

# 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 handling complex clinical, genomic, multivariate, temporal, and geospatial datasets. Expert in designing advanced visual analytics systems and interactive data storytelling methods that translate intricate healthcare data, including Head and Neck Cancer patient data, into clear, actionable insights. Skilled in statistical modeling, deep learning, and big data analysis techniques to support complex multivariate data exploration, pattern discovery, and informed clinical research decisions. Experienced in developing scalable, reliable data pipelines, ensuring high-quality data integration and collaboration across interdisciplinary domains. Published in leading visualization conferences (IEEE VIS, PacificVis), committed to advancing innovative analytics approaches that empower strategic decision-making.

## Education

**University of Illinois, Chicago**

*Ph.D. in Computer Science*

*Chicago, IL*  
**Expected Graduation Date : June 2025**

**University of Illinois, Chicago**

*MS in Computer Science*

*Chicago, IL*  
**Dec 2024**

**Military Institute of Science and Technology**

*B.Sc in Computer Science and Engineering*

*Dhaka, Bangladesh*  
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, Power BI
- **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**

*Research Assistant*

*Chicago, IL*  
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**

*Data Visualization and Machine Learning Intern, Summer 2024*

*South San Francisco, CA*  
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**

*President*

*Chicago, IL*  
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**

*Teaching Assistant*

*Chicago, IL*  
Jan 2021 – Present

- Courses: Visual Data Science, Data structure, & Computer Design.
- Conducted office hours, graded lab presentations, assignments and projects.

## Publications

- **[Under Review] StreetWeave: A Declarative Grammar for the Visualization of Multivariate Data for Spatial Networks**  
*Sanjana Srabanti, G. Elisabeta Marai and Fabio Miranda*  
*IEEE VIS: Visualization & Visual Analytics, 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

**Conversational AI-Driven Glyph Visualization for Enhanced Multidimensional Data Communication** Chicago, IL  
Graduate Research Project Sep 2024 – Present

- Leveraged LLMs (GPT-4 Vision, ChatGPT) to extract glyph elements from hand-drawn sketches and semantically map them to data attributes via conversational text prompts.
- Developing an LLM-powered visual analytics system that guides novice users to create expert-level glyph visualizations, reducing design complexity and enhancing accessibility.

**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 and physical data, supported by an automated data pipeline for preprocessing, transformation, and integration of heterogeneous datasets, 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, HCI, Software Design and Development, Video Game Design, Artificial Intelligence, Object Oriented Design.