Simon DAHAN

PhD Student - King's College London - Metrics Lab
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Education

Ph.D. in Deep Learning applied to Neuroimaging — London, UK
King's College London, School of Biomedical Engineering & Imaging Sciences — *Sept. 2021 - Sept. 2024 (expected)*

- Project: *"Reading minds with Deep Learning: predicting behavioural states from functional imaging data"*
- Research interests: Spatio-temporal & Geometric Deep Learning, Cortical neurodevelopment, Prematurity & Neurological Disorders
- Supervisors: Dr. Emma C. Robinson and Pr. Daniel Rueckert
- Research collaborations with BioMedIA lab (Imperial College London), WIN center (FMRIB - University of Oxford), and Washington University Medical School.
- Four years PhD programme ESPRC - CDT in Smart Medical Imaging, fully funded by UKRI

MRes in Healthcare Technologies — London, UK
King's College London, School of Biomedical Engineering & Imaging Sciences — *Sep. 2020 - Sep. 2021*

- Postgraduate course covering subjects including Clinical Medical Imaging, Medical Image Computing, Deep Learning applied to biomedical applications.
- Master Thesis: *"Spatio-Temporal Graph CNNs to study phenotypes from functional MRI connectivity*", results accepted for publication at the *MLCN 2021* workshop adjoined to the *MICCAI 2021* conference.
- Graduated with Distinction
- Award: *Best MRes Student (highest overall grade)*

MSc in Computing - Artificial Intelligence & Machine Learning — London, UK
Imperial College London, Department of Computing — *Sep. 2018 - Sep. 2019*

- Postgraduate course covering subjects including Deep Learning, Probabilistic inference, Reinforcement learning, Machine Learning for medical imaging
- Master Thesis: *"Deep-Learning for localizing and scoring fungal pulmonary disease in lung CT scans*"
- Graduated with Distinction

Engineer's Degree (MEng) in Computer Science (Diplôme Grandes Écoles) — Paris, France
Télécom Paris, Institut Polytechnique de Paris — *Sep. 2016 - Dec. 2019*

- Majors in Data Sciences and Image Processing - GPA: 4.0

Scientific preparatory class — Paris, France
Lycée Henri IV — *Sep. 2013 - Jun. 2016*

- Intensive preparation programme in theoretical mathematics, physics and computer science for the French engineering schools' competitive exams - Ranked: 904/5508

Experience

Graduate Teaching Assistant — London, UK
King's College London, School of Biomedical Engineering & Imaging Sciences — *Oct. 2021 – Mar. 2022*

- *Machine learning for biomedical applications* and *Advanced Machine Learning* modules - undergraduate and master levels

Research Intern, AI Algorithm Development — London, UK
Huawei AI Research Center — *Oct. 2019 – Dec. 2020*

- Member of the Kirin Computer vision team working on Visual Semantic Understanding tasks
- Research on Efficient Deep Learning for Video Action Recognition with Tensorflow
- Developed deep learning models integrated in Kirin chipsets used for Huawei smartphones

Publications

[1] **S. Dahan**, L.Z.J. Williams, D. Rueckert, E.C. Robinson, *Improving Phenotype Prediction using Long-Range Spatio-Temporal Dynamics of Functional Connectivity*, International Workshop on Machine Learning in Clinical Neuroimaging (MLCN) 2021

[2] **S. Dahan**, A.Fawaz, L.Z.J.Williams, C.Yang, T.S.Coalson, M. Glasser, A.D. Edwards, D. Rueckert, E.C. Robinson, *Surface Vision Transformers: Attention-Based Modelling applied to Cortical Analysis*, Submitted to MIDL 2022
See Google Scholar for additional publications.

Projects

MindMine: Digital Phenotyping for monitoring Bipolar Disorder *Dec. 2020 – Dec. 2021*

- Developed a smartphone application for helping bipolar disorder patients monitoring symptoms
- Technology: iOS & Android development, data collection and machine learning
- Award: *The Care Machine Best Bioengineering Master Project 2021*

Localising fungal pulmonary diseases in lung CT scans with Deep Learning *Mar. 2019 – Sep. 2019*

- MSc thesis project at Imperial College London with the Royal Brompton Hospital
- Supervisor: Dr. Elsa Angelini and Dr. Anand Shah
- Developed of a weakly-supervised Deep Learning framework (with Keras) for localising pathological signs of patient affected with Chronic Pulmonary Aspergillosis (CPA)
- Work published in the European Respiratory Journal: *Unraveling Machine Learning - Insights in Respiratory Medicine*

Technical Skills

Programming Languages: Python, Matlab, Bash, SQL
Development Tools: Docker, Git, Linux environment, GPU programming (CUDA), Distributed training, cloud computing (AWS, GCP)
Frameworks: Connectome Workbench, 3D Slicer
Deep Learning: PyTorch, Tensorflow (v1.x, v2.x), Keras
Experience with: iOS & Android development, Java, C++, Django

Languages

French: native
English: professional
Spanish: good knowledge
Hebrew: good knowledge