Fares Ben Slimane

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Summary

Highly skilled AI Research engineer with machine learning, speech recognition, and computer vision expertise. Proven track record in developing and deploying AI solutions. Passionate about leveraging technology for a positive impact in the world.

Technical Skills

Programming Languages: Python, C++

Deep Learning Frameworks: TensorFlow, Keras, PyTorch (preferred)

Machine learning: Data analysis & visualization (Matplotlib, Plotly..etc), Supervised classification and regression ML algorithms, unsupervised ML algorithms, Advanced statistics, Probability, Advanced Calculus, Linear algebra and optimization

Libraries & Tools: NumPy, Pandas, Scikit-learn, OpenCV, TensorRT, ONNX, Git, AWS, GCP, Asure

Deep learning (Theoretical & Practical): Neural Networks & Convolutional neural networks (CNNs), Recurrent Networks (RNN, GRU and LSTM), Transformers (attention-based models), Generative Models (GAN, VAE), Reinforcement Learning (Q-learning, Monte Carlo, Sarsa, PPO..etc)

Mila Course (Prof. Aaron Courville) - Representation Learning (IFT 6135) Winter-2019, Grade: A-

Computer Vision: Image classification and segmentation, Object and anomaly detection, Video and Image Analysis

Speech Recognition: Lightweight Wakeword Detection, Command detection, ASR, Speech-to-Text and Text-to-Speech

NLP:Text classification, Language modelling, Machine translation

Soft Skills: Worked in high-paced startup environments, Led R&D ML projects, Team Player with efficient communication skills, Positive force and a good motivator, Effective in both spoken and written English and French

Experience

Gap time Feb 2024 – Present

• Recently, I chose to spend more time with my family, whom I hadn't seen much due to COVID restrictions and long distance. However, I stayed productive by working on machine learning-related personal projects and doing AI-related mentorship sessions.

AI mentor October 2023 – Present
OpenClassroom *Remote*

• Instructing online advanced AI courses to professionals on advanced AI topics, including data analysis and visualization, classical ML, NLP, CV, and AI project Management.

Machine learning Developer June 2022 – Feb 2024
Fluent.ai *Montreal, Canada*

• Collaborated with data scientists and engineers to enhance data pipeline processes, including collection, cleaning, and preparation.

• Maintained the MLOps lifecycle of AI models by reliably and efficiently training, evaluating, deploying, and optimizing machine learning models in production.

• Actively participated in the porting and seamless integration of our models across diverse embedded DSP platforms, including HIFI 4/5 and Syntiant..etc

• Contributed to the proposal of a groundbreaking wakeword architecture, achieving a reduction of 55% in size compared to the original model, coupled with approximately 16% fewer floating-point operations (flops). The model exhibited consistent performance quality for (1) multi-wakeword scenarios, (2) against an extreme 0db background noise and for a diverse range of accents (both European and Asian), showcasing an average False Rejection Rate (FRR) of 7% across all wakewords and 2-3 False Alarm Rate (FAR) per wakeword — positioning it as a market benchmark.

• Led a rigorous research study aimed at enhancing the wakeword model's performance. The focus encompassed refining training approaches, architectures, and data, particularly concentrating on wakeword endpoint improvement.

Machine learning Developer December 2020 – May 2022
Hummingbirds AI *Remote*

• Implemented cutting-edge academic algorithms for object detection, segmentation, and tracking, ensuring the application of state-of-the-art techniques in Computer Vision.

• Engineered a personalized person-tracking system capable of handling occlusion challenges and diverse camera views.

• Led research initiatives by providing strategic AI-based insights and solutions, contributing to the resolution of real-world challenges in Computer Vision applications.

• Orchestrated the deployment of an efficient biometrics system, achieving high accuracy and low latency for continuous face identification. Implemented robust anti-spoofing measures against 2D and 3D attacks, ensuring system security and reliability.

R&D Computer Vision Developer September 2019 – September 2020
Ciena *Ottawa, Canada*

• Devised a comprehensive automated visual inspection pipeline, proficiently detecting faults in PCB cards for streamlined quality control.

• Engineered precise component detection algorithms, optimizing the identification of diverse product components.

• Implemented unsupervised anomaly detection techniques for PCB cards, ensuring quality assurance and fault identification.

Research lab member January 2018 – 2020
Latece, University of Quebec at Montreal *Montreal, Canada*

• Engaged in groundbreaking research within the realm of Computer Vision, with a specific focus on advancing the field of Sign Language recognition.

R&D Machine Learning Developer February 2017 – June 2017
Orange Developer Center *Tunis, Tunisia*

• Designed and constructed a prototype for an intelligent hydroponic growing system for plants.

• Implemented an artificial intelligence and rule-based system to autonomously manage indoor settings.

• Employed machine learning and computer vision techniques to identify plant anomalies and diseases based on leaf appearance.

• Established real-time control and monitoring of internal farm parameters through an intuitive web dashboard.

Projects

Sign Language Recognition & Translation 2019
Python, OpenCV, Pytorch

• Build a system that interprets a sequence of images, representing sign language, and generates a coherent textual translation in spoken language. Implemented advanced capabilities to effectively learn and extract essential spatio-temporal information from sign gestures, ensuring accurate and meaningful translations.

Sign Language Tutoring System 2019
Python, OpenCV, Pytorch

• Developed an automated system facilitating the learning of sign language for non-deaf users.

•Implemented a real-time gesture recognition system for evaluating user gestures.

•Taught the sign language alphabet (ASL) and fundamental signs.

•Designed an intuitive and ergonomic Human-Machine Interaction Interface (HMI), ensuring ease of use and adaptability for learning various sign languages (ASL / LSQ).

•You can find the project in my Github (here).

Tracking and predicting student performance in university April 2018
Python, Pytorch

• Implemented continuous tracking of students' academic performance and developed a predictive model for accurately foreseeing their future success, including graduation outcomes. Utilized a vast dataset sourced from the *'Service de Planification Académique et de Recherche Institutionnelle'* (SPARI) at the University of Quebec at Montreal (UQAM).

Publications and Talks

Conference Paper: ICPR Accepted
Context Matters: Self-Attention for Sign Language Recognition *2020*

Referees

Charles Gauvin — VP Product & Engineering (OPS)
Fluent.ai
linkedin.com/in/charles-gauvin-b-eng-8709a83/ — *charles@duoemail.com*

Education

University of Quebec at Montreal — Montreal, Canada
M.S. in Computer Science (Artificial Intelligence) - GPA: 3.94 — *Jan 2018 - Sep 2020*

Higher institute of information and communication technologies (ISTIC) — Tunis, Tunisia
'Licence' in Computer science — *Sep 2014 - Jun 2017*

Awards

Scholarship of Excellence (UQAM) — Montreal, Canada
Faculty of Science - MSc Computer Science — *2018 & 2019*

Scholarship Mitacs Accelerate — Montreal, Canada
Mitacs Accelerate Program — *2019-2020*