

Education

- Preparatory Institute for Engineering Studies (ranked 61 among 1200 candidates), IPEIS

2 years

2018-2020
- National School of Computer Science ENSI, Computer Science *engineering diploma*

3 years

2021-2024
- Baccalaureate Diploma in mathematical Science

Summer Internships and Experience:

<div><div>• R&D Engineer Sofrecom Tunisia</div><div>05/2/2024 - 03/08/2024</div><div>I have developed an advanced real-time lip-reading system that translates visual speech cues into audible speech. This system processes live video feeds to generate precise text predictions, which are then synthesized into speech, enhancing communication for individuals.</div><div><div>► Developed a novel real-time lip-reading system using CTC, TimeDistributed, 3DCNN and Bi-LSTM networks.</div><div>► Achieved high accuracy with a Character Error Rate (CER) of 8.15% and Character Accuracy (CA) of 91.85% on the GRID dataset.</div><div>► Implemented a deployment strategy using Flask to enable real-time lip reading through a web application.</div><div>► Achieved text predictions and synthesized speech by normalizing image data, using CTC decoding, correcting text with TextBlob.</div><div>► Integrated TensorFlow and MediaPipe to capture and process lip movements.</div><div>► Constructed the DATAV1 dataset with more than 600 files for initial model training and evaluation.</div><div>► Conducted a comprehensive analysis of deep learning model architectures for lip reading using the DATAV1 dataset.</div><div>► Explored and evaluated multiple architectures like ResBlock3D, Conv3D, Conv2D, TimeDistributed, attention mechanism, and LSTM.</div><div>► Identified the optimal architecture achieving a peak validation accuracy of 98.18%.</div><div>► Contributed insights into effective model selection for accurate lip-reading performance.</div><div>► Constructed the DataV2 dataset with more than 4000 files for enhanced model training and evaluation.</div><div>► Designed a new lip-reading model architecture incorporating 3D CNN, Bi-LSTM, TimeDistributed, and SoftMax layers.</div><div>► Developed a real-time lip-reading application with a video interface displaying synchronized subtitles and predictions.</div><div>► Implemented a chatbot using Voice flow and trained it with GPT-3.5 for user interaction and assistance</div><div>► Designed and implemented a Video Metting Page</div><div>► converting text to speech with Google Text-to-Speech (gTTS).</div></div><div><div>Keywords: Attention Mechanisms, TimeDistributed, BatchNormalization, MediaPipe, CTC Loss, CTC decoding, Bi-LSTM, 3DCNN, LSTM, 2DCNN, ResBlock3D, Image Normalisation, Wordninja, TextBlob, Google Text-to-Speech (gTTS), Model Selection, TensorFlow, Keras, Flask, Python, SSE, JavaScript, Threading, Generative AI, GPT-3.5, Deep Learning, Computer Vision, Quantum Machine Learning, Spiral Life Cycle</div></div></div>	<div><div>Sfax, Tunis</div></div>
<div><div>• Data Scientist Fysali SAS Bio-incubateur Eurasanté France</div><div>19/7/2023 - 20/09/2023</div><div>I have developed an application to prevent medical violence and managed a comprehensive database for a cutting-edge Medical Text Classification Application, leveraging advanced Natural Language Processing (NLP) techniques. The application automatically categorizes medical texts into "non-medical violence" and "Medical violence" categories, providing rapid insights. It serves as a valuable tool for enhancing healthcare communication and awareness.</div><div><div>► Developing an application to prevent medical violence</div><div>► Successfully tested and implemented various NLP models to optimize the accuracy.</div><div>► Designed and maintained a well-organized database crucial for model training and evaluation.</div><div>► Collaborated in the creation of a user-friendly interface, ensuring accessibility to a wide audience.</div><div>► Contributed to the mission of improving healthcare transparency and understanding.</div></div><div><div>Keywords: NLP, Transformers, Transfer Learning, Bert, Distilbert, Universal Encoder, Python, CNN, RNN, LSTM, Python, Streamlit, Data Mining, Deep learning</div></div></div>	<div><div>Lille, France</div></div>
<div><div>• Software Engineer Mosofty</div><div>01/07/2023 - 30/08/2023</div><div>During my summer internship, I worked on a project aimed at enhancing the performance of the company's Optical Character Recognition (OCR) system. My primary role involved developing an artificial intelligence module to improve text recognition accuracy in scanned documents. Additionally, I created an Excel-based database to train and evaluate the model, resulting in a significant reduction in recognition errors. Also, I developed a Flask-based microservice to automatically extract information from CVs. The project aimed to streamline and expedite the recruitment process by extracting data. In summary, I focused on improving the OCR system's performance and developed a microservice to extract information from CVs, enhancing efficiency in the recruitment process.</div><div><div>► Designed and developed an artificial intelligence module using Flask to enhance the OCR system's performance.</div><div>► Utilized the XGBoost algorithm and XMLRegressor for optimizing text recognition accuracy.</div><div>► Gathered and prepared relevant data from scanned documents for model training.</div><div>► Created and managed an Excel-based database for model training and evaluation.</div><div>► Conducted rigorous testing to assess the module's performance and accuracy.</div></div></div>	<div><div>Tunis, Tunisia</div></div>

- ▶ Thoroughly documented the implemented methods and achieved results.
- ▶ Designed and developed a Flask microservice for extracting information from CVs.
- ▶ Extracted structured data from CV documents in various formats.

Keywords: Flask, Docker, Machine Learning, XGBoost, XMLRegressor, Python, Microservice

- **Data Scientist | Centre de Recherche Numérique** **Sfax, Tunisia**

15/07/2021 - 30/09/2021

The proposed internship project aims to develop a system that will recognize static sign gestures and convert them into corresponding words.

Keywords: LSTM, TensorFlow, Python

Research Projects:

- **Google Cloud Data Pipeline Analytics Project:**
A Python Flask web portal for uploading sales data files stored in a GCS bucket. Automated Cloud Functions handle ETL processes, loading data into BigQuery, with Looker Studio for reporting and dashboards.
Keywords: Google Cloud Storage, Cloud Functions, BigQuery, Python, Looker, Flask
- **Cricket Statistics Pipeline with Google Cloud Services:**
I have walked through the intricate steps of constructing a comprehensive cricket statistics pipeline using Google Cloud services. From retrieving data via the API to crafting a dynamic Looker Studio dashboard, each phase contributes to the seamless flow of data for analysis and visualization.
Keywords: Google Cloud Storage, Cloud Function, Cloud Composer, Python, Dataflow, Apache Airflow, BigQuery, Looker
- **TCP Chat Application:**
I have developed a group chat application using C, implementing socket programming to enable multiple concurrent clients to connect and communicate. Utilized TCP for reliable data transmission and CMake for build configuration.
Keywords: C, socket, TCP, CMake, Networking
- **Motion Detection System Using Raspberry Pi:**
The system captures a photo when motion is detected by a sensor, then sends the photo via email using the SMTP protocol and also uploads it to a Flask server for remote access.
Keywords: Raspberry Pi, motion detection, camera module, SMTP, email, Flask server, IoT, Python
- **Ask multiple pdfs using Longchain:**
About The MultiPDF Chat App is a Python application that allows you to chat with multiple PDF documents. You can ask questions about the PDFs using natural language, and the application will provide relevant responses based on the content of the documents. This app utilizes a language model to generate accurate answers to your queries.
Keywords: Longchain, Generative IA, Streamlit, Python, Embeddings, PyPDF2, FAISS
- **Disease Detector App:**
The project involves developing an application using AI to analyze images and identify signs of diseases with high precision. One of the key advantages of this approach is that it can be implemented at a low cost, making it accessible to a larger number of people.
Keywords: Vgg16, Flask, Python, Computer Vision, Deep Learning

Skills Summary

- **Languages:** Python, C, C++, Mips, Java, VHDL, R
- **Frameworks And Tools:** PyTorch, TensorFlow, Keras, NumPy, Pandas, NLTK, OpenCV, Seaborn, Matplotlib, Flask, Streamlit, Yocto, SQL NoSQL, Power Bi, Docker, Kubernetes, Docker Compose, GCP, Gitlab, TCP/IP, Networking, SPI, I2C, UART, Terraform, Spark, Hadoop, Micro-services, Script Shell, Kubeflow, Vertex AI, Gcp Bucket, Dataflow, Cloud Composer, Looker, Cloud function, Apache Airflow, BigQuery
- **Cartes:** STM32, Raspberry pi, Esp32, Arduino
- **Soft Skills:** Leadership, Project Management, Writing, Team Management, Communication, Coaching
- **Skills:** Computer Vision, Classification, Segmentation, Prediction, Natural Language Processing, Deep Learning, Machine Learning, Time series forecasting, Embedded Linux, Software Engineering, SCRUM

Certification

- | | |
|---------------------------------------------------|--------------------------------------------|
| • Fundamentals of Red Hat Enterprise Linux | Coursera/ Red Hat |
| • AI For Everyone | Coursera/ DeepLearning.AI |
| • Object-Oriented Data Structures in C++ | Coursera/ University of Illinois at Urbana |

Volunteer Experience

- **Member of ENSI Competitive Programming Club**