Abdoul-aziz AMADOU

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Work Experience

Feb 2021 - January 2025: PhD candidate at **King's College London**.
Research topic: Autonomous Echocardiography Acquisition.

- Wrote a C++/CUDA simulator to generate synthetic ultrasounds.
- Worked on Goal-conditioned *Deep Reinforcement Learning* algorithms for autonomous ultrasound acquisition.

March 2018 - Now: Research Scientist at **Siemens Healthineers**, in Princeton, NJ and London
Department: Digital Technology and Innovation

- 2D/3D Rigid body Registration for Cardiac resynchronization therapy
  - Built a deep learning model to register pre-op CT/MR to intra-op fluoro for guidance using deep reinforcement learning.
- Real-time analytics for structural heart disease
  - Designed a deep learning model to find and track structures in ultrasound using *Deep Reinforcement learning*
  - Created a deep learning pipeline to model the Mitral Valve in real-time.
  - Built a model for tracking objects in fluoroscopy images.
- TACTIC Clinical Study
  - Assisted with the planning of the clinical trial.
  - Worked with clinicians to plan cases and provided technical support.

Jul 2016 - Feb 2018: President at Association Cristal, Paris

- Leading the Junior Enterprise, managing the team (+10 people) and conducting many types of IT projects from scratch to productization
- Example of projects include Mobile and Tablet application for MedicAppConnect, Front-end web development for Adentis

Sept 2016 - Feb 2018: Web developer and Freelance Developer at NUMA Paris

- Created platforms, deployed them and scaled them using AWS and Docker

Programming skills: Languages: Python, C++, C, CUDA | Tools/Frameworks: PyTorch, Git, Slurm, CMake, Docker, Run.ai

Education

Feb 2021 - Feb 2025	**Ph.D** in AI and medical imaging on autonomous ultrasound acquisition. *King's College London*.
Sept 2013- Sept 2018	**Masters Degree** in engineering (Diplôme D'ingenieur de Grande Ecole) in Computer Science. *EPITA*, Paris. Major: Data Science and Artificial Intelligence.
Jan-Jul 2015	Computer science exchange in *Stellenbosh University*, Cape Town, South Africa.
2013	**French Baccalauréat** at *Lycée LaFontaine* in Niamey, Niger.

Publications

- **A. A. Amadou** et al, *"Goal-conditioned reinforcement learning for ultrasound navigation guidance"*, **Early accepted** at International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI) , 2024
- **A. A. Amadou** et al, *"Cardiac ultrasound simulation for autonomous ultrasound navigation"*, Frontiers in Cardiovascular Medicine, 2024
- Y. Zhang, **A. A. Amadou**, I. Voigt, V. Mihalef, H. Houle, M. John, T. Mansi, R. Liao, *"A Bottom-Up Approach for Real-Time Mitral Valve Annulus Modeling on 3D Echo Images"*, International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI) 2020
- J. Lin, Y. Zhang, **A. A. Amadou**, I. Voigt, T. Mansi, R. Liao, *"Cycle Ynet: Semi-supervised Tracking of 3D Anatomical Landmarks"*, MLMI 2020

Patents

- **A. A. Amadou**, R. Liao, Y. Zhang, *"Semi-supervised tracking in medical images with cycle tracking"*, 2023
- Y. Zhang, **A. A. Amadou**, I. Voigt, V. Mihalef, R. Liao, T. Mansi, M. John, B. Rao, H. C. Houle *"Annular structure representation"*, 2021
- R. Liao, V. N. Murthy, Y. Zhang, **A. A. Amadou** *"Method and System for Vascular Catheter Tip Detection in Medical Images"*, 2024
- R. Liao, Y-H Kim, J. Collins, **A. A. Amadou**, S. Piat, A. Kapoor, T. Mansi, E-L Noha, S. Grbic, D. Comaniciu, X. S Zheng, B. Liu, X. Zhoubing, J-H Park *"Smart image navigation for intracardiac echocardiography"*, 2023

Other

- DE&I: Success for Black Engineers: Supporting black pupils and students getting into engineering careers.

Languages

French: Mothertongue
English: Fluent (IELTS: 8.0)
Spanish: Conversational
Hausa: Mothertongue