Maxence Boels

Surgical and Interventional Engineering, King's College London

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EDUCATION

King's College London – Biomedical Engineering & Imaging Sciences   **London, United Kingdom**
Ph.D. Candidate in Artificial Intelligence for Robotic Surgery   *2021 – current*

Thesis: « Surgical Workflow Prediction from Robotic-Assisted Surgery »
Advisors: Prof. Sebastien Ourselin, Prof. Prokar Dasgupta, Dr Alejandro Granados

University of Surrey – Centre for Vision, Speeach, and Signal Processing   **Surrey, United Kingdom**
MSc. Computer Vision, Machine Learning, and Robotics, (First Class)   *2019 – 2020*

Thesis: «Predicting Malignancy in Breast Cancer with Deep Learning»
Advisors: Prof. Kevin Wells

University of Lisbon Nova   **Lisbon, Portugal**
MSc. Data Science and Advanced Analytics, (First Class)   *2017 – 2019*

Thesis : «Building a Data Integration Tool for Healthcare Transparency»

ICHEC Brussels Management School   **Brussels, Belgium**
BSc. Business Administration and Management   *2013 – 2017*

RESEARCH INTERESTS

Video Understanding, Action Anticipation, Reinforcement Learning, Machine Learning, Computer Vision.

PUBLICATIONS AND RESEARCH PROJECTS

SWAG: Surgical Workflow Anticipation with Generative Modelling (submitted to IJCARS)
Authors: M. Boels, Y. Liu, A. Granados, P. Dasgupta, and S. Ourselin   *2024*

- o   New method for generating short and long-term planning in real time surgeries.

LoViT: Long Video Transformer for Surgical Phase Recognition (submitted to Medical Imaging Analysis)
Authors: Y. Liu, M. Boels, A. Granados, P. Dasgupta, and S. Ourselin   *2024*

- o   Sota performance on multiple hour long videos in robotic surgery.

MAPPING: Model Average with Post-processing for Stroke Lesion Segmentation, 1st place MICCAI '22 ATLAS Challenge
Authors: J. Huo, L. Chen, Y. Liu, M. Boels, A. Granados, S. Ourselin, and R. Sparks   *2022*

- o   We present our stroke lesion segmentation model based on the nnU-Net framework.

Research Assistant - University of Surrey
Advisor: Prof. Kevin Wells, and Prof. John Colommosse   *2019 - 2020*

- o   Predicting Breast Cancer using Convolution Neural Networks on mammograms.
- o   Visual Search Image Query using SIFT detectors, HOG descriptors to retrieve images in a large database.

INDUSTRIAL EXPERIENCE

Radiomics   **Brussels, Belgium**
Deep Learning Research Scientist   *Sept 2020 – Dec 2020*

- o   Developed a segmentation model for the lungs, and liver to perform tumor radiomics.
- o   Validated and Integrated the model with the software development team.

Deloitte   **Paris, France**

Data Scientist intern *Sept 2018 – March 2019*

- o Developed a data integration tool for a pharmaceutical company.
- o Used agile software design and delivery methods for key clients.

Air **Brussels, Belgium**
Data Scientist intern *July 2016 – Sept 2016*

- o Built a customer segmentation model for targeted marketing.
- o Created and Presented a market analysis report to top executives.

TECHNICAL AND PERSONAL SKILLS

Programming Languages: Python, C++, Matlab, ROS, C#.

Web Development: JavaScript, React, HTML, CSS, Bootstrap, Node.js.

Libraries: Pytorch, Tensorflow, OpenCV, CUDA.

Tools and Platforms: Git, Docker, Linux, VS Code, Eclipse.

Languages: English (fluent), French (native), Dutch (fluent), Spanish (limited proficiency), Portugues (basic).

ADDITIONAL TRAINING

Licenses and Certifications: Advanced Customs with Tensorflow, AI for Medical Diagnosis (Coursera), ML Track (DataCamp).

Volunteer: Scout Leader, Cancer patient assistance.