computational simulations of Quantum Gravity as part of Joel Franklin's research group. Developed numerical solutions for a coupled Newton-Schrodinger with self-interaction with a focus on the development of bound states.

Skills & Technologies

Languages	(Java|Type)Script, Python, Ruby, C, Haskell
Visualization	d3, Vega ecosystem, webGL, Tableau
Databases	postGRES, Redis, MongoDB
Web Dev	Node, React/Redux, Svelte, Ruby on Rails, Flask
ML	Keras, Tensorflow, Scikit-learn
Other	Latex, Omnigraffle, Sketch, Mathematica

PUBLICATIONS (PEER REVIEWED)

Integrated Visualization Editing via Parameterized Declarative Templates
Andrew McNutt, Ravi Chugh
Proceedings of the 2021 ACM Annual Conference on Human Factors in Computing Systems. May 2021. Conference Paper.

Supporting Expert Close Analysis of Historical Scientific Writings: A Case Study for Near-by Reading
Andrew McNutt, Agatha Kim, Sergio Elahi, Kazutaka Takahashi
2020 IEEE 5th Workshop on Visualization for the Digital Humanities (VIS4DH). October 2020. Workshop Paper.

A Minimally Constrained Optimization Algorithm for Table Cartograms
Andrew McNutt, Gordon Kindlmann
VIS 2020: InfoVIS Poster Track. October 2020. Poster. ★ Honorable Mention for Best Poster Research ★

Surfacing Visualization Mirages
Andrew McNutt, Gordon Kindlmann, Michael Correll
Proceedings of the 2020 ACM Annual Conference on Human Factors in Computing Systems. April 2020. Conference Paper. ★ Honorable Mention for Best Paper ★

Divining Insights: Visual Analytics Through Cartomancy
Andrew McNutt, Anamaria Crisan, Michael Correll
Proceedings of alt.CHI. April 2020. Extended Abstract.

Linting for Visualization: Towards a Practical Automated Visualization Guidance System
Andrew McNutt, Gordon Kindlmann
2nd IEEE VIS Workshop on Creation, Curation, Critique and Conditioning of Principles and Guidelines in Visualization ("VisGuides"). October 2018. Workshop Paper.

Data Mining and Computational Modeling of High-Throughput Screening Datasets
Sean Ekins, Alex M Clark, Krishna Dole, Kellan Gregory, *Andrew McNutt*, Anna Coulon Spektor, Charlie Weatherall, Nadia K Litterman, Barry A Bunin
Reporter Gene Assays. 2018. Book Chapter.

The Schrodinger-Newton System with Self-field Coupling
Joel Franklin, Youdan Guo, *Andrew McNutt*, Allison Morgan
Journal of Classical and Quantum Gravity. 2015. Journal Paper.

Open source Bayesian models. 1. Application to ADME/Tox and Drug Discovery Datasets.
Alex M. Clark, Krishna Dole, Anna Coulon-Spektor, *Andrew McNutt*, George Grass, Joel S. Freundlich, Robert C. Reynolds, Sean Ekins
Journal of Chemical Information and Modeling. 2015. Journal Paper.

PUBLICATIONS (NON-PEER REVIEWED)

Textual Analysis & Comparison National Forms of Scientific Texts: Goethe + de Candolle
Agatha Kim, *Andrew McNutt*, S. Sergio Elahi, Kazutaka Takahashi, Robert J Richards
MindBytes Research Symposium. November 2019. Poster. ★ Best Poster in Visualization ★

Advanced Visualization with react-vis
Andrew McNutt
Towards Data Science. May 21, 2018. Blog.

THESES

Design and Analysis of Table Cartograms: Simultaneous-Multipurpose Tabular Area-Encoding Displays
Andrew McNutt (Advised by Gordon Kindlmann)
Masters Thesis. University of Chicago. 2019.

Nonequivalent Lagrangian Mechanics
Andrew McNutt (Advised by Nelia Mann)
Undergraduate thesis. Reed College. June 2014.

AWARDS

Special Recognition for Outstanding Review
ACM SIGCHI 2021

InfoVis Honorable Mention Poster Research
IEEE VIS October 2020 — for A Minimally Constrained Optimization Algorithm for Table Cartograms

Best Paper Honorable Mention
ACM SIGCHI March 2020 — (Top 5%) for Surfacing Visualization Mirages

Best Poster in Visualization
MindBytes Research Symposium October 2019

Graduate Council Travel Fund
UChicago Grad October 2019

Long List for Visual Analytics and Unusual Categories
Information is Beautiful Awards September 2019 — for FeX: Forum Explorer and Cycles Rain Seasons in Size

Teaching Assistant Prize
University of Chicago, Department of Computer Science June 2019

Divisional Teaching Award Nominee
UChicago Physical Sciences Division May 2018, May 2019

2nd Place for Best in Show
UChicago Art and Science Expo May 2018, May 2019

Commendation of Academic Excellence
Reed College May 2014 — Merit given to students exhibiting exemplary scholarship

TEACHING

Instructor

2021 Winter	Data Visualization For Public Policy	CAPP 30239	UChicago
2020 Spring	Data Visualization	CMSC 23900	UChicago
2020 Winter	Data Visualization For Public Policy	CAPP 30239	UChicago
2016-2017	Uberversity Speaker		Uber
2015-2017	Visualization Eng-ucation		Uber

Teaching Assistant

2021 Spring	Creative Coding	CMSC 11111	UChicago
2019 Spring	Data Visualization	CMSC 23900	UChicago
2019 Winter	Data Visualization For Public Policy	CAPP 30239	UChicago
2018 Fall	Computer Science with Applications 1	CAPP 30121	UChicago
2018 Spring	Data Visualization	CMSC 23900	UChicago
2018 Winter	Introduction to Computer Science 1	CMSC 15100	UChicago
2017 Fall	Computer Science with Applications 1	CMSC 12100	UChicago
2012 Fall	General Physics I	Physics 101	Reed College

SERVICE & VOLUNTEERING

REVIEWING
CHI21 - Papers
VIS20 - Short Papers
VIS20 - InfoVis
alt.chi 2020

Chicago Public Schools CSEd Week
Speaker. 2020

Open Access VIS / EuroVIS
Contributor / Organizer. 2019

South Side Civic
Scopathon Facilitator. 2019

Visualization Research Reading Group
Director. February 2019-Present

UChicago CS Graduate Student Ministry
Facilitator of CS Grad Weekly Coffee Break. 2018

F.L. Griffin Mathfest
Teaching Assistant. Spring 2014

CERTIFICATES AND TRAININGS

UChicago College Teaching Certificate — *[In Progress]*
Training on course design, pedagogy, and inclusive teaching practices at a college level. Redesigned the Data Visualization for Public Policy syllabus, drafted lesson plans, and developed a teaching statement.

App Academy — *August 2014*
Fullstack web dev course covering Ruby (Ruby on Rails) and Javascript (Backbone). Independent project was a twitter-like micro-blogging platform for dreams, which facilitated exploration and visualization of the collective unconscious.