

# Mahdi Zarour

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## EDUCATION

### Université de Montréal, Montréal, Québec, Canada (2020 - 2023)

- MSc in Computer Science
- **GPA:** 3.7/4.3
- **Coursework:** Fundamentals of Machine Learning · Probabilistic Graphical Models · Representation Learning · Theory of Deep Learning
- **Scholarships:** International Students Scholarship of value \$27,000 CAD

### Université d'Oran 1, Oran, Algeria (2015 - 2020)

- Licence in Computer Science (equivalent of BS in Canada)
  - Top 5% of the program in GPA
  - Was offered a scholarship to study in Hungary but had to decline to come to Canada
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## PROJECTS

### CodeML Hackathon by Polytechnique Montréal (October 2022)

- First Place in a hard challenge
- Used artificial intelligence to develop a model (**CNN**) for Image-Based Plant Disease Detection
- Won \$1,000 CAD worth of prizes

### GPT3 based Q&A bot (April 2023)

- Developed a chat bot for a dental clinic using **OpenAI API** (GPT3) to answer questions about dental aligners from a 400 pages book
  - Added a speech to speech wrapper using **Microsoft Azure API** to ask the bot and receive answers via voice
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## PROFESSIONAL EXPERIENCE

### Beam Me Up Inc.

#### Student Researcher (2021 - 2022)

During my master's project, the goal of my research was to develop a means to detect cognitive distraction. I created an experiment in **Virtual Reality** (VR) using **Unity** to collect data from participants. Later, I collected data from 31 participants wearing both an EEG headset and a VR headset while completing the experiment developed previously. Finally, I analyzed the data and used machine learning to create a model able to detect distraction using EEG and Eye Tracking data.

#### Highlights:

- Developed a Virtual Environment in Unity using **C#** language
- Successfully conducted experiments on 31 participants in a laboratory
- Analyzed data using popular data science libraries including: **Numpy, Pandas, advanced Scikit-learn, Scipy, Matplotlib, Pytorch**
- This project led to my first paper publication: [https://link.springer.com/chapter/10.1007/978-3-031-32883-1\\_44](https://link.springer.com/chapter/10.1007/978-3-031-32883-1_44)

## Université de Montréal

### Teaching Assistant (2021)

- Held weekly lab sessions, office hours, and was responsible for grading of homeworks and projects
- Introduction to Programming (Winter 2021), Software Engineering (Summer 2021)

### Freelancer

#### Telegram Store Bot (May 2023)

- Developed as a freelancer a Telegram Store in python to deliver digital and physical products
  - The bot accepts card payments as well as cryptocurrencies
  - Created an **SQLite** database to manage users, transactions, and other data
  - Successfully developed and delivered our client bot with **Heroku** for \$6,000 CAD
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## ACADEMIC PUBLICATIONS

- Zarour, M., Ben Abdesslem, H., Frasson, C. (2023). **Distraction Detection and Monitoring Using Eye Tracking in Virtual Reality**. In: Frasson, C., Mylonas, P., Troussas, C. (eds) Augmented Intelligence and Intelligent Tutoring Systems. ITS 2023. Lecture Notes in Computer Science, vol 13891. Springer, Cham. [https://doi.org/10.1007/978-3-031-32883-1\\_44](https://doi.org/10.1007/978-3-031-32883-1_44)
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## SKILLS & TECHNOLOGIES

- Popular Data Science, Machine Learning, and Deep Learning tools: Python · Numpy · Scipy · Pytorch · Pandas · Scikit-learn · matplotlib
- Modern Deep Learning architectures: MLP · CNN · RNN · Transformers · GAN · LLM · Latent Diffusion Models
- Other tools: Java · SQL · PostgreSQL · Heroku · Unity · C#