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| **RESEARCH INTERESTS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
| Data-Driven Decision-Making Systems, Interactive Visualization Systems | | | | |
| **EDUCATION\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
| **PhD in Computer Science**, *University of Maryland, College Park, GPA: 3.77/4. College Park, USA* Advisor:*Leo Liu June 2020 – May 2025 (expected)*  **Masters in Computer Science**, *University of Maryland, College Park*, *GPA: 3.77/4*. *College Park, USA* Advisor:*Leilani Battle Aug 2018 – May 2020*  **Bachelor of Computer Engineering**, *Pune Institute of Computer Technology, India*, *GPA: 3.77/4*. *Pune, India* Top 10 in cohort of size 900 *Aug 2014 – May 2018* | | | | |
| **PUBLICATIONS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
| **VIS 2024**  [**Short paper**](https://drive.google.com/file/d/13KKpXSgdOLvOknn0Uwo49H13qav7YUCp/view?usp=sharing)  **EuroVis 2022**  [**Full paper**](http://diglib.eg.org/bitstream/handle/10.1111/cgf14557/v41i3pp489-500.pdf?sequence=1&isAllowed=y) **|** [**Talk**](https://www.youtube.com/watch?v=t7PVqvh0iQ4&list=PLSlLplD3pBWjPUtD5sU8qPmCkN_nn8ZZj&t=3105s)  **CIDR 2022**  [**Full paper**](https://www.cidrdb.org/cidr2022/papers/p49-gathani.pdf) **|** [**Talk**](https://www.youtube.com/watch?v=an-oTVQzHT0)  **CIDR 2022**  [**1-page abstract**](https://www.cidrdb.org/cidr2022/papers/a48-hulsebos.pdf)  **CHI 2020**  [**Full paper**](https://dl.acm.org/doi/pdf/10.1145/3313831.3376485) **|** [**Talk**](https://www.youtube.com/watch?v=auCLjsBi6zE) | | P.5  P.4  P.3  P.2  P.1 | **Groot: An Interface for Editing and Configuring Automated Data Insights**  **Sneha Gathani,** Anamaria Crisan, Vidya Setlur, Arjun Srinivasan    **A Grammar-Based Approach for Applying Visualization Taxonomies to Interaction Logs**  **Sneha Gathani,** Shayan Monadjemi, Alvitta Ottley, Leilani Battle    **Augmenting Decision Making via Interactive What-If Analysis**  **Sneha Gathani,** Madelon Hulsebos, James Gale, Peter J. Haas, Çağatay Demiralp  **Making Table Understanding Work in Practice**  Madelon Hulsebos, **Sneha Gathani,** James Gale, Isil Dillig, Paul Groth, Çağatay Demiralp  **Debugging Database Queries: A Survey of Tools, Techniques, and Users** **Sneha Gathani**, Peter Lim, Leilani Battle | |
| **RESEARCH\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
| ***PhD Graduate Research*** *UMD, College Park, USA* | | | | |
|  | **Praxa: A Standardized Approach to What-If Analysis** *Fall 2022 – 2024*Introducing Praxa, **a standardized framework for what-if analysis** and put this into practice using **a declarative language**, Praxa Specification Language. Demonstrated its expressiveness through three diverse application domains. **Target:** *CHI 2025*  **Understanding Business Users’ What-If Analysis for Decision-Making** *Fall 2021 – 2024*  Conducted an interview study with professional business users (i.e., marketing, sales, product, and operations managers) to understand the **application of what-if analysis** in their decision-making. Developed Decision Studio, **a visual analytics system** featuring key what-if analysis functionalities, to use as a probe in a follow-up task-based study with the same business users to **assess** its effectiveness and identify potential future improvements. **Target:** *CHI 2025* | | | |
| ***Masters Graduate Research*** *UMD, College Park, USA* | | | | |
|  | **A Grammar-Based Approach for Applying Visualization Taxonomies to Interaction Logs** *Summer 2020 – Fall 2021*  **Translated and demonstrated** the applicability of theoretical visualization task **taxonomies** on empirical interaction logs via developing **programmatic mappings** of taxonomies. **Paper:** P.4 *(****EuroVis 2022****)*  **TraceInspector: A Visualization-based Reverse Engineering Tool for Android Apps** *Spring 2019 – 2020*  Developed TraceInspector,an interactive visualization tool that helps novice analysts **reverse engineer** **Android apps** for potential security and privacy vulnerabilities.  **Debugging Database Queries: A Survey of Tools, Techniques and Users** *Summer 2019*  Performed interdisciplinary literature review and conducted interview study to **understand database query** **debugging strategies and tools**. **Paper:** P.1 *(****CHI 2020****)* | | | |
| ***Independent Research*** *UMD, College Park, USA* | | | | |
|  | **C.A.T.C.H. – Characterizing and Tracking College Health** *Winter 2019 – Spring 2019* Analyzed temporal and geographic data of the university using Python and scikit-learn library by applying **machine learning algorithms**, specifically **K-nearest neighbor classification and K-means clustering** to find students in close proximities. **Detected patterns** were concluded to cause spread of contagious diseases. | | | |
| **WORK EXPERIENCE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
| **Microsoft Research**  *Research Intern,* Mentor: *Steven Drucker* | | | | *Seattle, USA Summer 2024* |
| **Salesforce/Tableau Research**  *Research Intern,* Mentor: *Arjun Srinivasan* | | | | *Seattle, USA Summer 2023* |
|  | **Groot: An Interface for Editing and Configuring Automated Data Insights**  Developed a prototype system that allows users to proactively **edit, customize, and reconfigure automated data insights** within visualization tools. The system allows for receiving additional insight recommendations using direct manipulation of chart elements, customizing underlying logic of existing generated insights, and define new insights by specifying new heuristics via an interactive editing interface. **Paper:** P.5 *(****VIS 2024 Short Paper****)* | | | |
| **Sigma Computing Inc.**  *Research Intern,* Mentor: *Çağatay Demiralp* | | | | *San Francisco, USA Summer, Fall 2021* |
|  | **Augmenting Decision Making via Interactive What-If Analysis**  Delivered Decision Studio, an interactive visual data analysis system that enables business users to **understand input data drivers-output KPI metric relationships** through what-if scenarios using four predictive and prescriptive (PPA) functionalities; validated through three common business uses with Sigma employees. **Paper:** P.3 *(****CIDR 2022****)*  **Making Table Understanding Work in Practice**  Discuss the challenges of deploying table understanding models and propose SigmaTyper framework for the semantic column type detection task. **Paper:** P.2 *(****CIDR 2022****)* | | | |
| **Cybage Software Pvt Ltd.** *Pune, India*  *Summer Intern Summer 2017* | | | | |
|  | Built prototypes of recommendation systems using **KNN and regression models** to aggregate it’s clicks. Analyzed customers feedbacks using **NLP techniques**. Pitched features for optimization in inventory systems using computer vision. | | | |
| **SKILLS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
| **Programming Languages** Python, C++, React, JavaScript, Material UI, HTML/CSS  **Web Frameworks** Flask, Ruby on Rails  **Data Analysis Tools** Python (pandas, numpy, sklearn), Keras, PyTorch  **Visualization Tools** D3.js, Cytoscape.js, Vega-Lite, Tableau  **Database Tools** PostgreSQL, MySQL  **Design Tools** Photoshop, Illustrator, CorelDRAW  **Other Tools** LaTeX, GitHub  **Qualitative Research** Interviews, Surveys, Iterative Coding | | | | |  |
| **COURSES TAKEN\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
| **University of Maryland, College Park** | | | | |
|  | Interactive Data Analytics, Database System Architecture and Implementation, Computational Linguistics I, Interactive Technologies in HCI, Advanced Deep Learning, Advanced Computer Graphics, Wireless Technologies and IoT, Statistical Pattern Recognition, Computer Vision, AI Planning, AI and Existential Threats to Civilization | | | |
| **Pune Institute of Computer Technology, India** | | | | |
|  | Data Structures, Discrete Mathematics, Databases, Compilers, Data Mining, Natural Language Processing | | | |
| **TEACHING EXPERIENCE\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
| **University of Maryland, College Park** | | | | |
|  | CMSC 734: Information Visualization, CMSC 250: Discrete Structures, CMSC 320: Introduction to Data Science, CMSC 411: Computer Architecture, CMSC 216: Introduction to Computer Systems | | | |
| **Pune Institute of Computer Technology, India** | | | | |
|  | Natural Language Processing | | | |
| **MENTORSHIP\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
| **Peter Lim** *(Senior, UMD)*: Helped develop an interactive visualization application, form interview questions, conduct interview studies and write research paper | | | | |
| **ACHIEVEMENTS\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | |
|  | **Awarded scholarship** to attendGHC 2022in-person*September 2022*  **Student Volunteer** at EuroVis 2022 *Summer 2022*  Received the **International Conference Student Support Award (ICSSA)** for EuroVis 2022 *Spring 2022*  Received the **Jacob K. Goldhaber Travel Grant** for EuroVis 2022 *Spring 2022*  **Student Volunteer** at VIS 2021 *Fall 2021*  Led the **CHI 2020 conference** reading group *Spring 2021*  Led the **InfoVis 2018-20 conference** reading group *Fall 2020*  One of the 70 students selected across universities worldwide for summer school at*Germany, Aug 2019* **The Cornell, Maryland, Max Planck Pre-Doctoral Research School (CMMRS)**  **Institute of Electrical and Electronic Engineers (IEEE)** Region 10 Coordinator (2018-19), Program *2015 - 2019* Outreach Coordinator (2017-18), SYWLC Congress Event Coordinator (2017), head of Graphics Team, lead designer of technical newsletter  Pune Action Group Leader for **Child Rights and You (CRY)** NGO *2016 - 2018*  Established **TEDx** independent organization in undergrad school and led the Xperience and Design team *2016*  **Hack2Innovate** Deep Learning Hackathon Winner *June 2017*  **Smart City Hackathon** runner-up for designing and implementing prototype to make admissions and *September 2016* campus recruiting procedure less cumbersome | | | |