Harkeerat Singh Mayall

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Education

University of Manitoba, Winnipeg, MB **(GPA: 4.38/4.5)**
Bachelors in Computer Science (Hons.) Jan 2021 - May 2025 (Expected)
- Relevant coursework: Data Structures, Analysis of Algorithms, Distributed Computing, Databases
- Awarded the Chan Hon Kee Scholarship for achieving Rank 1 in the Department of Computer Science.
- Placed on the Dean's Honor List for 2021-2023.
- Received International Undergraduate Student Scholarship 2021-2023.

Experience

Waterloo HCI & Visual AI Lab - University of Waterloo, Student Researcher May 2023 - Present
Project: ArtistryFlow- Reasoned Mood Board-driven Iterative Graphics Design
- Designing a state-of-the-art application for AI design generation allowing users to add structured images complemented with a textual prompt to increase the accuracy of alternate design generation.
- Implementing the backend by extracting key features from the visual prompt & using GPT-4 for design reasoning.
- Utilizing stable diffusion APIs to generate multiple designs, each of which can be iteratively improved using a textual modification prompt.
- Spearheaded the frontend design using ReactJS, MaterialUI and a fully interactive drawing canvas using FabricJS.
- Conducted extensive research and interviewed design experts to draw insights on the researched data.
- Created a fully interactive prototype in Figma to display the features of the application design experts.

Human Computing & Bioinformatics Lab - University of Manitoba, Student Researcher May 2022 – Aug 2022
Project: RNASeq Analysis & GeneID Conversions
- Contributed to the RNA Seq Analysis project and comprehensively analyzed techniques to transform RNA sequences into analyzable data using Python.
- Used R to apply techniques and draw insights from raw genomic data.
- Programmed a pipeline of R commands in Python using subprocess module to visualize further and study the data improving the accuracy of variation detection by 20%.

MyalStone – RangerStork India, Technical Specialist Jan 2018 – Dec 2020
- Remodeled the company inventory system by integrating a program written in Python and MySQL to easily access items in the inventory achieving a 70% reduction in paperwork.
- Trained a model on past years' inventory data and analyzed the inventory space to identify peak sales time and predict inventory space reducing deadstock percentage by 15%.
- Single-handedly set up and deployed a website for the company to increase customer outreach by 60%.
- Researched extensively to identify 3 key factors for declining conversion rates through the website; constructed visualizations using Python to present findings and re-launched the campaign achieving an 8% better customer conversion rate.
- Highlighted the need for a real-time monitoring system to identify dynamic market trends; implemented the idea and projections using Python, discovering a breakthrough product generating revenues over $100k.

Project Unnati - Enactus, Volunteer Digital Literacy Teacher July 2019 – March 2020
- Organized digital literacy workshops for 100+ women and children to enhance computer literacy.
- Imparted basic computer knowledge including the effective use of the internet, and applications such as Word, Excel, etc.

Projects

Stock News Sentiment Analyzer | [Code] Jan 2023
- Coded a program that parsed stock news data on Python for certain stocks from finviz.com using BeautifulSoup4 library.
- Utilized NLTK Vader Library to conduct sentiment analysis on news headlines.
- Retrieved prices from yfinance to compare the impact of headlines on prices of the targeted stocks and correctly predicted the effect for 80% of them.

VizSort - Sorting Visualizer | [Code] Dec 2022
- Built a web application capable of visualizing changes made to an array when using different sorting algorithms.
- Allows users to control the speed of the visualization and the size of the array.

Book Store Inventory system | [Code] Sept 2022
- Implemented an inventory system using Python allowing users to keep track of the books and their information.
- Designed an easy-to-use, user-friendly interface using Tkinter.
- Improved the data management system by using MySQL for retrieving and storing all the details.

Skills

Programming Languages & Databases: Java, Python, C/C++, , JavaScript, SQL, R, HTML/CSS

Framework & Libraries: React, PyTorch, Linux, Scikit, NLTK, Pandas, Numpy, MaterialUI, Matplotlib

Tools & Services: Git, Github, VS, Figma, RStudio