Ali Saghiran

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Ali Saghiran
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Programming languages

- **Python**
- Julia
- R
- OS envs: **Linux** - Windows
- C/C++
- Matlab
- LaTeX

Environnements and libraries

- Numpy/Pandas
- PySpark

Signal Processing:
- OpenCV/Librosa

Deep Learning:
- Pytorch/Keras
- HuggingFace
- SpeechBrain

MLOps:
- Docker/MLFlow
- SQL/Amazon S3

API & Services:
- Flask/FastAPI
- Streamlit

Visualisation:
- Matplotlib
- Seaborn/Bokeh
- ggplot/Shiny

Testing:
- Pytest/Robot Framework

Language Skills

- English ●●●●●
- French ●●●●●
- Arabic ●●●●●

Ali Saghiran

Signal Processing & Machine Learning Engineer

Professional Experience

Since Feb 2022 **Data Scientist - Voice Processing Specialist**
ResilEyes Therapeutics, Paris, FR

- **Main missions:**
  - Developing **language and speech processing modules** for a mental health monitoring app product with intermediate prototypes (processing pipeline and dashboard for data visualization).
  - **Evaluation of ML models** (e.g., XGBoost, RFs) for health diagnosis.
  - Problem definition, Result communication & Internship supervision.
- **Accomplishments:**
  - A **speech-to-text API** using pre-trained **deep learning** models.
  - An automatic **voice feature extraction** and **emotion analysis** services.
  - Demo **visualization dashboard** using Streamlit.

Jun-Sep 2021 **Research Engineer - eFran FLUENCE project**
LPNC, CNRS, Université Grenoble-Alpes, S^t Martin d'Hères, FR

- **Development and documentation** of the BRAID model (collection of simulation programs of visual word processing tasks).
- **Probabilistic** model programming and **statistical analyses**.
- **Packaging & distribution** of BRAID & BRAID-Phon source code.

Sep 2018-May 2019 **Teaching assistant - Departments of Psychology & Mathematics**
Grenoble-Alpes University, S^t Martin d'Hères, FR

- **Practical courses:** *"Introductory course to computer Science and Algorithmics using Python"*, *"Object-oriented programming with Java"* ∼ **45 hours**.
- **Courses and tutorials:** *"Statistics and Data Analysis"* ∼ **35 hours**.

Feb-Jun 2017 **Study of the lexical influence in phoneme learning**
GIPSA-Lab, CNRS, S^{t}Martin d'Hères, FR

- Master internship advised by Jean-Luc Schwartz & Julien Diard.
- **Bayesian modeling** of phoneme learning using **GMMs** & studying the influence of lexical information in speech learning.
- **Accomplishment:** Extending a **model of speech perception** and production to include **word learning**.

May-Aug 2016 **Study and Design of a test suite for an IoT protocol - LoRaWAN®**
AdeunisRF, Crolles, FR

- Development in **Python of a LoRaWAN® test server**.
- Delivering a platform and **a complete test suite** in order to **validate the comformity** of connected objects with the **LoRaWAN® protocol**.

Education

2017-2021 **Grenoble-Alpes University, Grenoble FR**
PhD advised by: Julien Diard and Sylviane Valdois.
PhD title: Bayesian modeling of reading
Domain of research: *Engineering of Cognition and Learning*

2016-2017 **Grenoble-Alpes University - Grenoble INP, Grenoble FR**
Master of Research in Cognitive Science.
Natural and Artificial cognition

2014-2017 **Grenoble INP - Phelma, Grenoble FR**
Master of Engineering.
Signal Processing, Telecommunication & Computer Science

Academic Projects

Jan-Apr 2016 ***Group Project*, Vibrating belt for sensory substitution**

- The aim of the project was to design a sensory substitution tool (vibrating belt) able to automatically guide a visually impaired person.
- Microcontroller programming and design of the electronic interface.
- Design of a communication protocol with the microcontroller.

Sep-Dec 2015 ***CS Project*, ARMv7-M Architecture Emulator**

- Development in C language of a command interpreter and a program running ELF object files for the ARMv7-M architecture.
- Advanced development methods and tools: Test Driven Programming, Error and Memory Leak Management.
- Project management and team collaboration skills.
- Git repository: ARM-V7-emulator.

Software

The software description follows the "Inria Evaluation Committee Criteria for Software Self-Assessment V3". For new personal projects, please check my Github.

BRAID : `Family=research; Audience=partners; Evolution=lts; Duration>=4; Contribution="leader, devel, softcont"; Url= https://gricad-gitlab.univ-grenoble-alpes.fr/diardj/braid`
A Python implementation of BRAID and BRAID-Phon models.

Bionx-Console : `Family=utility; Audience=personal; Evolution=nofuture; Duration>=2; Contribution="instigator, leader, devel, softcont"; Url= https://github.com/inarighas/BionxConsole`
A reverse engineering project of an e-bike control console. The code is written in C++ for an ArduinoUno microcontroller and allows communication via the CAN bus.

Scientific Publications

- Saghiran, A., Valdois, S. & Diard, J. (2020) Simulating length and frequency effects across multiple tasks with the Bayesian BRAID-Phon model. *Proceedings of the 42nd Annual Conference of the Cognitive Science Society* (*CogSci20*), *Toronto* (*Virtual*).
- Saghiran, A., Diard, J. & Valdois, S. (2019) Simulating lexical decision, naming and progressive demasking with a Bayesian model of reading. *Talk - European Society of Cognitive Psychology* (*ESCOP*), *Tenerife*.
- Saghiran, A., Valdois, S., & Diard, J. (2019) Bayesian Modeling of Word and Pseudo-Word Reading in a Single-Route Architecture. *Poster - International Convention for Psychological Science* (*ICPS*), *Paris*.

Other Publications

- Saghiran, A, Valdois, S. (2022) Mieux comprendre les bases cognitives de la lecture pour en faciliter l'apprentissage. In *Espaces de formation, de recherche et d'animation numériques dans l'éducation : e-FRAN* (Research summary for French education professionals).
- Saghiran, A (2022) Reconnaissance vocale : L'analyse de la parole pour un meilleur accompagnement des patients en santé mentale. In *Cahier de tendances MentalTech*.

MOOCs & Online trainings

- **Scikit-learn:** "Machine learning in Python with scikit-learn" proposed by Inria and published on the platform FUN. Certification Link
- **NLP:** Online course "Natural Language Processing with Deep Learning" provided by Christopher Manning at Stanford.
- **Deep learning :** "Deep Learning Specialization" by Andrew Ng on Coursera.

Other Activities

- **Volunteer work in associations:** Ingénieurs sans Frontières (2015 - 2017). ISF-Grenoble.
- **Leisure time:**
  - Sport: Hiking (French Alps - Moroccan High Atlas).
  - Music: Guitar.