

Prerana Khatiwada

Address: 260 South Main Street, Newark DE

Email: preranak@udel.edu

Linkedin: [linkedin.com/in/preranak21/](https://www.linkedin.com/in/preranak21/)

Contact: +1 3026900849

Twitter: <https://twitter.com/PreranaKh2>

Portfolio: <https://preranakh.github.io/>

Github: github.com/Preranakh

RESEARCH INTEREST

I'm a third-year Ph.D. student passionate about understanding user behaviour specializing in the intersection of Human-Computer Interaction (HCI), Natural Language Processing, and Data Analytics. With a strong background in mixed methods research and interaction design, I bring a unique skill set. My expertise lies in bridging the gap between data and user-centered experiences, a skill highly relevant to data science and data engineering. I am proficient in quantitative and qualitative analysis, which enables me to extract meaningful insights from data and drive informed decision-making. My research topic focuses on using Natural Language Processing (NLP) to develop client-facing user interventions with which users have real-time interaction. These interventions empower users with real-time tools to navigate the complex landscape of online information effectively.

EDUCATION

- **University of Delaware** Newark, Delaware, United States
Ph.D. in Computer and Information Sciences ; GPA: 3.9 August 2021 - Present
Advisor: Dr. Matthew Louis Mauriello
Courses: ML, AI, Operating System, Theory of Computation, DataMining, HCI, Statistics, Research in Cybersecurity, Research in Accessible Computing
- **Kathmandu University** Dhulikhel, Nepal
Bachelor of Computer Engineering ; GPA: 3.78 August 2015 - December 2019
Courses: Data Structures, Natural Language Processing, Probability and Statistics, AI, Machine Learning, Databases

PAPERS & PUBLICATIONS

- "Toward Browser-based Interventions to Tackle Misinformation Online" ACM SIGCHI 2022 Designing for Mis/Disinformation Workshop, 2022
- "Spotting Online News: A Mixed Methods Study of News Browsing Behaviors to Inform Misinformation Interventions" ACM CSCW 2023 (Submitted to CSCW)
- "Empowered Readers: "This Tool Changed How I Read"- Usability Study on Examining the Effectiveness of a Personal Informatics Tool in Enhancing Readers' Experience and Mitigating the Spread of Misinformation" (In Preparation)
- "uCue:An Interactive Musical Interface to Enhance Formative Listening Experiences for Children with ASD" CHI 2023 (Submitted to IMWUT February Cycle)

TECHNICAL SKILLS

- **Languages/Tech Stack:** Html/CSS, C, Python, PHP, Node JS, JSON, JavaScript, Bootstrap, RDBMS(Relational Database Management System), Oracle, MYSQL, Snowflake, PL/SQL, Typescript
- **Python Packages:** Scikit-Learn, Nltk, Pandas, Numpy, Matplotlib
- **Frameworks/Libraries:** Angular JS, D3.Js, ASP.NET Core, React Redux, JQuery, Telerik & Kendo UI, Laravel
- **Data Visualization and Reporting Tools:** Looker, OBIEE, PowerBI, BI Publisher, Tableau
- **HCI Skills:** User Persona Creation, Cognitive Psychology, Thematic Analysis, Figma, Canva, Qualtrics, Semi Structured Interviews, User Surveys, Usability Testing, Wireframing, Prototyping, Observational Study, Dedoose, Human-Centered Design, Integrating User Feedback, Design Thinking, Contextual Inquiry, Customer Journey Mapping, Design Thinking Framework
- **BI Skills:** Business Intelligence Reporting, Data Visualization, ETL Concepts, Data Warehousing
- **Statistical Skills:** XLSTAT, JMP, Excel, SPSS, STATA, Python, Descriptive and Inferential statistics, Regression analysis, Hypothesis Testing, ANOVA
- **CADP (Corporate Analyst Development Program) Skills:** Process Improvements, Process Mapping, Storytelling
- **Others:** Git, RESTful APIs, AWS, Oracle Golden Gate, Docker, Containers, Google Cloud, JIRA, Application Lifecycle Management (ALM), Trello, Hubspot, Weka, Confluence, Winscp, Putty, Visual Studio, Pycharm, Postman, Agile & Scrum

ENGAGEMENT IN HCI COMMUNITY AND PROFESSIONAL SERVICE

- Member, ACM and Special Interest Group on Software Engineering (ACM-SIGCHI), 2021-Present
- Member, ACM UD's Student Chapter, 2023-Present
- Full paper submission Reviewer for CogSci 2024
- Full paper submission Reviewer for CSCW 2024 (July 2023)
- Associate Chair (AC) Poster Selection Committee ACM CSCW 2023 POSTERS cycle
- CSCW Full Submission Reviewer, July 2023 cycle
- Ninja Reviewer, CSCW, July 2023 cycle
- Student Volunteer, ACM Designing Interactive Systems, July 2023

PROFESSIONAL ACHEIVEMENTS

JP Morgan Chase and Co. Corporate Analyst Development Program (CADP) virtual experience program on Forage - Feb 2024

- Completed a job simulation focused on understanding the Corporate Analyst Development Program.
- Built a visualization dashboard using Tableau
- Documented a business process and identified and communicated opportunities for improvement
- Developed a PowerPoint presentation to communicate key ideas and talking points and tell a compelling story

JP Morgan Chase and Co. Quantitative Research Virtual Experience Program on Forage - Feb 2024

- Completed a simulation focused on quantitative research methods
- Analyzed a book of loans to estimate a customer's probability of default
- Used dynamic programming to convert FICO scores into categorical data to predict defaults

PRESENTATIONS AND TALKS

- Presented poster on "*Does Reading News Online Matter: A Mixed Methods Pilot Study on Browsing and News Consumption Behaviors to Inform Interventions for Misinformation*" at the **2023 Grad Cohort-WOMEN organized by CRA (Computing Research Association)**.
- Showcased research poster "*Community Communications: A Pilot Study of Browsing Behaviors and News Consumption Habits to Inform Future Misinformation Interventions*" at **DARWIN Computing Symposium Poster in 2023**.
- Delivered workshop paper presentation titled "*Toward Browser-based Interventions to Tackle Misinformation Online*" at **CHI 2022 Workshop 17 - Designing for mis/disinformation: Human-Centered Approach**.

TEACHING EXPERIENCE (2+ YEARS)

University of Delaware, Department of Computer and Information Sciences
Graduate Teaching Assistant

Newark, Delaware
August 2021 - Present

1. Served as an Instructor for CISC355 (Computer Ethics and Society) for Winter session 2024
2. Led weekly labs and office hours.
3. Grade assignments and projects and gave lectures as per requirement in the following courses:
 - (a) Database Systems (Course Code: CISC637)
 - (b) Computer Ethics and Society (Course Code: CISC355)
 - (c) Advanced Web technologies (Course code: CISC474)
 - (d) Machine Learning (Course Code: CISC684)
 - (e) Operating System (Course Code: CISC361)

RESEARCH EXPERIENCE (2+ YEARS)

University of Delaware, Department of Computer and Information Sciences
Graduate Research Assistant

Newark, Delaware
August 2021 - Present

- Worked on combating online misinformation by developing tools to enhance digital news media literacy. A mixed-methods pilot study involved 34 participants through a browser plugin, tracking their browsing sessions and online news article consumption. The study examined relationships between news media literacy scores, browsing sessions, and time spent online.
- Developed a novel prototype, a personal informatics visualization dashboard, to enable users to critically assess news articles. Conducted a between-subjects usability study with 128 participants to explore the impact of the dashboard, which provided information on source credibility, article bias, sentiment analysis, and personalized metrics like estimated reading time. The study assessed how the dashboard improved readers' awareness of biases, sourcing quality, and overall article credibility.
- Introduced a between-subjects approach, effectively contrasting a control group with the dashboard-free group, showcasing the innovative tool's effectiveness. This tool's primary objective is to aid in identifying and highlighting false or misleading information within online news.
- Played a decisive role in User Experience Design, contributing to Usability Testing and iterative improvements for a passive logging Chrome plugin and the visualization tool, aligning with user needs.
- Led video coding analysis and structured content tagging for interactive music control devices for children with ASD, contributing to data-driven insights and trends analysis. This involved overseeing the categorization and organization of video data related to the use of these devices by children with ASD. The aim was to derive meaningful insights and trends by meticulously examining user interactions, behaviors, and responses.
- Led the qualitative coding and thematic analysis for the uCue project. In this role, I systematically analyzed interview data and transcripts, employing a rigorous qualitative coding approach to identify recurring themes, patterns, and nuanced insights embedded in the qualitative data.
- Skilled in designing and managing surveys using platforms like Qualtrics and SurveyMonkey. Experienced in cleaning and transforming data using Microsoft Excel and Google Sheets to ensure accuracy. Proficient in SQL for database querying extracting specific datasets for analysis. Familiar with statistical analysis using R and other tools like SPSS, XLSTAT, STATA, WEKA, and JMP.)

UNDERGRADUATE/GRADUATE STUDENT MENTORING

Graduate Students

- **Dileep Nimma Reddy (2023)**: Provided guidance for the Community Comm Personal Informatics project, encompassing roles in prototype creation, tool implementation, and meticulous testing and debugging.
- **Haritha Varkala (2023)**: Supervised in tasks such as crafting study materials, including consent forms, participant instructions, and survey questions.
- **Yongho Cho (2023)**: Guided in bias chart development, Firebase authentication, and coding tool functionality.

Undergraduate Students

- **Luke Halko (2022-2023)**: Supervised in the *Spotting News Online project* in the early chrome plugin development
- **Nabiha Syed (2023)**: Guided UI enhancement of visualization dashboard's frontend.
- **Ashrey Mahesh (2023)**: Guided popup warnings implementation, data analysis, and Firebase data cleaning.
- **Elise Ruggiero (2023)**: Experienced mentor in qualitative coding, video coding, and thematic analysis.
- **Ricky K (2023)**: Guided in the qualitative video coding and running the usability sessions.

INDUSTRY EXPERIENCE (2+ YEARS)

LIS Nepal Pvt. Ltd
Software Engineer (Full time, Contractual)

Lalitpur, Nepal
September 2020 - July 2021

- Re-designed, built, and maintained highly reusable JavaScript, HTML, CSS, and Kendo UI code for the Stock Exchange of Nepal (NEPSE), resulting in a 30% improvement in user experience and data presentation.
- Proficiently worked with frontend technologies such as Bubble.io, ReactJs, Typescript, and Redux framework, contributing to a 20% reduction in production-related issues.
- Effectively inspected and resolved real-time production issues for clients, achieving a 90% issue resolution rate in a timely manner.

- Conducted heuristic evaluations of the Gocchii "Compliance manager site," resulting in the resolution of 30+ bugs and UI/UX improvements.
- Demonstrated technical proficiency in Oracle ETL and BI tools, contributing to a 15% increase in data processing efficiency.
- Collaborated with project teams to create field-level mapping and documented data transformation requirements to improve data integration accuracy.
- Designed interactive dashboards and highly formatted reports for clients such as Siam Makro (Thailand), HotTopic, and Belk (United States), leading to a 40% enhancement in data visualization and reporting capabilities.
- Transformed and loaded data into the destination database with a 20% reduction in data processing time.
- Developed custom scripts using a mix of shell scripts and Snowflake SnowSQL for ETL purposes and data validation
- Maintained continuous written and verbal communication with on-site clients to gather requirements and optimize the data process, ensuring a 90% alignment with client needs.
- Performed rigorous unit testing and extensive validation across source and target systems, achieving a 95% data accuracy rate.
- Worked closely with HubSpot integration to optimize customer support workflows and reduce query response time by 25%.

LIS Nepal Pvt. Ltd

Associate Software Engineer (Full time)

Lalitpur, Nepal

May 2019 - September 2020

- Conducted batch monitoring using Autosys software, resulting in the reduction in batch failure incidents by proactively identifying and addressing potential issues.
- Optimized ETL (Extract, Transform, Load) processes and Developed analytical reporting solutions, providing insights that contributed to a 30% increase in data-driven decision-making.
- Specialized in Oracle query optimization techniques to reduce query execution times, improving overall system performance.
- Transforming the data from stage to target table and then to DataMart using Robing Data Model resulting in an enhancement in data organization and accessibility.
- Worked extensively with Snowflake and Oracle databases, with a focus on testing source data queries (Order Management System - OMS and Warehouse Management System - WMS) and implementing Python scripts to streamline data processes.
- Successfully replaced the existing custom table in the TMS (Trade Management System) and Surveillance system with a more efficient Kendo Grid, improving data presentation and usability.
- Provided dedicated customer support, addressing user queries and issues promptly.
- Managed End of Day (EOD) and Beginning of Day (BOD) processes to ensure the system's smooth operation during critical periods.

Digital Products Lab

Content Designer

Kathmandu, Nepal

April 2019 - October 2019

- Conducted Retail and E-commerce research to identify pain points in existing user experience and develop recommendations for improvement.
- Collaborated with cross-functional teams, including UX designers, Developers, Product Owners, and Users to streamline user interactions of "Shopify App".
- Managed and co-ordinated with a 5-member cross-functional (product, engineering, sales, support) team toward the successful launch of an e-commerce platform, driving an increase in sales revenue within the first quarter.

HONORS AND AWARDS

- **ACM SIGCHI CSCW Emerging Scholars award**, SIGCHI, 2023.
- **Grace Hopper Celebration Travel Sponsorship**, University of Delaware, 2023: Mentored undergraduate students at the Grace Hopper Celebration of Women in Computing.
- **ACM Designing Interactive Systems (DIS) Travel Support**, University of Delaware, 2023: Assisted in attending the ACM DIS event.
- **CRA-WP Travel Scholarship**, Computing Research Association Women, 2022, 2023: Attended Grad Cohort Workshops through CRA-WP support.
- **CIS Distinguished Graduate Student Award**, University of Delaware, 2021, 2022: Recognized for outstanding performance in CIS.
- **SIGCHI Gary Marsden Travel Award**, SIGCHI, 2022: Received travel award for graduate students.

- **Scholarship by Delaware BioScience Association** to attend Inspiring Women in STEM Conference
- **Technology Scholarship Program by Bertelsmann**, Udacity, 2021: Awarded scholarship by Udacity.
- **Data Fellow 2023**, Code for Nepal, 2023: Designated as a Data Fellow by Code for Nepal.
- **Merit-based Full Tuition Fee Waiver**, Computer Engineering Department, Kathmandu University, Nepal, 2017-2019: Received full tuition fee waiver for exceptional merit.
- **Government Scholarship** for Bachelors in Engineering, Ministry of Education, Nepal, 2015: Awarded government scholarship for engineering studies.
- **SLC Girls District Topper**, PABSON Schools, Makwanpur district, 2014: Recognized as the district topper among approximately 8000 students.

DIVERSITY, OUTREACH ACTIVITIES AND COMMUNITY ENGAGEMENT

- **Lead EmPOWER Mentor (Empathic Peers Offering Wisdom, Encouragement, and Resources)** CIS at University of Delaware, 2023-Present
- **Member of Nepali Women in Computing (NWiC)**, part of the AnitaB.org, 2024-Present
- **Peer EmPOWER Mentor**, CIS at the University of Delaware, 2022-2023
- **Vice President (Internal Affairs)**, Graduate Student Government University of Delaware, 2023-Present
- **Graduate Student Representative**, International Studies Committee, University of Delaware, 2023-Present
- **Vice President**, Nepalese Student Association at the University of Delaware, 2023-Present
- **iBuddy Mentor**, CGPS and iBuddy Council at the University of Delaware, 2023-Present
- **Mentor**, Grace Hopper Celebration of Women in Computing, University of Delaware, 2023
- **Website Designer**, Nepalese Student Association website at University of Delaware, 2023-Present
- **Participant**, Grace Hopper Celebration of Women in Computing, University of Delaware, 2023
- **General member**, Data Science Community (DSI), University of Delaware, 2023-Present
- **Executive Member & Event Manager**, Nepalese Student Association:NSA, University of Delaware, 2021-2022
- **Executive Committee Member**, Women in Big Data Nepal, 2022-2023
- **Organizer**, GLOBAL VILLAGE PROGRAM and YES NEPAL by AIESEC, 2018
- **Volunteer**, HULT Prize, The Next Wave of Social Entrepreneurs, 2018
- **General Member**, Girls in ICT Nepal, 2018-Present
- **Event Co-Ordinator**, Entrepreneurs Tales v 2.0 held by Kathmandu University in collaboration with KUCC.
- **Marketing Team Leader**, IT MEET 2018/2019 held at Kathmandu University.
- **Executive Board Member**, St.Xavier's Literary Club and Organizer of Prabaha Kavi Gosthi
- **Volunteer for Community Forest Service** through SXC SET Cycle Rally, Polyfree Kathmandu and Cleaner Bagmati

PROJECTS

- **Community Comms**: Conducted user study research to create a Chrome Extension for passive browsing behavior logging. Enabled users to access aggregated bias ratings of news sites, real-time breakdown of daily news media consumption, and metadata insights. Collected comprehensive browsing data over two weeks for in-depth analysis.
- **Modular Music**: Introduce uCue, a novel music interface tailored to children with ASD. This interactive playback system offers modular arrangements of children's songs at a deliberate, slower tempo while allowing listeners to manipulate musical layers to better suit their preferences. Our system features four songs with seven distinct layers, some with up to three modular variants, allowing children to customize their musical renditions in real time. We deployed uCue via listening sessions with seven parent-child dyads. Our analysis of collected data focused on understanding the child participants' music preferences, attention levels, and emotional responses, as well as their interactions with the device and music. We used sources such as uCue system application logs, session audio/video recordings, and observations made by our research team during the session.
- **UD students Observation**: Employed in-situ observation methods to delve into student interactions with intricate digital kiosks in public spaces such as ATMs or fast-food ordering systems. Natural user behavior was meticulously recorded and analyzed for 20 participants, pinpointing pain points and paving the way for alternative designs.
- **Medication Management**: Led the end-to-end design and assessment of a mobile medication management application strategically crafted to boost patient adherence and minimize medication errors. Integrated essential functionalities, including medication reminders, refill requests, and drug interaction alerts. Rigorously evaluated the app's efficacy via user testing, interviews, and surveys involving patients and healthcare providers.
- **Personal/Portfolio Website**: Designed and developed three distinct websites to showcase my portfolio: one utilizing Google Sites, another crafted from the ground up using HTML, CSS, and JavaScript, and a third comprising a static blog site powered by Jekyll and a Liquid Theme, seamlessly hosted on my GitHub page. These websites highlight my expertise and accomplishments effectively, ensuring optimal online visibility and accessibility for potential collaborators and employers.

- **Nepal Stock Exchange:** Enhanced 'NEPSE' Trade System UI. Elevated user experience, cutting trade processing time by 25% and bolstering market transparency.
- **Gocchi: Compliance Manager [Customer Support, Website Architecture & UI Design]:** Provided adept customer support and meticulously maintained website architecture. Leveraged React/Redux and Bubble.io for streamlined development. Orchestrated user-centric interface design and rapid prototyping in Figma. Seamlessly integrated HubSpot for enhanced user engagement and support.
- **SWARM:** Used Telerik ASP.NET controls, resulting in streamlined data exchange, optimized system performance, and improved user experiences through efficient backend architecture.
- **Siam Makro, Thailand:** Enhanced retail operations by creating efficient business intelligence reports and data warehousing solutions. Employed Oracle, OBIEE, and BIP for faster data analysis, leading to quicker decision-making. Utilized query optimization and Bash scripting, accelerating report generation and improving overall retail efficiency.
- **BELK United States:** Batch Handling/Monitoring, Scheduling and execution of ETL tool jobs, Creation of Extraction and Loading scripts in accordance to the existing python script, ETL, Datavalidation Tech: Snowflake, Autosys, Putty
- **Hot Topic, Inc, United States:** Developed custom scripts for the ETL purpose, Performed unit testing and extensive validation across the source and target systems, and Prepared sales and inventory reports. Tech: Looker, Jira, Snowflake, Python
- **Fine Tune BERT for Textclassification with Tensorflow:** This involves fine-tuning BERT for text classification and sentiment analysis using TensorFlow 2 and TensorFlow Hub. The dataset is sourced from Quora, focusing on insincere questions containing aggressive, inflammatory, or sexually explicit content. The goal is to predict whether sentences are insincere (labeled as 1) or sincere/non-toxic (labeled as 0). BERT, a transformer model, revolutionizes natural language processing and comes pre-trained for mask language model and next sentence prediction tasks. The pre-trained model is used, fine-tuning it for the specific task. Dataset link: kaggle.com/c/quora-insincere-questions-classification/data.
- **Tweet Emotion Recognition with TensorFlow (Coursera Project Network):** Undertook the task of developing a system for recognizing emotions in tweets using state-of-the-art techniques. I implemented processes such as tokenization using TensorFlow, sequence padding, and truncation. Additionally, I successfully designed and trained a Recurrent Neural Network (RNN) for efficient sentiment analysis.
- **Evaluating Serverless Machine Learning Performance with Google Cloud Run:** Created a Machine Learning Python Flask Application for image classification, containerized it, and deployed the containerized application in the Google Cloud platform and determined different metrics like autoscaling feature. Tech: Python, Google Cloud Run, Docker, Containers, Locust API.
- **Sports Video Classification:** Created a machine learning model to distinguish six sports action classes from 300 video frames using CNN & RNN: boxing, hand-clapping, hand waiving, jogging, running, and walking.Tech: GoogleColab, Python, Tensorflow
- **Traditional Dance Classification:** Used the CNN technique to see how we can classify an image based on the position they are making, i.e., five dance classes, namely Bharatanatyam, Odissi, Kathak, Kathakali, Yakshagana. Tech: Python
- **Predicting Bank's Churn with ANN:** Create a geodemographic segmentation model to tell the bank which customers are at higher risk of leaving.Tech: Google Colab, Python, ANN, Numpy, Pandas
- **Amazon Alexa Review system:** Created a NLP model that managers products review.So by analyzing that product review, we will give if the product feedback is positive or negative, which can be easily used in the case of industries where they need to improve their product according to their reviews. Tech: Google Colab, Python, Natural language processing

CERTIFICATIONS AND TRAININGS

- **Introduction to Generative AI** - Coursera, December 2023
- **Introduction to Large Language Models LLMs** - Coursera, December 2023
- **Conducting Remote UX Research Interviews** - LinkedIn, October 2022
- **Customer Experience: Creating Customer Personas** - LinkedIn, October 2022
- **Design Thinking: Understanding the Process** - LinkedIn, October 2022
- **Getting Started in User Experience** - LinkedIn, October 2022
- **UX deep Dive: Usability Testing** - LinkedIn, October 2022
- **UX Foundations: Research** - LinkedIn, October 2022
- **Getting Started with Figma** - LinkedIn, September 2022
- **Data Visualization for everyone** - Datacamp, June 2022
- **Understanding Data Science** - Datacamp, June 2022
- **CITI Training-Institutional Review Board (IRB)** - CITI Program, January 2022
- **Deep Learning Bootcamp 2021: Build 10 Real World Projects** - Udemy, January 2022
- **Responsible Conduct of Research (RCR)** - CITI Program, November 2021
- **Introduction to Python** - Datacamp, October 2021
- **Learn Machine Learning and AI (Including Hands-on 3 Projects)** - Udemy, October 2021
- **Crash Course for Laravel and Vue JS** - Udemy, June 2020
- **Completion of Online Looker Training** - Looker, July 2020