Parshan Javanrood

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EDUCATION

University of British Columbia — Vancouver, BC
Bachelor of Applied Science in Computer Engineering; GPA: 3.96(90.6/100) — September 2021 – Present

- **Coursework**: Algorithms & Data structures, Software Construction, Operating Systems, Probability and Statistics, Linear Algebra, Digital Systems Design
- **Co-op program**: Available for 4 or 8 months beginning May 2023
- **Scholarships and Awards**:
  - Trek Excellence Scholarship($4k): Ranked in the **top 5%** of over **1200** engineering students
  - Outstanding International Student Award($20k): Awarded to exceptional incoming international students

TECHNICAL SKILLS

Languages: Java, Python, C/C++, Rust, SQL, R, MATLAB, Arduino, SystemVerilog

Technologies:

- Git, Bash, Unix
- Pandas, NumPy, Matplotlib, TensorFlow, Google Cloud
- WebSocekts, TCP/IP, Flask, HTML/CSS, JavaScript, Docker
- Raspberry Pi, DE1-Soc, CAN Bus, UART, Micro-controller

EXPERIENCE

Embedded Software Developer — Vancouver, BC
UBC Bionics Design Team — January 2022 - Present

- Converted functionalities of an open-source library from **C++** to **Rust** to receive transmitted signals from an **Electromyography**(EMG) device
- Utilized **Linux Pipes** for transferring data between 3 **concurrent** processes, connecting different components of the program, and used **Mutex Locks** to protect shared resources
- Developed a **Watchdog thread**, that communicates with the main loop using **TCP** connection, and monitors the activity of the program, to retrieve in case of crashes
- Collaborated with peers in Software, Analytics and Electrical sub-teams to incorporate electrical and analytical modules of the system

Undergraduate Teaching Assistant — Vancouver, BC
UBC Math Department & Computer Science Department — August 2022 - Present

- Co-facilitate weekly **workshops**, and helped **50+ students** to practice mathematical and programming concepts, such as **Differential Calculus**, **Embedded Programming** with Arduino, and **Data Analysis** with Excel
- Conducted **problem-solving sessions** to prepare students for midterms and finals

TECHNICAL PROJECTS

Twitter + Pub-Sub Server(Link) — UBC(Team Project)
Java, Twitter API, Socket, JUnit 5 — November 2022

- Built an **asynchronous messaging service** that allows simultaneous connection of multiple clients
- Developed features enabling clients to send and receive **direct messages** from other users, as well as **subscribing to twitter** users, and listening for tweets that contain certain keywords
- Utilized **Twitter API** to get users' tweets, and subscribe to their stream of new tweets
- Created abstract data types to handle **concurrent** mutations from different users
- Used **sockets** to communicate with clients over **TCP network** in form of encrypted **JSON** requests/responses

Algorithmic Trading Bot (Link) Personal Project
Python, WebSocket, Pandas, NumPy, Google Cloud July 2022

- Coded an Algorithmic trading bot for crypto and stocks that operates in the 1-minute timeframe and returns an average profit of **8% per day**. The bot is automated on a **VM** hosted by the Google cloud
- Used the Alpaca API and utilized **HTTP** requests and **WebSockets** to transfer data
- Performed quantitative analysis using **Pandas** and **NumPy** libraries, and **Matplotlib** for data visualization
- Utilized **SMA strategy** to recognize buy and sell signals, and forecast the most profitable time-period pairs by backtesting

Natural Language Processing(NLP) with Ngrams UBC(Team Project)
Java, JUnit 5 September 2022

- Deployed a multi-purpose machine learning model that utilizes **Ngrams**, and performs statistical analysis using **Naïve Bayesian algorithm** to determine textual similarity
- Trained the model with data from RateMyProfessors website to perform Sentimental analysis, and predict the score of a professor with **87% accuracy** solely based on their review
- The model can classify words with similar meanings by analyzing their usages in the training data and calculating the **Cosine Similarity** of their Ngrams

Kinetic Theory Simulation(Link) Personal Project
C++, Python, NumPy, Pandas, Matplotlib, SDL library October 2021

- Simulated the **elastic collisions** of up to **2000** particles inside a closed box and tracked their velocity transition through time
- Performed **statistical analysis** on the generated data and compared it to the theoretical model of velocity distribution (**Maxwell-Boltzmann distribution**). The data were **98%** compatible with the expected model
- Used **Pandas** and **NumPy** for numerical analysis and **Matplotlib** to visualize the result

Market Manager Application (Link) Personal Project
Java, JavaFX library, SceneBuilder April 2021

- Market application, with different modes for both administrators and customers. Provides inventory management features for admins and customers can place new orders
- Designed interactive **GUI** for different modes of the application, using the **SceneBuilder** and the **JavaFX** library
- Structured the data interchange mechanism with **JSON** objects

Brick Smasher Game (Link) Personal Project
C++, SDL library December 2020

- An interactive game based upon the classic game brick breaker
- Designed features such as bombs and paddle extensions to make the game more interesting
- **Optimized** the program and its computations to minimize lag, and needed processing power
- Developed a GUI from scratch with basic graphical elements available in the **SDL library**

HONORS AND AWARDS

International Collegiate Programming Contest(ICPC) December 2020

- Participated in the Asia regional contest hosted by Sharif University of Technology
- Placed among the **top 20 teams**, out of more than 60 participating student teams, and **advanced** to the second round

International Olympiad on Astronomy and Astrophysics(IOAA) Gold Medalist October 2020

- **Individual Competition**: Placed among the top 27 gold medalists, out of 278 participants
- **Team Competition**: Ranked 3rd between 42 participating teams. Coordinated the team's communications and helped overcome the significant time difference between members