Sanjana Srabanti

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Professional Summary

A driven Ph.D. researcher specializing in Data Visualization, Machine Learning, Data Analytics, and Human-Computer Interaction (HCI), with proven experience in handling complex, multivariate, temporal, and geospatial datasets. Skilled in designing interactive visual analytics systems, leveraging deep learning, statistical modeling, and big data analysis to tackle real-world challenges. Experienced in developing scalable, data-driven solutions through rigorous prototyping, system evaluation, and cross-disciplinary collaboration. Published in top visualization conferences (IEEE VIS, PacificVis), dedicated to advancing innovative data analytics methods.

Education

University of Illinois, Chicago *Chicago, IL*
Ph.D. in Computer Science **Expected Graduation Date : Aug 2025**

University of Illinois, Chicago *Chicago, IL*
MS in Computer Science **Dec 2024**

Military Institute of Science and Technology *Dhaka, Bangladesh*
B.Sc in Computer Science and Engineering Jan 2014 – Jan 2018

Technical Skills

- **Programming languages:** Python, Java, C/C++, JavaScript, TypeScript, PHP, Assembly, MATLAB
- **Web & Cloud Technologies:** HTML/CSS, Angular, React, Flask, AWS
- **Visualization & Analytics:** D3.js, Tableau, Three.js, Gosling.js, Vega-Lite, Vega-Altair, ggplot2, Matplotlib
- **Machine Learning & Data Science:** Scikit-learn, PyTorch, TensorFlow, ONNX, ONNX-runtime, Pandas, NumPy
- **Databases & Big Data Tools:** SQL, MySQL, Oracle, Snowflake, Redshift, Spark, Hadoop
- **Graphics & Game Development:** OpenGL, Blender, Unity
- **Professional Expertise:** Team Work, Problem Solving, Prototyping, Client Interviewing, Time management, Creativity, Leadership

Work Experience

Electronic Visualization Laboratory, University of Illinois at Chicago *Chicago, IL*
Research Assistant Aug 2019 – Present
- Conducting research on Head and Neck Cancer, COVID-19 ensemble forecast models, street and pedestrian network visualization, geographical data, and environmental justice, developing interactive visual analytics frameworks for spatial-temporal and multivariate data exploration.
- Client interviewing, prototyping, application design, implementation, and system evaluation.

Genentech *South San Francisco, CA*
Data Visualization and Machine Learning Intern, Summer 2024 May 2024 – August 2024
- Developed an interactive visual analytical system for exploring inferences from sequence-based machine learning models in a browser-based environment.
- Client interviewing, domain-expert collaboration, prototyping, application design, implementation, and system evaluation.

Girls Who Code College Loop, University of Illinois at Chicago *Chicago, IL*
President Jan 2022 – July 2022
- Improved retention in computer science and related disciplines.
- Helped in building community and developing a supportive network of female peers and connecting Girls Who Code alumni on campus.

Department of Computer Science, University of Illinois at Chicago *Chicago, IL*
Teaching Assistant Jan 2021 – Present
- Courses: Visual Data Science, Data structure, & Computer Design.
- Conducted office hours, graded lab presentations, assignments and projects.

Department of Computer Science and Engineering, Eastern University *Dhaka, Bangladesh*
Lecturer May 2018 – July 2019
- Supervised undergraduate courses e.g., Web development, Digital logic Design, C/C++, Java and Matlab programming classes and labs.
- Worked as assistant course coordinator and student advisor.

Publications

- **[Under Review] A Design Space for the Visualization of Street and Pedestrian Networks**
  Sanjana Srabanti *and Fabio Miranda*
  Eurographics Conference on Visualization (EuroVis) 2025

- **[Under Review] A Visualization Toolkit Bridging Communities, Decision-Makers, and Scientists for Environmental Justice**
  Carolina Veiga, Gustavo Moreira, ***Sanjana Srabanti****, et al.*
  Eurographics Conference on Visualization (EuroVis) 2025

- **A Comparative Study of Methods for the Visualization of Probability Distributions of Geographical Data** [Link]
  Sanjana Srabanti*, Carolina Veiga, et al.*
  Multimodal Technologies and Interaction (MTI), 2022

- **A Tale of Two Centers: Visual Exploration of Health Disparities in Cancer Care** [Link]
  Sanjana Srabanti*, Michael Tran, et al.*
  IEEE Pacific Visualization Symposium, PacificVis, 2022

- **Visualizing Environmental Justice Issues in Urban Areas with a Community-based Approach** [Link]
  *Joel Flax-Hatch, **Sanjana Srabanti**, Fabio Miranda, et al.*
  Spatial Data Science Symposium, 2021
- **COVID-19 EnsembleVis: Visual Analysis of County-level Ensemble Forecast Models** [Link]
  ***Sanjana Srabanti**, G.Elisabeta Marai, Fabio Miranda*
  2021 IEEE Workshop on Visual Analytics in Healthcare (VAHC), IEEE VIS, 2021
- **Android based advanced attendance vigilance system using wireless network with fusion of bio-metric fingerprint authentication** [Link]
  *Hamim Adal, Nawsheen Promy,**Sanjana Srabanti**, Mahbubur Rahman*
  International Conference on Advanced Communication Technology (IEEE ICACT), 2018, South Korea
- **A Proposed System for Automatic Vehicle Monitoring and Accident Detection in Bangladesh** [Link]
  ***Sanjana Srabanti**, Md. Asaduzzaman, Mohammad Kivran Bin Mokter, et al.*
  International Conference on Computer, Communication, Chemical, Material and Electronic Engineering (IC4ME2), 2018, Bangladesh
- **GiveMed: A webportal for medicine distribution among poverty-stricken people** [Link]
  *Muhammad Nazrul Islam, Ashratuz Zavin, **Sanjana Srabanti**, et al.*
  IEEE Region 10 Humanitarian Technology Conference (R10-HTC)), 2017, Bangladesh

Research Projects

Street and Pedestrian Network Visualization: Design Framework and Declarative Grammar Development *Chicago, IL*
Graduate Research Project Aug 2022 – Present
- Reviewed 60+ studies on street-overlaid visualizations to identify design challenges and propose a design space for multivariate spatial network visualization.
- Developing a declarative grammar enabling multi-level resolution and integration of thematic (e.g., demographics, pollution) and physical (e.g., street networks, zip codes) data, evaluated through case studies with domain experts.

Visualization of Probability Distributions of Geographical Data *Chicago, IL*
Graduate Research Project Aug 2021 – July 2022
- Performed visual analysis of probability distributions of geographical data.
- Evaluated and compared different probability distribution visualization techniques.

Health Disparities in the Head and Neck Cancer Patient Population *Chicago, IL*
Graduate Research Project Aug 2019 – April 2022
- Collection and harmonization of two Head and Neck cancer datasets from two different institutions.
- Developed visual analysis tool for HNC data using machine learning approach to analyze demographics, disease characteristics, provided treatments and outcomes.

Analyzing County-level COVID-19 Symptoms Pattern and Risk-factors *Chicago, IL*
Graduate Research Project Sep 2021 – Dec 2021
- Analyzed county-level COVID-19 symptoms pattern and risk-factors correlated with hospitalization rate, ICU treatments and morbidity rate using data mining and machine learning approaches.
- Analyzed big data consists of 300 million rows.

Visual Analysis of COVID-19 Forecast Ensemble Models *Chicago, IL*
Graduate Research Project May 2021 – Oct 2021
- Developed interactive visual interface of COVID-19 ensemble forecast models at county-level, enabling both spatial and temporal analysis of the data.
- Evaluated and compared ensemble and individual forecast models through space and time.

Visualizing Similarities and Differences between Head and Neck cancer patients *Chicago, IL*
Data Visualization Class Group Project Oct 2019 – Dec 2019
- Developed 3D visualization system for head and neck cancer patients.
- Visualized patients similarities and dissimilarities in terms of dose prescription, dose distribution, tumor size, and presence of lymph node.

Android Based Advanced Attendance System using Wireless Network and Bio-metric Fingerprint Authentication *MIST, Bangladesh*
Bachelor's Thesis July 2017 – Dec 2017
- Developed advanced attendance system for students using android mobile application.
- Wireless network and bio-metric fingerprint are requires for authentication.

Honors & Awards
- **Grace Hopper Celebration (GHC) Scholarship** for attending GHC conference 2023
- **MIST Dean's List of honor** for excellent result – in the years 2017, 2016, 2015, and 2014
- **University Merit Scholarship**

Volunteering & Services
- **Student Volunteer:** Provide essential support to the IEEE VIS Conference: 2022 (in-person), 2021 (remotely).
- **Conference Reviewer:**
  - IEEE VIS: 2022, 2023, 2024 - Reviewed both full and short papers.
  - EuroVIS: 2023, 2024 - Reviewed full papers.
- **UIC Open House:** Organized and managed public visits at the Electronic Visualization Laboratory.
- **Invited Talk:** Presented research work at NYU Visualization Imaging and Data Analysis Center (VIDA) Lab and IEEE VIS 2021 Satellite.

Related Coursework
Visual Data Science, Big Data Visualization and Analytics, Computer Algorithms, Data Mining and Text Mining, Database System, Machine Learning, Deep Learning, Human Computer Interaction, Software Design and Development, Video Game Design, Artificial Intelligence, Object Oriented Design.