

# Uzma Haque Syeda

PhD Candidate at Khoury College of Computer Sciences, Northeastern University

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**Data Visualization and HCI researcher** with a focus on user-centered design, data visualization, and research methodologies. Highly skilled in leading and teaching user-centric design processes with over 5 years of experience in mixed-methods research and design thinking. Proven ability to teach and mentor 200+ students and managing 100+ design projects collaborating with both local and international stakeholders, including non-profits, city councils, and for-profit organizations. Passionate about teaching data visualization to novices.

## EDUCATION

### **Northeastern University (2018 – Present)**

- Computer Science Ph.D. Candidate (Graduate Research Assistant) at the [Khoury Vis Lab](#)  
Thesis Advisor: [Michelle A. Borkin](#)

### **Northeastern University (2018 – 2022)**

- M.S. in Computer Science

### **University of Dhaka (2013 – 2017)**

- B.Sc. in Electrical and Electronic Engineering

## SKILLS

### **Research**

Mixed-Methods research, User-Centered Design, Usability Testing, Ethnographic Studies, Qualitative and Quantitative research methods, Experimental Design, Survey design, Grounded Theory, Project Management, User Interviews, Needfinding techniques, Open-coding, Sketching and Prototyping, Agile methodologies, Latex

### **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: Theory and Applications, Special Topics in Data Visualization, Human Computer Interaction, Algorithms, Advanced Algorithms, Intensive Computer Systems, Machine Learning,

### **Teaching and other**

Canvas, 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](https://doi.org/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.
- **Dissertation Completion Fellowship.** A semester-long fellowship awarded to outstanding PhD candidates in their final semester of PhD.
- **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
  - Led research on user-centered design, developing innovative methodologies such as Design Study "Lite", advancing the integration of visualization pedagogy with social good.
  - Conducted mixed-methods studies to evaluate visualization effectiveness, directly influencing academic and industry practices.
  - Collaborated with multi-disciplinary teams to create solutions for real-world challenges in data visualization and human-computer interaction.
- 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

### **Teaching and Mentoring Experience**

- **Instructor of record, Data Science 4200: Information Presentation and Visualization, Khoury College of Computer Sciences, Northeastern University.**
  - Developed and delivered curriculum focusing on teaching and guiding students in user-centric design thinking and processes, design principles and visualization techniques and evaluation.
  - Mentored and orchestrated **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 **CS 5340 Computer/Human Interaction (Fall 2024)**
- 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:** Assisted in teaching **UX design** principles (need finding and interviews, analyzing interviews, sketching and rapid prototyping, evaluating the prototypes, etc.), teaching students Figma through in-class tutorials and practice, grading assignments and projects, and holding office hours)

- Teaching Assistant in **Data Science 4200: Information Presentation & Visualization (Summer 2023)**  
**(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 **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)**

## 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”

## 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 2023, Workshop: Visualization for Social Good:** <https://vis4good.github.io/>  
Responsibilities: Plan the workshop, Review submitted papers, and set-up and update the website
- **IEEE VIS 2019, Tutorial: Visualization for Social Good:** <https://vis4good.github.io/tutorial2019>

## Leadership and Outreach Experience

- Program Committee member for **IEEE VIS 2022 Workshop on Visualization for Social Good** (<https://vis4good.github.io/workshop2022>)
- **Academic Technology Scholar, Northeastern University (Summer 2022)**  
Assisted faculty in integrating emerging technologies into their teaching methodologies, focused on the effective use of learning management systems and interactive teaching tools.  
**View Badge:** [https://www.credly.com/badges/3d8f026b-c8b5-4ce6-8100-a3622af2c92c/public\\_url](https://www.credly.com/badges/3d8f026b-c8b5-4ce6-8100-a3622af2c92c/public_url)
- Program Committee member for **IEEE VIS 2021 and Workshop on Visualization for Social Good** (<https://vis4good.github.io/workshop2021>)
- Collaborated with the Chester Square Neighbors, a local community association, to meet their objectives of funding for park renovation through a design study project as part of a graduate course on Data Visualization (CS 7250 - Information Visualization: Theory and Applications). I worked directly with the community stakeholders to deeply understand their data related challenges, particularly the lack of data-driven evidence to present to the neighborhood and the city council regarding the deterioration of the park. In this project, my team and I led cross-collaboration with various community members, including historians, neighborhood association members, local residents, and policy makers and leveraged user-centered design methodologies to create impactful visualizations that helped the stakeholders communicate their issue effectively. This project underscores my ability to conduct user-centric design projects with real-world collaborators and to deliver impactful design solutions.  
(Spring 2019)
- Guest lectured to teach “**Common mistakes in Data Visualization**” and **taught the basics of Tableau** in the **Multi-media CS course at Boston Latin Academy**. (Spring 2019)
- Weekly meeting organizer at the [Khoury Vis Lab](#) (Fall 2019 – Spring 2021)
- Social event organizer at the [Khoury Vis Lab](#) (Fall 2021 – Summer 2023)
- 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

- **Towards a Deeper Understanding of Replication Studies: Replicating the Effects of Visual Embellishments on Comprehension and Memorability of Charts**  
Syeda, U.H., South, L., Raynor, J., Panavas, L., Saffo, D., Morriss, T., Dunne, C., and Borkin, M.A.  
[Under Review at CHI 2025 Conference]
- **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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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.]