Uzma Haque Syeda

Ph.D. Candidate at Khoury College of Computer Sciences, Northeastern University

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Data Visualization and HCI researcher with a focus on developing, validating, and teaching design and evaluation methodologies. Skilled in design thinking and user-centric design process with over 5 years of research and teaching experience in the field of data visualization. Has experience of guiding, orchestrating, and managing over 100 design projects with over 200 students where they collaborated with local and international stakeholders (including non-profits, City Councils, and for-profit organizations) to understand and address their data related needs and utilized a user-centric design approach to design, build and evaluate data visualization solutions to handover to the stakeholders.
Personal website: https://uzma0804.github.io/syeda/

EDUCATION

Northeastern University (2018 – Present)
- Computer Science Ph.D. Candidate (Graduate Research Assistant) at the Data Visualization Lab

Northeastern University (2018 – 2022)
- M.S. in Computer Science

University of Dhaka (2013 – 2017)
- B.Sc. in Electrical and Electronic Engineering

SKILLS

Research
Qualitative Survey design, Grounded Theory, Qualitative and Quantitative Analysis, User-Centered Design, Agile methodologies, Project Management, Experimental design, Data Analysis, Latex, Design study theory and implementation, Sketching and rapid prototyping, User Interviews, Needfinding techniques, Open-coding, User Studies

Web and Databases
Responsive Web Design, Node.js, SVG, HTML, CSS

Data Science, Design and Visualization
SciPy (Pandas, NumPy & Matplotlib), Altair, Plotly, MATLAB, Figma, Adobe Creative Cloud suite (Photoshop & Illustrator), Adobe XD, Microsoft Office (PowerPoint, Word & Excel), MySQL, D3.js, Tableau

Programming Languages
JavaScript, Python, C, Assembly language (Intel 8086), GIT

Ph.D. Coursework
Information Visualization, Human Computer Interaction, Algorithms, Advanced Algorithms, Intensive Computer Systems, Machine Learning, Special Topics in Data Visualization

Teaching and other
Canvas, CampusPress, Canvas Studio, Panopto, WordPress, Zoom, Instructional Design, Shotcut (video editing tool)

🏆 AWARDS AND FELLOWSHIPS 🏆

- **Best Paper Award at CHI 2020 Conference on Human Factors in Computing Systems** for the paper "Design Study "Lite" Methodology: Expediting Design Studies and Enabling the Synergy of Visualization Pedagogy and Social Good."
  Syeda, U.H., Murali, P., Roe, L., Berkey, B. and Borkin, M.A.
  DOI: 10.1145/3313831.3376829

- **1-year Graduate Fellowship Award from the Khoury College of Computer Sciences, Northeastern University.** This fellowship is awarded to top admitted PhD candidates in recognition of their outstanding academic accomplishments.

- **Academic Technology Scholar fellowship.** This semester-long fellowship is a practicum course and training to help support faculty with integrating and using technology to support teaching and learning

PROFESSIONAL EXPERIENCE

Research Experience

- Graduate Research Assistant in the VIS Lab at Khoury College of Computer Sciences, Northeastern University. **(Fall 2018 - Present)**
  Advisor: Professor Michelle A. Borkin

- **Instructor of record** at Khoury College of Computer Sciences, **Northeastern University (Spring 2023)**

- Academic Technology Scholar **(Summer 2022)**
  View Badge: https://www.credly.com/badges/3d8f026b-c8b5-4ce6-8100-a3622af2c92c/public_url

- Undergraduate Research on a project titled "**Visual behavior analysis between neuro-typical children and children with Autism Spectrum Disorder**" **(2016 - 2017)**
  Advisor: Dr. Md Atiqur Rahman Ahad

Contributed Talk

- **IEEE VIS 2021,** Workshop: Visualization for Social Good, **"Facilitating Visualization for Social Good in Academic Courses"**
  https://vis4good.github.io/

- **IEEE VIS 2019**, Tutorial: Visualization for Social Good, **"Service-Learning in Visualization"**
  https://vis4good.github.io/tutorial19.html

Organizing Experience

- **IEEE VIS 2019**, Tutorial: **Visualization for Social Good**: https://vis4good.github.io/tutorial2019

- **IEEE VIS 2023,** Workshop: **Visualization for Social Good**: https://vis4good.github.io/
  Responsibilities: Plan the workshop, Review submitted papers, and set-up and update the website

Teaching Experience

- **Instructor of record** in **Data Science 4200: Information Presentation & Visualization (Spring 2023), Khoury College of Computer Sciences, Northeastern University.**
  (**Responsibilities:** Designing the course materials and lectures, delivering lecture, teaching and guiding students in design thinking and process, teaching design principles, designing in-class activities, assignments, quizzes, grading, and **mentoring and orchestrating 11 design projects with 36 students who collaborated with various stakeholders, including the City Council to address**

their data-related needs through data visualization solutions by utilizing a user-centric design process that was taught in class and implemented through the projects)

- Teaching Assistant in **Data Science 4200: Information Presentation & Visualization (Summer 2024)** (**Responsibilities:** Orchestrating in-class activities, guiding students in the design process and design projects, delivering in-class programming tutorials of Tableau, creating and grading assignments, and holding office hours)

- Teaching Assistant in **CS 5340: Computer/Human Interaction (Spring 2024)** (**Responsibilities:** Teaching students Figma through in-class tutorials and practice, guiding students in the UX process (need finding and interviews, analyzing interviews, sketching and rapid prototyping, evaluating the prototypes, etc.), grading assignments and projects, and holding office hours)

- Teaching Assistant in **Data Science 4200: Information Presentation & Visualization (Fall 2022)** (**Responsibilities:** Orchestrating in-class activities, guiding students in the design process and design projects, delivering in-class programming tutorials on Matplotlib and Altair, creating and grading assignments, and holding office hours)

- Teaching Assistant in **Data Science 4200: Information Presentation & Visualization (Spring 2022)** (**Responsibilities:** Orchestrating in-class activities, guiding students in the design process and design projects, delivering in-class programming tutorials on Matplotlib and Altair, creating and grading assignments, and holding office hours)

- Teaching Assistant in **Data Science 4200: Information Presentation & Visualization (Fall 2021)** (**Responsibilities:** Teaching D3 and Tableau, Deliver in-class D3 and Tableau tutorials, teaching web development (HTML, CSS, and JS), delivery of a total of 3 hours of lecture in the course, creating and grading assignments, guiding students in the design projects, and holding office hours)

- Service-Learning Teaching Assistant in **Data Science 4200: Information Presentation & Visualization (Spring 2021)**
(**Responsibilities:** orchestrating final projects of students in collaboration with local nonprofit community organizations, acting as stakeholder liaison, guiding students in the design process, creating and grading project assignments, and holding office hours)

- Teaching Assistant in **Data Science 4200: Information Presentation & Visualization (Fall 2019)** (**Responsibilities:** Teaching D3 and Tableau, Deliver in-class D3 and Tableau tutorials, teaching web development (HTML, CSS, and JS), delivery of a total of 3 hours of lecture in the course, creating and grading assignments, guiding students in the design projects, and holding office hours)

- Full time teacher (substitute English literature and English language teacher) in **Maple Leaf International School, Bangladesh** (**01/2012 to 10/2012)**

Outreach and Volunteering Experience

- Program Committee member for **IEEE VIS 2022 Workshop on Visualization for Social Good (https://vis4good.github.io/workshop2022)**

- Program Committee member for **IEEE VIS 2021 and Workshop on Visualization for Social Good (https://vis4good.github.io/workshop2021)**

- Collaborated with a local neighborhood association called Chester Square Neighbors to help them with their data and visualization needs through a design study project in a graduate course on Data Visualization (CS 7250 - Information Visualization: Theory and Applications). Volunteered in the neighborhood association to get a better understanding of the problems they faced regarding their neighborhood park that was in the need for renovation and improved facilities, but the association members lacked concrete data-driven evidence to present to the City Council. The design study project in collaboration with the neighborhood association was aimed to provide necessary data-driven visualizations to the community partners in order to facilitate better communication and presentation of

the problems they were facing regarding their park, which in turn would help them get the attention from the City council for funding. **(Spring 2019)**

- Volunteered and taught Data Visualization (delivered a lecture on **"Common mistakes in Data Visualization"** and **taught the basics of Tableau**) in the **Multi-media CS course at Boston Latin Academy**. **(Spring 2019)**

- Volunteered at the International Conference on Imaging, Vision & Pattern Recognition **(ICIVPR 2017)**

- Volunteered at the International conference on Informatics, Electronics and vision conference **(ICIEV 2014)**

MEDIA COVERAGE

"Novel Framework For Implementing Design Studies Wins Best Paper At CHI 2020", **Khoury News**, Northeastern University (May 28, 2020)
Link: https://www.khoury.northeastern.edu/general/novel-framework-for-implementing-design-studies-wins-best-paper-at-chi-2020/

PUBLICATIONS

Journal and Conference Papers

- **Vis Repligogy: Towards a Culture of Facilitating Replication Studies in Visualization Pedagogy and Research**
  Syeda, U.H., South, L., Raynor, J., Panavas, L., Saffo, D., Morriss, T., Dunne, C., and Borkin, M.A.
  [In *Computer Graphics Forum* of **EuroVis 2024** Education Track
  DOI: https://doi.org/10.2312/eved.20241054]

- **Process and Pitfalls of Online Teaching and Learning with Design Study "Lite" Methodology: A Retrospective Analysis**
  Syeda, U. H., Dunne, C., & Borkin, M. A.
  [In *Computer Graphics Forum* of **EuroVis 2023** (Vol. 42, No. 3, pp. 75-86)
  DOI: 10.1111/cgf.14813]

- **Design Study "Lite" Methodology: Expediting Design Studies and Enabling the Synergy of Visualization Pedagogy and Social Good**
  Syeda, U.H., Murali, P., Roe, L., Berkey, B. and Borkin, M.A.
  [In Proceedings of the **2020 CHI Conference** on Human Factors in Computing Systems (pp. 1-13).
  DOI: 10.1145/3313831.3376829]

- **Evaluating the Effect of Timeline Shape on Visualization Task Performance**
  Di Bartolomeo, S., Pandey, A., Leventidis, A., Saffo, D., **Syeda, U.H**., Carstensdottir, E., Seif El-Nasr, M., Borkin, M.A. and Dunne, C.
  [In Proceedings of the **2020 CHI Conference** on Human Factors in Computing Systems (pp. 1-12).
  DOI: 10.1145/3313831.3376237]

- **A State-of-the-Art Survey of Tasks for Tree Design and Evaluation with a Curated Task Dataset**
  Pandey, A., **Syeda, U.H.**, Shah, C., Guerra-Gomez, J.A. and Borkin, M.A.
  [*IEEE Transactions on Visualization and Computer Graphics, 28(10), 3563-3584*
  DOI: 10.1109/TVCG.2021.3064037]

Workshop Papers

- **Towards Identification and Mitigation of Task-Based Challenges in Comparative Visualization Studies**
  Pandey, A., **Syeda, U. H.**, & Borkin, M. (2020). Towards Identification and Mitigation of Task- Based Challenges in Comparative Visualization Studies.

- **Visual face scanning and emotion perception analysis between autistic and typically developing children.**
  Syeda, U.H., Zafar, Z., Islam, Z.Z., Tazwar, S.M., Rasna, M.J., Kise, K. and Ahad, M.A.R.
  [**UbiComp '17** Proceedings of the **2017 ACM International Joint Conference on Pervasive and Ubiquitous Computing** and Proceedings of the 2017 ACM International Symposium on Wearable Computers (Mental Health: Sensing and Intervention workshop), Pages 844-853, Maui, Hawaii,USA — September 11 - 15, 2017.
  DOI: 10.1145/3123024.3125618]

Posters

- **Chester Square Park: A Case Study of Visualization for Social Good using Design Study "Lite" Methodology**
  Syeda, U.H., Murali, P. and Borkin, M.A.
  [IEEE VIS Conference, held October 2019 in Vancouver, Canada.]

PAPER PRESENTATIONS

- **CHI 2020** Conference on Human Factors in Computing Systems, "Design Study "Lite" Methodology: Expediting Design Studies and Enabling the Synergy of Visualization Pedagogy and Social Good"
  Video Presentation Link: https://www.youtube.com/watch?v=ZbfpJikhvRc&t=11s

- **EuroVis 2023** Conference on Visualization, "Process and Pitfalls of Online Teaching and Learning with Design Study "Lite" Methodology: A Retrospective Analysis"
  Video Presentation Link: https://www.youtube.com/watch?v=FheRUMju5xA

- **EuroVis 2024** Conference on Visualization, "Vis Repligogy: Towards a Culture of Facilitating Replication Studies in Visualization Pedagogy and Research"