Ahmed H. Shahin

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London, UK

Education

- **University College London** — London, UK
  PhD in Computer Science — *Mar. 2020 – Present*
  - Thesis: Machine Learning for High-Resolution Lung Image Analysis.
  - Supervisors: Professor David Barber and Professor Daniel Alexander.
  - Introduced **CenTime**, a novel method for survival analysis that models the event-censoring process. Compared to the standard Cox model, CenTime achieved a 56% improvement in the prediction of the survival time of patients with Idiopathic Pulmonary Fibrosis (IPF). Published in **Medical Image Analysis**.
  - Currently working on **Visual Language Models (VLMs)** for integrated and patient-specific data analysis.
  - Assisted in delivering course content for COMP0090 (Introduction to Deep Learning) and COMP0016 (Systems Engineering), including leading tutorials, and evaluating student work.
  - Expected graduation date: November 2024.
  - Available for internship opportunities from April 2024.

- **Nile University** — Giza, Egypt
  MSc in Informatics; ***GPA: 3.93*** — *Oct. 2017 – Dec. 2019*
  - Thesis: Skin Lesion Analysis Framework: From Fully Automatic Segmentation to Data Generation.

- **Mansoura University** — Mansoura, Egypt
  BSc in Biomedical Engineering; ***GPA: 3.74 (Ranked first in class)*** — *Sep. 2012 – July 2017*

Experience

- **Open Source Imaging Consortium (OSIC)** — Remote
  Computational Science Team Member — *Mar. 2020 - Present*
  - As part of my PhD, working on the research efforts of the consortium to utilize machine learning methods for ILDs.
  - As part of the Data Architecture & Privacy working group, was instrumental in implementing data quality protocols and privacy standards, ensuring the integrity and confidentiality of over 6000 CT scans and clinical records that have been ingested into the consortium's database.
  - As part of the Challenges working group, played a key role in the organization and management of the OSIC Kaggle Challenge, which successfully garnered over 2000 participants, fostering a collaborative environment for advancing research in pulmonary fibrosis.

- **SpatialX AI** — London, UK
  Research Scientist – Part Time Contractor — *Oct. 2023 - Present*
  - Leading the development of the artificial intelligence component for the SpatialX platform, focusing on the advanced analysis of histopathology images. This includes designing and implementing machine learning algorithms for precise tissue and cellular analysis, contributing to improvements in diagnostic methodologies and patient outcomes.

- **Siemens Healthineers** — Princeton, NJ, USA
  Research Intern — *Sep. 2022 - Mar. 2023*
  - In the cardiovascular imaging team, worked on machine learning methods for the analysis of ultrasound images.
  - Pioneered a machine learning method for interactive segmentation of cardiac structures in IntraCardiac Echocardiography, significantly enhancing the precision of cardiac ablation procedures. Published in **MICCAI 2023**.

- **Intixel** — Cairo, Egypt
  Senior Machine Learning Engineer — *Nov. 2019 - Mar. 2020*
  - Focused on the development and optimization of deep generative models for detecting and localizing chest abnormalities in X-ray scans, contributing to early disease detection and intervention efforts.

- **Inception Institute of Artificial Intelligence (IIAI)** — Abu Dhabi, UAE
  Research Intern — *Mar. 2019 - Aug. 2019*
  - Focused on developing weakly-supervised methods for class-agnostic image segmentation, addressing the challenge of data scarcity in medical imaging. Our innovative approach and findings were published in **MICCAI 2019**, contributing to advancements in label-efficient and accurate medical image analysis.

Research Interests

Machine Learning, Medical Image Analysis, (Visual) Large Language Models, Generative Models, Survival Analysis.

Publications (no. of citations: 159)

- AH Shahin, A Zhao, A Whitehead, D Alexander, J Jacob, D Barber, *"CenTime: Event-conditional modelling of censoring in survival analysis"*, **Medical Image Analysis**, 2023 Link Talk.
- AH Shahin, Y Zhuang, N El-Zehiry, *"From Sparse to Precise: A Practical Editing Approach for Intracardiac Echocardiography Segmentation"*, Medical Image Computing and Computer Assisted Interventions Conference **(MICCAI)**, 2023 Link Talk.
- AH Shahin, J Jacob, D Alexander, D Barber, *"Survival Analysis for Idiopathic Pulmonary Fibrosis using CT Images and Incomplete Clinical Data"*, Medical Imaging with Deep Learning Conference **(MIDL)**, 2022 **(Oral)** Link Talk.
- AH Shahin, H Prosch, J Jacob, D Alexander, D Barber, *"Machine Learning for Identifying IPF Imaging Biomarkers"*, Radiological Society of North America **(RSNA)**, 2022 **(Oral)**.
- AH Shahin*, S Khan*, J Shen, L Shao, *"Extreme Points Derived Confidence Map as a Cue For Class-Agnostic Interactive Segmentation Using Deep Neural Network"*, Medical Image Computing and Computer Assisted Intervention Conference **(MICCAI)**, 2019 **(early acceptance, travel award)** Link.
- A Zhao, AH Shahin, Y Zhou, E Gudmundsson, A Szmul, N Mogulkoc *et al.*,*"Prognostic Imaging Biomarker Discovery in Survival Analysis for Idiopathic Pulmonary Fibrosis"*, Medical Image Computing and Computer Assisted Interventions Conference **(MICCAI)**, 2022 **(early acceptance)** Link.
- AH Shahin, K Amer, MA Elattar,*"Deep Convolutional Encoder-Decoders with Aggregated Multi-Resolution Skip Connections for Skin Lesion Segmentation"*, IEEE International Symposium on Biomedical Imaging **(ISBI)**, 2019 Link.
- Y Lu, S Aslani, A Zhao, AH Shahin, D Barber, M Emberton *et al.*, *"A hybrid CNN-RNN approach for survival analysis in a Lung Cancer Screening study"*, Heliyon, 2023 Link.
- AH Shahin, A Kamal, MA Elattar,*"Deep Ensemble Learning for Skin Lesion Classification from Dermoscopic Images"*, 2018 9th Cairo International Biomedical Engineering Conference (CIBEC), 2018 Link.
- AH Shahin, P Munjal, L Shao, S Khan,*"FAIRS: Soft Focus Generator and Attention for Robust Object Segmentation from Extreme Points"*, Arxiv preprint, 2020 Link.

Scholarships and Awards

- Full PhD scholarship awarded by OSIC, recognizing the potential impact of my research. 2020 - 2024
- MICCAI graduate student participation award. 2020
- MICCAI graduate student travel award. 2019
- Full scholarship funded by Banque Misr for master's degree at Nile University. 2017 - 2019
- Ranked first in class in the Biomedical Engineering department, Mansoura University. 2017
- Partial scholarship from Mansoura University for outstanding academic performance. 2013 - 2017

Professional Services

- **Board Member**: RISE, a MICCAI initiative to foster diversity and inclusion in the community. 2021 - 2023
- **Program Committee Member**: Medical Imaging Meets NeurIPS (MedNeurIPS) workshop. 2022
- **Conference Reviewer**: MICCAI 2022, MICCAI 2023, NILES 2019.
- **Journal Reviewer**: IJCV, ERJ, IEEE Access.

Skills

- **Programming Languages:** Python, C++ (Familiar), Matlab (Familiar).
- **Machine Learning and Data Analysis:** PyTorch, HuggingFace, Scikit-Learn, Numpy, Pandas, Scipy, OpenCV.
- **Miscellaneous:** Linux, Git, LaTeX.
- **Languages:** English (Proficient), Arabic (Native).

Invited Talks

- **Deep Learning for Accurate Survival Analysis in IPF Patients**, OSIC Annual Member Meeting. 2023
- **Machine Learning in Medical Imaging: Successes and Challenges**, Nile University AI Hackathon. 2023
- **Machine Learning for Identifying IPF Imaging Biomarkers**, OSIC Symposium at RSNA. 2022
- **Generative Models in Medical Imaging**, Taibah University. 2022
- **Learnings from the OSIC Kaggle Challenge**, BI Open, Boehringer Ingelheim. 2020
- **Machine Learning Trends in Medical Imaging**, NeurIPS Meetup, Cairo. 2020
- **Extreme Points for Class-Agnostic Interactive Segmentation**, CMIC/WEISS ML Journal Club, UCL. 2020