Abderrazak Chahid

Engineer , PhD candidate

abderrazak-chahid.com

abderrazak.chahid@gmail.com

Programming Skills

Matlab, Python, PyTorch, C/C++, VHDL, LabVIEW, Cadence, RTOS, μ-vision, KiCad, Altera Quartus II

Hardware Skills

ESP32, STM32, Altera FPGA, Xilinx FPGA, NVIDIA Jetson, CAN bus, SPI, UART.

Technical Skills

- **Signal/ Images processing**
- **Algorithm design**
- **Feature generation**
- **Deep Learning (DL)**
- **Optimization**
- **Parallel programming**
- **Embedded Systems Design**
- **Smart decision making**
- **Reinforcement learning**

Scholarship

In 2013, I was awarded an excellence scholarship to study the 3rd year of my masters at INSA od Toulouse, France

Languages

- ✓ **Arabic (mother tongue)**
- ✓ **English (Advanced).**
- ✓ **French (Advanced)**

Hobbies

- ✓ **Football, Cycling**
- ✓ **Gardening**
- ✓ **Photography**

Social media

- LinkedIn
- Twitter
- Github

Artificial Intelligence & Embedded Systems

I am passionate about **artificial intelligence**, algorithm design for biomedical application and their integration using **embedded systems**, with strong technical, and interpersonal skills developed through work with different research labs and professional experiences.

Industrial Experience

Prototyping a smart controller of fish aquarium Apr 2020-present
CEO of Aquash, Thuwal, KSA

- Design/manufacturing fish aquarium controller
- Implement real-time optimal feeding strategy
- Smart fish health diagnosis using AI technology
- Fish health monitoring system using wireless network
- Team and project management

Prototyping a PLC controller of greenhouses Jun/Dec 2019
Red Sea Farms, Thuwal, KSA

- Hardware Design of PLC control of evaporative cooler
- Build smart monitoring of the greenhouse using AWS

Design and prototyping of Crank sensor simulator Feb 2014
CONTINENTAL AUTOMOTIVE France

- Design crank signal generator based on differential amplifier.
- Fabricate the first prototype of the crank signal generator.
- Write a specification document of the platform

Fuel boiler modeling and temperature control July 2012
Complex Oued Zem – COZ, OCP, Morocco

- Experimental Modeling of fuel boiler used to dry crude Phosphate.
- Design a PID controller of the second order system.
- Work in a team of three interns

Academic Qualifications

Ph.D. Electrical Engineering 2019 Expected
King Abdullah University of Sciences and Technology
Signal Processing-based Algorithms for Biomedical Applications

M.Sc. Electrical Engineering 2014
Lorraine University, France
Novel single-phase active power filter for arc faults detection

International exchange scholarship 2013
Institut National des Sciences Appliquées (INSA), France
Design of signal generator for Engine Control Unit (ECU) tests.

M.Sc. Electrical Engineering 2013
École Nationale des Sciences Appliquées (ENSA), Morocco

B.Sc. Electrical Engineering and Power Electronics. 2010
Sultan Moulay Slimane University, Morocco

Research Experiences

- ***Signal-processing based features for epileptic spikes detection*** ***2019***
  Estimation, Modelling and ANalysis group EMAN, KAUST, in collaboration with KACST-KSU
  - Asset the biologist in defining accurately the Poly(A) locations in the DNA sequence.
  - Reduce detection time from hour to couple of minutes
  - Generating novel signal processing-based features for MEG records.
  - Get an accuracy of 98% using simple and standard classifier SVM and LR
  - This model can be easily implemented low power devices
- ***Cognitive states prediction*** ***2019***
  Estimation, Modelling and ANalysis group EMAN, KAUST
  - Predicting human cognitive tasks from their corresponding functional Magnetic Resonance Imaging (fMRI) data
  - Generating novel Position Weight Matrix (PWM) based features for fMRI data.
  - Get outstanding accuracy of 99.89% using LR model applied to six subjects
- **Poly(A) prediction on DNA sequences project** **2018**
  Computational Bioscience Research Center (CBRC), KAUST
  - Asset the biologist in defining accurately the Poly(A) locations in the DNA sequence.
  - Generating novel features: Position Weight Matrix (PWM), Fourier, and Statics based features for DNA sequences.
  - Get outstanding accuracy of 91% using deep Neural Network on 12 poly(A) motifs.
- **M. Sc. Thesis: Novel single-phase shunt active power filter for arc faults detection** **2014**
  Institut Jean Lamour, Université Lorraine, France
  - Faults detection for electrical arc in AC electrical installation
  - Design of a novel single-phase shunt active power filter (APF) using VHDL-AMS
  - Detect faults for resistive, resisto-capacitive and inductive loads

Notable Projects

- *Development of NIOS II processor embedded on FPGA*
- *Design of 2,4 GHz oscillator using Cadence*
- Industrial project with Freescale: *Development of Door Control Module*
- Individual project: *Control robotic arm using LabVIEW*

Selected Publications

- **A. Chahid**, et al, S. Alshebeili, T.-M. Laleg-Kirati, " *QuPWM: Feature Extraction Method for MEG Epileptic Spike Classification*", IEEE Journal of Biomedical and Health Informatics, 2020.
- **A. Chahid,** R. Khushaba, A. Al-Jumaily, T.-M. Laleg-Kirati, "*A Position Weight Matrix Feature Extraction Algorithm Improves Hand Gesture Recognition*". 42st (EMBC), 2020.
- F. Albalawi, **A. Chahid**, et al, T.-M. Laleg-Kirati, and V. Bajic "*Hybrid model for efficient prediction of Poly(A) signals in human genomic DNA* ", Methods , 2018.
- **A. Chahid**, et al, T.-M. Laleg-Kirati, " *Feature Generation and Dimensionality Reduction using the Discrete Spectrum of the Schrodinger Operator for Epileptic Spikes Detection*", 41st (EMBC), 2019.
- **A. Chahid**, S. Bhaduri, et al, and T.-M. Laleg- Kirati, "*MRS Residual Water Suppression using the Squared Eigenfunctions of the Schrodinger Operator* ", submitted to IEEE Access, 2019.
- **A. Chahid,** et al, *Adaptive method for MRI enhancement using squared eigenfunctions of the Schrodinger operator*. BioCAS 2017 IEEE (pp. 1-4). IEEE.
- S. Jovanovic, **A. Chahid**, et al. (2016). *Shunt active power filter-based approach for arc fault detection. Electric Power Systems Research*, 141, 11-21.