

# Nathaniel Mastracci

[mastraccin.github.io](https://mastraccin.github.io) ❖ [linkedin.com/in/mastracci/](https://linkedin.com/in/mastracci/)

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## WORK EXPERIENCE

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### Research Assistant

**Jan. 2023 – Apr. 2024**

Sheridan Centre for Applied AI

Oakville, ON

- Developed an AI model using Python, TensorFlow, Pandas, and Jupyter Notebook for the classification of heart sound audio captured through an electronic stethoscope.
- Researched recent academic literature to refine the model, increasing accuracy to 75%.
- Published and presented an IEEE paper detailing our research efforts and development process.
- 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.
- Presented key research insights with our industry partner, to address technical feasibility and align research outcomes with partner expectations.
- Delivered research updates during daily stand ups and collaborated on identifying and pursuing opportunities.

### 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

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### Sheridan College

**2019 - 2024**

Honours Bachelor Of Computer Science - Degree  
GPA - 3.32

Oakville, ON

### Sheridan College

**2015 - 2017**

Computer Systems Technician - Software Engineering - Diploma

Oakville, ON

## TECHNICAL SKILLS

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**Languages:** Python, JavaScript, Kotlin, HTML, CSS, SQL/PostgreSQL, C#, Java

**Frameworks:** AngularJS, React, Node.js, Express.js, Tailwind CSS, Bootstrap, .NET

**Libraries:** TensorFlow, NumPy, Pandas, PyCaret, Sci-kit learn

**Developer Tools:** Git, JIRA, Firebase, Jupyter Notebook

## PROJECTS

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### [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.
  - Leveraged Optical Character Recognition (OCR) to extract text from images and provide assistance through voice-to-text conversion and highlighting different parts of speech (nouns, verbs etc.) using AI for improved comprehension.
  - Utilized AI to generate reading context problems for the user to practice reading comprehension.
  - 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.