NAIMUL HOQUE

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website https://naimulhoque.github.io

RESEARCH INTEREST

My broad research interests are Human-Computer Interaction, Data Visualization, and Human-Centered AI. More specifically, I study how data visualization can help us to design AI-infused tools, applications that amplify, augment, empower, and enhance human performance, by combining user experiences with AI support services. I argue that interactive visualization can work as a communication medium between humans and AI and help us retain human agency and ownership in AI-infused tools.

RESEARCH EXPERIENCE

May-July 2024 — Research Intern, Tableau Research, Salesforce
WA, USA
Advisor: Nicole Sultanum and Vidya Setlur
Focus: AI-assisted Writing (tentative)

2020–Present — Research Assistant, University of Maryland, College Park
MD, USA
Human-Computer Interaction Lab (HCIL), Advisor: Niklas Elmqvist
Focus: AI-assisted writing, AI-infused supertools, Scalable data visualization, and Accessible data visualization

May-Aug 2021 — Research Intern, Bosch Research
Virtual
Advisor: Liang Gou
Focus: Interactively labeling large-scale image datasets

2018–2020 — Research Assistant, Stony Brook University
NY, USA
Advisor: Klaus Mueller
Focus: Creativity support tools and interactive causal inference

EDUCATION

2020-2024 (Expected) — University of Maryland, College Park
MD, USA
Ph.D. in Information Studies

2018-2020 — Stony Brook University
NY, USA
M.S. in Computer Science

2011-2015 — University of Dhaka
Dhaka, Bangladesh
B.Sc. in Computer Science

PUBLICATIONS

Journal Publication

J5 Shahreen Salim Aunti, Md Naimul Hoque, Klaus Mueller. Belief Miner: A Methodology for Discovering Causal Beliefs and Causal Illusions from General Populations. *Proceedings of the ACM on Human-Computer Interaction (CSCW)*, 2024. (to appear) http://arxiv.org/abs/2401.08020

J4 Md Naimul Hoque, Niklas Elmqvist. Dataopsy: Scalable and Fluid Visual Exploration using Aggregate Query Sculpting. *IEEE Transaction on Visualization and Computer Graphics (TVCG)*, 2023. https://doi.org/10.1109/TVCG.2023.3326594

J3 Md Naimul Hoque, Wenbin He, Shekar Arvind Kumar, Liang Gou, Liu Ren. Visual Concept Programming: A Visual Analytics Approach to Injecting Human Intelligence at Scale. *IEEE Transaction on Visualization and Computer Graphics (TVCG)*, 2022. https://doi.org/10.1109/TVCG.2022.3209466

J2 Md Naimul Hoque, Klaus Mueller. Outcome-Explorer: A Causality Guided Interactive Visual Interface for Interpretable Algorithmic Decision Making. *IEEE Transaction on Visualization and Computer Graphics (TVCG)*, 2021. https://doi.org/10.1109/TVCG.2021.3102051

J1 Md Naimul Hoque, Nazmus Saquib, Syed Masum Billah, Klaus Mueller. Toward Interactively Balancing the Screen Time of Actors Based on Observable Phenotypic Traits in Live Telecast. *Proceedings of the ACM on Human-Computer Interaction (CSCW)*, 2020. https://doi.org/10.1145/3415225

Conference Publication

C7 Md Naimul Hoque, Tasfia Mashiat, Bhavya Ghai, Cecilia Shelton, Fanny Chevalier, Kari Kraus, Niklas Elmqvist. The HaLLMark Effect: Supporting Provenance and Transparent Use of Large Language Models in Writing with Interactive Visualization. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 2024. (to appear) https://arxiv.org/abs/2311.13057

C6 Md Naimul Hoque, Ayman A Mahfuz, Mayukha Kindi, Naeemul Hassan. Towards Designing a Question-Answering Chatbot for Online News: Understanding Questions and Perspectives. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 2024. (to appear) https://arxiv.org/abs/2312.10650

C5 Lee et al. (36 authors) includes Md Naimul Hoque. A Design Space for Intelligent and Interactive Writing Assistants. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 2024. (to appear)

C4 Md Naimul Hoque, Bhavya Ghai, Kari Kraus, Niklas Elmqvist. Portrayal: Leveraging NLP and Visualization for Analyzing Fictional Characters. *Proceedings of the ACM Conference on Designing Interactive Systems (DIS)*, 2023. https://doi.org/10.1145/3563657.3596000

C3 Md Naimul Hoque, Md Ehtesham-Ul-Haque, Niklas Elmqvist, Syed Masum Billah. Accessible Data Representation with Natural Sounds. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI)*, 2023. https://doi.org/10.1145/3544548.3581087

C2 Md Naimul Hoque, Bhavya Ghai, Niklas Elmqvist. DramatVis Personae: Visual Text Analytics for Identifying Social Biases in Creative Writing. *Proceedings of the ACM Conference on Designing Interactive Systems (DIS)*, 2022. https://doi.org/10.1145/3532106.3533526

C1 Md Naimul Hoque, Choudhury Farhan Ahmed, Nicolas Lachiche, Carson K. Leung, Hao Zhang. Reframing in Clustering. *IEEE 28th International Conference on Tools with Artificial Intelligence (ICTAI)*, 2016.

Workshop, Posters, and Extended Abstracts

W3 Md Naimul Hoque, Niklas Elmqvist. Augmenting Human-AI Co-Writing with Interactive Visualization. *In2Writing Workshop, ACM Conference on Human Factors in Computing Systems (CHI)*, 2023. https://naimulh0que.github.io/docs/In2Writing2023.pdf

E2 Bhavya Ghai, Md Naimul Hoque, Klaus Mueller. WordBias: An Interactive Visual Tool for Exploring Intersectional Social Biases Encoded in Word

Embeddings. *Extended Abstracts of the ACM Conference on Human Factors in Computing Systems (CHI)*, 2021. https://doi.org/10.1145/3411763.3451587

W2 Md Naimul Hoque, Niklas Elmqvist. 2021. Towards Using Visual Analytics to Promote Diversity, Equity, and Inclusion. *Workshop on Artificially Intelligent Technology for the Margins, ACM Conference on Human Factors in Computing Systems (CHI)*, 2021.

P1 Md Naimul Hoque, Darius Coelho, Klaus Mueller. Examining the Visualization Practices of Data Scientists on Kaggle. *IEEE VIS Poster*, 2019. https://naimulh0que.github.io/docs/Kaggle_Analysis.pdf

E1 Md Mehedi Hassan, Ashik Adnan, Asif M. Saleheen, Md Naimul Hoque. Understanding the Patterns of Crime Reports in a Popular Bangladeshi Newspaper. *Companion of ACM CSCW*, 2019. https://doi.org/10.1145/3272973.3274062

W1 Md Naimul Hoque, Rawshan E. Fatima, Manash Mandal, Nazmus Saquib. Evaluating gender portrayal in Bangladeshi TV. *Machine Learning for the Developing World, NIPS*, 2017. https://arxiv.org/pdf/1711.09728.pdf

TEACHING EXPERIENCE

Fall 2023 Instructor of Record, University of Maryland, College Park

MD, USA INST-760: Data Visualization (graduate-level)

2020–2022 Teaching Assistant, University of Maryland, College Park

MD, USA Courses: Data Visualization, Data Science, Big Data Analysis

2018–2019 Teaching Assistant, Stony Brook University

NY, USA Courses: Data Structure, Data Science

2015–2018 Lecturer, Eastern University

Dhaka, Bangladesh Courses: Introduction to Programming, Data Structure, Algorithms

INVITED TALKS

Iowa, USA Feb 2024 · Computer Science Department, University of Iowa
Title: Designing AI-infused Supertools with Interactive Visualization

Toronto, CA Feb 2024 · Intelligent Visualization Lab, York University
Title: Designing AI-infused Supertools with Interactive Visualization

PA, USA July 2023 · Data Interaction Group, Carnegie Mellon University
Title: Leveraging NLP and Visualization for Analyzing Fictional Characters

London, UK May 2023 · giCentre, City, University of London
Title: Supporting Complex Creative Writing Tasks with AI-Infused Visualization

MD, USA April 2023 · HCIL Symposium, University of Maryland
Title: Supporting Complex Creative Writing Tasks with AI-Infused Visualization

Toronto, CA Feb 2023 · DGP lab, University of Toronto
Title: Supporting Complex Creative Writing Tasks with AI-Infused Visualization

MD, USA April 2021 · HCIL Symposium, University of Maryland
Title: Toward Interactively Balancing the Screen Time of Actors Based on Observable Phenotypic Traits in Live Telecast

AWARDS AND HONORS

MD, USA 2023 · Doctoral Student Research Award ($1000)

MD, USA 2021 · Doctoral Student Research Award ($1000)

MD, USA 2021 · Dr. Dana Rotman Doctoral Student Travel Awards ($500)

NY, USA 2018 · Chairman's Fellowship ($3000), SBU

SERVICES

Reviewer
2023 · ACM CHI, ACM DIS, IEEE VIS
2022 · ACM CHI, ACM DIS, IEEE VIS, ACM CSCW
2021 · ACM CHI, IEEE VIS, ACM CSCW
2020 · ACM CHI, ACM CSCW

Mentor
Shahreen Salim · CS Ph.D., Stony Brook University
Ayman Mahfuz · High school student, now at UT Austin

Lead Organizer 2024 · Accessible Data Visualization Workshop, IEEE VIS'24

Organizer
2023 · UMD HCIL Symposium
2022 · Maryland State Department of Education's workshop on creating an accessible Data Science course for highschools.

Student Volunteer IEEE VIS 2022, ACM DIS 2023

March 30, 2024