Abib ALIMI

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LinkedIn

Education

2020 **Ph.D at Inria SAM, Université Côte d'Azur, France**, in Automatic, Signal and Image Processing.

2021 **Data Science bootcamp at Le Wagon, Marseille**, immersive data coding bootcamp.

2016 **Master of Science at Université Côte d'Azur**, in Computational Biology and Biomedicine.

2015 **Diplôme d'Ingénieur de l'Ecole Centrale de Lyon**, double degree in Computer Science and Imaging with Ecole Supérieure Polytechnique at Université Cheikh Anta Diop of Dakar, Senegal.

Experience

August 2022 – Ongoing **Postdoctoral Research Associate, Princeton University, USA**,
Investigating the intersection of Artificial Intelligence and Materials Science.
- Developing approach to represent Metal-Organic Frameworks for molecule absorption.
- Applications to medical imaging.

2021 April-August **Independent Researcher & Data Scientist, Marseille**, *France*.
- Deep Learning model Uncertainty assessment in Breast cancer classification.
- Representation/latent space generation and t-SNE visualization.
- Tree Detection in urban areas of Marseille within Hack4Nature project.
- Transfer learning: improving DeepForest model with urban images.

2016-2020 **Ph.D Candidate at Inria SAM, Université Côte d'Azur, France**,
Three-dimensional Polarized Light Imaging: Towards Multiscale and Multimodal Analysis with Diffusion Magnetic Resonance Imaging.
- Computational Neuro-Imaging: Mathematical modeling and implementation.
- Diffusion Magnetic Resonance Imaging (MRI): in-vivo reconstruction and validation.
- 3D-Polarized Light Imaging (3D-PLI): Simulation and reconstruction of nerve fibers.
- Deep Learning for diffusion MRI analysis: Spherical CNN for brain tissue microstructure estimation.

2016 5 months **Research Intern at Inria SAM, Université Côte d'Azur**,
Master thesis: Towards Diffusion MRI-based Tractography via 3D-Polarized Light Imaging.
- Solving 3D-PLI inclination sign ambiguity by extending Total Variation image restoration method to 3D.
- Mathematical modeling, simulation and 3D-image analysis of brain nerve fibers (Python, Nibabel, Matlab).

2015 6 months **Engineer Intern at KLEE Group, Plessis-Robinson**, *France* .
- Statistical analysis and prospecting tool for the Conseil Supérieur du Notariat de France.

2013-2014 8 months **Industrial Research Engineer at IFPEN Energies Nouvelles & Ecole Centrale Lyon**, *France* .
- Design a new industrial spray-dryer to dry aqueous and organic solutions.

Selected Publications

Alimi, A., Deslauriers-Gauthier, S., Matuschke, F., Müller, A., Muenzing, S. E. A., Axer, M., Deriche, R.: Analytical and fast fiber orientation distribution reconstruction in 3D-Polarized Light Imaging. Medical Image Analysis, Volume 65, 2020, 101760. Link to Journal

Sedlar, S., **Abib A.**, Papadopoulo T., Deriche R., Deslauriers-Gauthier S.: A spherical convolutional neural network for white matter structure imaging via dMRI. MICCAI 2021 – 24th International Conference on Medical Image Computing and Computer Assisted Intervention, Sep 2021, Strasbourg, France. Link to paper

Alimi, A., Deslauriers-Gauthier, S., Deriche, R.: Towards validation of diffusion MRI tractography: bridging the resolution gap with 3D-Polarized Light Imaging, ISMRM 2019 - International Society for Magnetic Resonance in Medicine, M 2019, Montreal, Canada. Link to paper

Sedlar, S., **Alimi, A.**, Papadopoulo, T., Deriche, R., Deslauriers-Gauthier, S.: Spherical convolutional neural network for diffusion MRI analysis. In Sophia Summit (2019, November), Sophia Antipolis, France. Link to presentation

Alimi, A., Usson, Y., Jouk, P.S., Michalowicz, G., Deriche, R.: An analytical fiber ODF reconstruction in 3D-Polarized Light Imaging. ISBI 2018-IEEE International Symposium on Biomedical Imaging, 2018, Washington D.C., USA. Link to paper

Alimi, A., Pizzolato, M., Fick, RHJ., Deriche, R.: Solving the inclination sign ambiguity in three-dimensional Polarized Light Imaging with a PDE-based method. ISBI 2017-IEEE International Symposium on Biomedical Imaging, 2017, Melbourn, Australia. Link to paper

Talks

2019 Talk at ISMRM 28^{th} Annual Meeting & Exhibition, Montreal, Canada

2018 Talk at 15^{th} IEEE International Symposium on Biomedical Imaging, ISBI, Washington DC, USA

2017 Talk at 14^{th} IEEE International Symposium on Biomedical Imaging, ISBI, Melbourne, Australia

Awards & Honors

2019 Magna Cum Laude Award at ISMRM 28^{th} Annual Meeting & Exhibition, Montreal, Canada

2011-2016 Senegalese Government Scholarship

2008 Laureat du Concours General (Senegalese Olympiad, Gymnastics)

Teaching

2017-2018 Teaching Assistant at Department of Computer Science at Sophia Antipolis IUT, Université Côte d'Azur
Software system design using Unified Modeling Language, Supervizing two batches of 16 and 24 students.

Skills

Data Science	Machine Learning (SVM, XGBoost, ...), Deep Learning (CNN, RNN, NLP), Maths & Statistics
Programming	Python, Pandas, Seaborn, Scikit-learn, Keras, Tensorflow, Matlab, SQL, Git, Docker, CI/CD, GCP
Business	Communication & Collaboration, Dedication, Long-life learning, Market & Product knowledge
Languages	Wolof (native), French (native), English (bilingual)

Certifications

2021 **Machine Learning**, Stanford University authorized and offered online through Coursera.

2021 **Deep Learning**, Hands-on Artificial Neural Networks by Udemy (Scikit-image, Keras, Tensorflow,...).

2021 **Artificial Intelligence**, Full-stack Developer in Machine and Deep Learning, Convolutional Neural Nets, Recurrent Neural Nets, database, xml, API, Git, Docker, Heroku, Streamlit, FastAPI (in preparation).

Associative & Personal Interests

Gymnastics award winner in national competitions in Senegal, 2 years amateur training in France.
Team Captain of 20+ Football games, Fitness, Swimming. Travelling & discovering Cultures and Food.