Nathaniel Mastracci

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WORK EXPERIENCE

Research Assistant   **Jan. 2023 – Apr. 2024**
Sheridan Centre for Applied AI   Oakville, ON
- Developed a machine learning model using Python, TensorFlow, and Jupyter Notebook for the classification of heart sound audio captured through an electronic stethoscope.
- Researched recent academic literature to improve a machine learning model for heart sound classification, increasing accuracy to 75%.
- Published and presented an IEEE paper detailing our research efforts in developing the model for heart sound classification.
- Communicated research progress through weekly meetings and detailed reports, ensuring effective collaboration within the team.

Research Assistant   **May. 2022 – Aug. 2022**
Sheridan Centre for Applied AI   Oakville, ON
- Researched state-of-the-art voice cloning solutions, emphasizing cross-lingual capabilities, AI model effectiveness, and optimal dataset practices.
- Developed voice clones with Python and Pycaret, utilizing Wav2Lip to produce AI-generated lip-synced videos and explore practical applications of voice cloning technology.
- Tailored and presented key research insights with our industry partner, to address technical feasibility and align research outcomes with partner expectations.
- Shared research updates through daily stand-ups, fostering effective team collaboration.

Front-End Developer   **Jul. 2019 – Apr. 2020**
Claret Asset Management   Montreal, QC
- Developed the front end of a client-onboarding web application using AngularJS, JavaScript and Bootstrap, creating extensive forms to manage client personal and financial information.
- Implemented form validation, error handling, and responsive UI features to enhance user experience and ensure reliable data input.
- Designed a SQL database in accordance with normalization principles to ensure data integrity and efficiency.
- Collaborated closely with domain experts to design and develop an application tailored to meet their specific needs and requirements.

EDUCATION

Sheridan College   **2019 - 2024**
Honours Bachelor Of Computer Science - Degree   Oakville, ON
GPA - 3.32

Sheridan College   **2015 - 2017**
Computer Systems Technician - Software Engineering - Diploma   Oakville, ON

TECHNICAL SKILLS

Languages: Python, JavaScript, Kotlin, HTML, CSS, SQL/PostgreSQL, C#, Java
Frameworks: AngularJS, React, Node.js, Express.js, Tailwind CSS, Bootstrap, .NET
Developer Tools: Git, JIRA, Firebase, Jupyter Notebook

PROJECTS

Auditory Processing Disorder (APD) Reading Tool - Kotlin, React, Firebase, JIRA
- Created an assistive reading app for children with APD in Kotlin.
- Supported multiple functionalities to aid in users reading experience.
  - o Leveraged Optical Character Recognition (OCR) to extract text from images and provide assistance through voice-to-text conversion and highlighting different parts of speech for improved comprehension.
  - o Utilized AI to generate reading context problems for the user to practice reading comprehension.
  - o Managed user authentication and data with Firebase Firestore.
- Implemented a web application with React to create and modify reading problems for use in the mobile app.
- Utilized Visual Paradigm and Figma to practice software design, creating comprehensive diagrams and documentation to ensure clarity and coherence throughout the development process.
- Led a 3 person team, facilitating communication through weekly stand up meetings and managing tasks using a JIRA board for streamlined project organization and progress tracking.

Collectors - React, Vite, Tailwind CSS, Node.js, Express.js, PostgreSQL
- Built a full-stack web application to manage Hot Wheels collections, reducing manual tracking and improving organization.
- Enabled users to quickly add cars by scanning UPC codes, streamlining the data entry process.
- Designed a responsive front end with React and Tailwind CSS for browsing and organizing collections.
- Developed a RESTful API with Node.js and Express.js, storing user collections in PostgreSQL for persistent data.

Portfolio Website - React, Vite, Tailwind CSS, Github Pages
- Designed and developed a responsive portfolio site to showcase projects and skills.
- Configured Vite build for static export and automated deployment to Github Pages.