Rebecca Faust

Postdoc
Department of Computer Science
Virginia Tech

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Research Interests

- Data Visualization, Explainable Analytics, Human-AI Interaction.

Education & Professional Experience

Postdoctoral Researcher — Jan. 2022 - Present
Virginia Tech — Blacksburg, VA
Mentor: Dr. Chris North
Interests: Visual explanation in interactive projections

PhD in Computer Science — Aug. 2016 - Dec. 2021
M.S. in Computer Science — Aug. 2016 - May 2020
University of Arizona — Tucson, AZ
Advisor: Carlos Scheidegger
Dissertation: "A Visualization First Perspective on Understanding Program Behavior"

Bachelor of Science in Computer Science — Aug. 2012 - May 2016
Bachelor of Arts in Mathematics — Aug. 2012 - May 2016
University of Montana — Missoula, MT
GPA: 3.94, High Honors

Research Funding

- Faust, North, Interactive Semantic Explanations for Deep Learning Visualizations, CRA/NSF, 01/2022-12/2023, $280,768, 100% responsibility Faust.

Publications

- **R. Faust**, C. Scheidegger, C. North. *Aardvark: Comparative Visualization of Data Analysis Scripts*. 2023 IEEE Visualization in Data Science (VDS), IEEE, 2023.
- H. Han, **R. Faust**, B. Norambuena, J. Li, S. Li, and C. North. *Explainable Interactive Projections of Images*. Machine Vision and Applications 34, 100 (2023).

- H. Han, **R. Faust**, B. Norambuena, R. Prabhu, T. Smith, S. Li, and C. North. *Explainable Interactive Projections for Image Data.* Advances in Visual Computing: 17th International Symposium, ISVC 2022, Proceedings, Part I. Cham: Springer International Publishing, 2022

- **R. Faust**, C. Scheidegger, K. Isaacs, W. Bernstein, M. Sharp, C. North. *Interactive Visualization for Data Science Scripts.* 2022 IEEE Visualization in Data Science (VDS), IEEE, 2022.

- **R. Faust**, D. Glickenstein, C. Scheidegger. *DimReader: Axis Lines that Explain Non-linear Projections.* IEEE Transactions on Visualization and Computer Graphics, 2018 (Proceedings of IEEE VIS 2018, 25.7% acceptance rate)

Honors and Awards

Computing Innovations Postdoctoral Fellowship	Jan. 2022 - Present
NIST GMSE Fellowship	May 2018 - Dec. 2021
University of Arizona Computer Science Graduate Teaching Award	May 2021
University of Arizona Computer Science Graduate Research Award	May 2019
Galileo Circle Scholar	May 2018
University of Arizona Graduate Fellowship	Aug. 2016
Mortar Board Outstanding Senior Award in Computer Science	May 2016
Mortar Board Outstanding Senior Award in Mathematics	May 2016
Montana University System Scholarship - full tuition waiver	Aug. 2012 - May 2016
University of Montana Honors Scholarship	Aug. 2012 - May 2016

Teaching

Instructor - University of Arizona Summer 2020, Summer 2021

- CSc 245 - Introduction to Discrete Structures (Remote/Online)
  Instructed a class of about 60 students. The course was taught fully online.

Talks

- "DimReader: Axis Lines that Explain Non-Linear Projections", IEEE VIS Conference, Berlin, Germany, October 23, 2018

- "A Visualization First Perspective on Understanding Program Behavior", Colloquium at University of Montana, November 30, 2021

- "Interactive Visualization for Data Science Scripts"
  Symposium on Visual Data Science at IEEE VIS, October 16, 2022

Posters

- *DimReader: Using auto-differentiation to explain non-linear projections.* R. Faust, C. Scheidegger, IEEE VIS 2017
- *Interactive Dimension Reduction with Explainable Deep Learning for Image Sorting.* R. Faust, NITRD 30th Symposium, 2022.

Professional Activities

Reviewer	IEEE VIS 2023, TVCG 2023
	IEEE VIS 2022, TVCG 2022, CG&A 2022
	InfoVis 2020, VAST 2020, EuroVis 2020, TKDE 2020
	InfoVIS 2019, EuroVis 2019
Student Volunteer	IEEE VIS 2018

Department Service

Treasurer & Founding Member — Sept. 2018 - May 2020
Graduate Student Council
University of Arizona Computer Science Department

Graduate Student Member — Mar. 2018 - May 2018
Department Head 5-year Review Committee

Graduate Student Member — Sept. 2019 - Feb. 2020
Computer Science Department 7-year Academic Program Review Committee

Additional Experience

Engineering Laboratory, NIST — Gaithersburg, MD
GMSE Summer Fellow — Summer 2018, Summer 2019
Supervisor: Dr. William Bernstein
Research topic: Visual Debugging for data science programs

Agile Data Solutions — Missoula, MT
Software Testing and Development — May 2014 - Dec. 2015
Role: Testing and front end development of content categorization software

Computer Skills

Programming Languages: Python, Javascript, HTML, C/C++, SQL, C#, R
Libraries and Tools: Numpy, Scikit learn, D3, Vega-lite