Jordan Fernandes

Ph.D student

Contact

National Institute of Light and Matter (ILM)
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Education

09/2019 - 09/2021

Science of Energy and Matter (M.Sc.)

National Institute of Scientific Research (INRS)

- Mastered MATLAB and Python programming for effective problem-solving.
- Comprehension of laser and matter interactions.

About me

I am a highly motivated Ph.D in physics and astrophysics. Having worked at prestigious institutions such as the National Institute of Light and Matter enhanced my knowledge. My expertise in the LIBS technique spans over 4 years, during which I have honed my theoritical skills through interships and developped practical skills during my Ph.D. My proficiency in data science using Python and Matlab further enhance my capabilities. I am enthousiastic about joining your team and contributing my knowledge and passion for physics. With my strong analytical skills and miticulous attention to detail, I am confident in my abilities to make valuable contributions to your organization.

Job experience

Ph.D in physics and astrophysics — **09/2021 - today**

National Institute of Light and Matter (ILM) and French Industry of Petroleum Processes and New Energies (IFPEN)
Lyon, France

- Developed new micro-LIBS imaging device with ns-laser for precise Li mapping in electrodes (1 µm lateral resolution).
- Created quantification model (univariate or multivariate models) to analyse battery aging mechanism throught its lifespan.
- Utilized advanced technology to enhance accuracy and efficiency of Li mapping in electrodes.
- Achieved significant results in undertanding battery performance and improving overall efficiency.
- Use of LIBS-LIF in imaging mode to enhance the sensibility of the device.

Teacher - Optics, mechanics and electronics (26h of courses) — **08/2022 - 01/2023**

National Institute of Aplied Science (INSA)
Lyon, France

Teacher - Thermodynamical chemistry and electronics (34h of courses) — **08/2022 - 01/2023**

University Institute of Technology (IUT)
Lyon, France

M.Sc internship — **03/2021 - 08/2021**

Centre Lasers Intenses et Applications (CELIA)
Talence, France

- Quantified gold concentration in ore sample using LIBS.
- Utilized univariate and multivariate models (mainly ANN).
- Achieved accurate results through advanced analytical techniques.
- Development of an hybrid method using PCA and univariate models.

09/2019 - 09/2021

Science and Technologies of Plasma (M.Sc.)

University Toulouse III - Paul-Sabatier

- Expertise in plasma physics and its application in nature, aeronautics, space and biomedical fiels.
- Skilled in utilizing diagnosis of plasma.

09/2016 - 09/2019

Fondamental Physics (B.Sc)

University Toulouse III - Paul-Sabatier

- Comprehension of therorical concepts in quantum physics, relativity, atomic physic, etc.
- Modelisation project : Simulation of a fuel-free Earth-to-moon journey from Earth orbit in Matlab.
- Instrumental courses (Signal treatment)

Skills

Python 5+ yrs.

Matlab 3+ yrs.

Inkscape 2+ yrs.

MS office 10+ yrs.

Data science 4+ yrs.

LateX 2+ yrs.

English C1

Spanish B1

M.Sc international internship 01/2020 - 01/2021

National Research Council Canada (NRC)
Boucherville, Canada

- Quantified gold concentration in ore sample using LIBS.
- Utilized univariate and multivariate models (mainly PCA and PLS).
- Achieved accurate results through advanced analytical techniques.

Conferences

- Fernandes Jordan,Sorbier Loïc, Hermelin Sylvain, Dujardin Christophe, Lienemann Charles-Philippe, Bernard Julien and Motto-Ros Vincent (2023). "Analyse d'électrodes à l'échelle microscopique de batterie Li-ion par micro-LIBS : répartition du lithium", **Oral presentation** in: Spectr'atom, Pau, June 03-07, 2024.
- Fernandes Jordan,Sorbier Loïc, Hermelin Sylvain, Dujardin Christophe, Lienemann Charles-Philippe, Bernard Julien and Motto-Ros Vincent (2023). "High-resolution imaging of Li-ion electrodes by micro-LIBS.", **Poster presentation** in: EMS-LIBS 2023, Porto, September 04-07, 2023.
- Fernandes Jordan,Sorbier Loïc, Hermelin Sylvain, Dujardin Christophe, Lienemann Charles-Philippe, Bernard Julien and Motto-Ros Vincent (2023). "High resolution lithium imaging by micro-LIBS.", **Oral presentation** in: International Workshop on the Characterisation and Quantification of Lithium, from the Micro- to the Nano-Scale, from Mining to Energy (CQLMNS), Paris, June 26-27, 2023.
- Fernandes Jordan,Sorbier Loïc, Hermelin Sylvain, Dujardin Christophe, Lienemann Charles-Philippe, Bernard Julien and Motto-Ros Vincent (2023). "Characterization of commercial Li-ion battery electrodes by Laser-induced Breakdown Spectroscopy (LIBS) Imaging Microscopy.", **Poster presentation** in: 12th LIBS international, Bari, September 04-09, 2023.
- Fernandes Jordan,Sorbier Loïc, Hermelin Sylvain, Dujardin Christophe, Lienemann Charles-Philippe, Bernard Julien and Motto-Ros Vincent (2022). "Caractérisation d'une batterie commerciale Li-ion par Laser-induced Breakdown Spectroscopy (LIBS) Imaging Microscopy.", **Poster presentation** in: Journée LIBS, Marseille, June 02-03, 2022.

Publications

- Gaft, Michael, et al. "Isotopic shift analysis of GdO by LAMIS." Spectrochimica Acta Part B: Atomic Spectroscopy 218 (2024): 106993.
- Fernandes.J, Sorbier.L, Hermelin.S, Benoit.JM, Dujardin.C, Lienemann.CP, Bernard.J, Motto-Ros.V, Looking inside electrodes at the microscale with LIBS: Li distribution (2024)
- Selmani, Samira, et al. "Laser-induced breakdown spectroscopy analysis of palladium in rock ore." Spectrochimica Acta Part B: Atomic Spectroscopy 196 (2022): 106523.
- Elhamdaoui, Ismail, et al. "Measuring the concentration of gold in ore samples by laser-induced breakdown spectroscopy and comparison with the gravimetry/atomic absorption techniques." Spectrochimica Acta Part B: Atomic Spectroscopy 183 (2021): 106256.

Planned publications

- Two articles scheduled in the year of 2024 on Li-ion ageing mechanism study with micro-LIBS and Li-ion study with micro-LIBS-LIF imaging.

Award

- Outstanding poster presentation in EMS-LIBS 2023, Porto, Portugal, September 04-07, 2023
- Best oral communication in Spectr'atom, Pau, France, June 03-07, 2024