KIERAN PARANJPE

Vancouver, BC & Montreal, QC

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EDUCATION

McGill University   August 2023 - April 2027
BSc in Computer Science (AI), Minor in Cognitive Science | 4.00 GPA   *Montreal, QC*

SKILLS

Languages: C#, Java, JavaScript, TypeScript, Python, Golang, C, Bash, MIPS Assembly, HTML, CSS
Frameworks/Tools: Git, Docker, SQL, AWS EC2, PyTorch, React.js, Next.js, Unity, Firebase, P5/Processing
Soft Skills: Public Speaking, Leadership, Concise Communication, Quick Learning, Empathy, Teamwork

EXPERIENCE

Software Developer Intern | *Python, PyTorch, C#, Unity, JavaScript*   May 2024 - August 2024
The Verse   *Vancouver, BC / Remote*

- Developed a library that **tracks breath rate in realtime** using microphone input by **training a neural network** that takes mel spectrograms as input with **PyTorch**, achieving classification accuracy of 85%.
- Created an annotated breath audio dataset with over 50 minutes of breathing samples by **implementing a web-app made with JavaScript and p5.js** that records breath audio and uploads it to a **Firebase** storage bucket.
- Ported and **optimised the PyTorch model to run in C#** so it could be used in Unity, yielding a 5x speedup by converting the model to .ONNX, and analysing running time of specific functions using the Unity profiler.
- Reverse engineered PyTorch's short time fourier transform, spectrogram, and mel spectrogram by stepping through Python source code with the debugger and reproducing functionality in C#.
- Directed development by **leading meetings with other interns** working on the breath library.

Game Developer | *C#, Unity, JavaScript, Firebase*   September 2016 - August 2023
KP Games   *Vancouver, BC*

- **Published 12 video games over 7 years** using Unity and C#, garnering **over 1000 users** across all games.
- Developed an active ragdoll platforming game by mapping the pose of a ragdoll onto an animated 3D mesh.
- Implemented a **finite state machine** and **behaviour tree** for enemy AI to improve NPC intelligence.
- Built a multiplayer first person shooter using Photon Unity Networking.

Software Developer, Robot Designer | *Java, Android Studio, Fusion 360*   Septemeber 2019 - April 2023
FIRST Robotics (FIRST Tech Challenge & FIRST Global Challenge)   *Vancouver, BC*

- Captained my FIRST Tech Challenge robotics team to 1 **world-championship qualification** and multiple top 3 provincial finishes. Member of **Team Canada** for the 2022 FIRST Global Challenge in Geneva.
- Increased robot driving accuracy by implementing odometry localisation.
- Programmed control for robot arms and lifts using sensor input and PID.

PROJECTS

Custom Neural Network ⧉ | *Python, NumPy*   June 2024

- Programmed a custom feedforward neural network in Python using NumPy **without any machine learning libraries** (like PyTorch) to classify the MNIST digit dataset with **95% accuracy**.
- Implemented a deep learning network with over **25,000 trainable parameters** by researching the underlying mathematics behind back propagation and gradient descent.

URL Shortener ⧉ | *Golang, TypeScript, Next.js, PostgreSQL, Docker, AWS EC2*   May 2024

- Developed a **full-stack web application** to shorten URLs using a Golang server that interacts with a PostgreSQL database, running on an AWS EC2 instance with a Next.js frontend.
- Implemented **middleware that handles JSON Web Tokens (JWT)** to ensure users are properly authenticated.
- Encapsulated the backend in a Docker container so it can be easily deployed on AWS.

Spotify MP3 Download & Stats ⧉ | *TypeScript, Next.js*   January 2024

- Developed a web-app in TypeScript with Next.js that that can **download Spotify songs without Spotify premium**.
- Displays top songs, artists, and genres for 3 different timeframes using the **Spotify Web API**.
- Utilized the **YouTube Data API** to search for corresponding music videos to download.
- Implemented **NextAuth** to handle authentication with refresh tokens.