Aspen Hopkins

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Education

Ph.D. in Electrical Engineering and Computer Science
Massachusetts Institute of Technology / Cambridge MA

September 2018 - Present (Expected: 2023)
Advisor: Arvind Satyanarayan
I'm a member of the Visualization Group in CSAIL and the Center for Deployable Machine Learning. My research focuses on data visualization, interpretability in machine learning, and how we can effectively communicate fuzzy topics like uncertainty and ineffectiveness to a diverse audience.

B.S., Computer Science, Neuroscience
Westminster College / Salt Lake City UT

August 2013 - August 2017

Experience

Massachusetts Institute of Technology / CSAIL
Visualization Group / Graduate Research Assistant
September 2018 – Present
Exploring interpretability and uncertainty needs for real world use cases.

Developed VisuaLint—the spell-check technique for graphs—and conducted first studies of lay recognition of chart construction errors.

Conducted early work in network introspection and model comparison using a CNN trained on Fashion-MNIST

Apple AI/ML / Seattle, WA
Machine Intelligence / Research Intern
June 2020 - Present
Creating tools for ML workflows, auditing, data collection and curation.

Cross collaborated with multiple teams in AI/ML, Siri, and Raise To Speak (RTS).

NASA Jet Propulsion Labs | Caltech | ArtCenter
Visualization Research Intern
June 2019 – September 2019
Built an intuitive interface for uncovering mineral flow in drilled core, furnished to enable search of patterns, analysis of core sections, curation and annotation of found features, and an interactive creation of complex multi-channel/multi-mineral maps

University of Utah Scientific Computing and Imaging Institute
Visualization Design Lab / Research Assistant
January 2017 – August 2018
Developed web-based visualization system incorporated in a layered framework of sensors, models, land-use information and citizens for understanding air quality in urban environments

Coordinated with hardware developers and outreach liaisons to determine best system design for both educational and research purposes

Quantitative Analysis and Research Cooperative / Statistical Consultant
August 2016 – August 2017
Consulted clients in quantitative research and in assessment methodologies for projects in the community

Planned student workshops for GRE quantitative section, taught students and clients how to use statistics-oriented software and programming languages such as R, SPSS, and Excel

Great Salt Lake Institute / Research Assistant + Outreach Liaison
August 2014 - December 2016
Created lab incubation and chemical measurement practices for observing microbialite activity

Designed and built prototype embedded system for the Natural History Museum of Utah (NHMU) that incorporated measurement and statistical analyses of microbialite activities

Westminster College Interdisciplinary Neuroscience Lab / Research Assistant
August 2013 - May 2015
Assisted in research on electroencephalography-based brain-computer interfaces that incorporated machine-learning algorithms to differentiate varying motor movements.

Analyzed effectiveness of support vector machines for classification and data transformations using MATLAB

Community

MIT EECS Committee for Diversity, Equity & Inclusion (CDEI)/ Graduate Student Member
December 2019 - Present

Instructor, Data Crafting Workshop
January 2020
Taught new ways of data thinking using craft and play to an audience with widely varying levels of data literacy

MIT Graduate Community Fellow/ GSC Orientation & Onboarding Programs Fellow
January 2019 - May 2019

Sisters Rise Up / Project Mentor
January 2016 - May 2016
Fostered learning community for female high school students and ran webinars on Java for AP CS exam

Promise South Salt Lake / STEM Coordinator
August 2014 - May 2015
Developed and oversaw curriculum, lesson plans, and assignments for STEM afterschool programs in underserved communities

Ran after school programs and communicated with parents, teachers, and administrators

AWE + SUM Camp/ Counselor + Activity Facilitator
July 2015, July 2016
Mentored female 8th grade students in STEM-related topics, developing an open community for rising middle schoolers

Publications + Awards + Activities

Hopkins, A. & Booth, S. Machine Learning Practices Outside Big Tech: How Resource Constraints Hinder Responsible Development. *AIES 2021 (To be presented).*

2020 Siebel Scholar.

Hopkins, A. & Vladis, N. Data Crafting. *VIS 2020.*

Hopkins, A., Correll, M., & Satyanarayan, A. VisuaLint: Sketchy In Situ Annotations of Chart Construction Errors. *EuroVis 2020*.

Hopkins, A. , Shanmugam, D., & Gadient, A. (2018, November). Generally Exciting Inputs and How to Get Rid Of Them: A Little Network Introspection. Robust, Interpretable Deep Learning Systems (*RIDL*) 2018 Symposium.

Hopkins, A., Meyer, M., & Goffin, P. (2017, October). Particulates Matter: Assessing Needs for Air Quality Visualization. *IEEE VIS*. 2017.

The Mathematical Contest in Modeling Meritorious Award for 2016 Problem A.

Rocky Mountain Celebration for Women in Computing Best Poster Award (2016) .

Alpha Chi National Honor Society Member (August 2014 – August 2017).

Lemma Math Society Member (January 2014–August 2017).

Related Courses

Massachusetts Institute of Technology Advances in Computer Vision (6.869), Advanced Topics in Graphics (6.838), Advanced Natural Language Processing (6.864), Data-driven Decision Making (6.883)

Westminster College Programming Languages, Probability and Statistics, Software Engineering, Database Systems, Computer Systems, Embedded Systems, Algorithms, Algorithms and Data Structures, Artificial Intelligence, Operating Systems, Computer Architecture, Quantitative Research Methods, Cognitive Neuroscience, Behavioral Neuroscience, Cognitive Psychology