

Manila Devaraja

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PROFESSIONAL SUMMARY

A Ph.D. student seeking **Spring/Summer 2026** internship opportunities in Usable Privacy and Security Research. I bring expertise in **data analysis, machine learning, privacy & security, and behavioral research.**

EXPERIENCE

Graduate Research Assistant | Kahlert School of Computing

May 2023 – Present

- **Understanding User Prioritization and Comprehension of Smartphone Permissions:** An Online Questionnaire developed using Qualtrics to capture the **Prioritization and Comprehension of 26 smartphone permission settings** (combined from both Android and iOS).
- **Visualisation of rating and ranking data** to interpret the grouping of the preferences with the permission settings. Descriptive and Inferential Statistical Analysis to analyze the preferences and their relation to other socio-economic factors like gender, income, etc. More details on the project are [here](#).
- **Interdependent Privacy in Smartphone App Permissions (Replication Study):** A between-subject study to understand how users perceive the interdependent privacy nature of smartphone permissions
- Identified and created visual cues to **capture the interdependent nature of smartphone permissions** like Contacts, Photos, Calendar, and the File system.

Research Assistant | David Eccles School of Business

May 2022 – May 2023

- Conducted a research study to extract features from the [Amazon Review Data](#). Developed a data cleaning pipeline capable of batch-processing **5,000 reviews at a time**, resulting in the processing of a total of **51,311,621** reviews.
- Implemented a data analysis pipeline using Natural Language Processing (NLP) techniques, including **topic modeling**, to identify review features such as readability score (using the **Flesch reading ease score** (Flesch Score) and the **Gunning fog index** (Fog Index)), concreteness, custom dictionary for imperatives (counting sentences that begin with a verb phrase but have no grammatic subject), captured explicitly persuasion-focused statements, etc.
- Examined the reviews' helpfulness using [LIWC](#) to measure the active to passive word ratio, first person voice, confident or certain language measure, etc. The review's usefulness was then used for **improving marketing strategies and product recommendations**.

Software Engineer | Robert Bosch Engineering and Business Solutions

Aug 2018 – July 2021

- Test automation using Python scripts: A time-consuming manual test case of OBD regression test was automated to **save 90% of the time**.
- Vehicle Communication Function Development: **Development of modules** like Diagnostic Error Management (DEM), Diagnostic Communication Management (DCM), and Communication stack for Automotive ECU based on AUTOSAR platform. Implementation of diagnostic information communication using the UDS protocol and communication with other ECUs using the CAN protocol.

TECHNICAL SKILLS

Languages : Python, R, SQL [Postgres, MS-SQL, MySQL] (**HIGH PROFICIENCY**), JavaScript, HTML/XML, JSON, CSS, C/C++
Data Science and Machine Learning : Scikit-learn, Pytorch, XGBoost, **Matplotlib, NumPy, Pandas, ggplot2, dplyr (HIGH PROFICIENCY)**, Seaborn, tidyverse, BeautifulSoup

Research Methods : Interview, **Survey (HIGH PROFICIENCY)**, Mixed-method, Data Scraping (BeautifulSoup), Qualitative Analysis (Thematic Analysis), Quantitative Analysis, **Research Writing (LaTeX)**

Tools & Frameworks : Git, Docker, Android Studio, Express.js, Django, React.js, Tensorflow

PROJECTS

Parental Oversharing: Investigating “Sharenting Concerns” | Reddit Data, Qualitative Coding, Privacy & Security Fall 2023

- We collected data manually from subreddits, a total of 60 posts, along with 10 comments per post, which was **a total of 600 comments**, which were **qualitatively analyzed** by two authors.

Visualizing Open Data: Public Perceptions on Privacy | Survey, Semi-structured Interview, Qualitative Analysis Fall 2023

- We conducted a survey and semi-structured interviews of **7 participants** to investigate how visualization impacts privacy.
- We identified **privacy, safety, and social concerns** expressed when the data was visualized differently, other than the tabular format.

PUBLICATIONS

1. **Manila Devaraja**. 2025. Redesigning Smartphone Permission Managers for User-Centered Privacy Management. In Adjunct Proceedings of the 27th International Conference on Mobile Human-Computer Interaction (MobileHCI '25 Adjunct). Association for Computing Machinery, New York, NY, USA, Article 39, 1–3. [doi:10.1145/3737821.3749453](#)
2. **Manila Devaraja** and Sameer Patil. 2025. Understanding User Prioritization and Comprehension of Smartphone Permissions. Proc. ACM Hum.-Comput. Interact. 9, 5, Article MHCI035 (September 2025), 46 pages. [doi:10.1145/3743739](#)

EDUCATION

University of Utah
University of Utah

PhD in Computer Science | GPA : 3.8
MS in Computing | GPA : 3.7

August 2023 – May 2027*
August 2021 – May 2023