Théo Sourget

tsou@itu.dk | https://www.tsourget.fr

EDUCATION

Université de Rouen   Rouen, France
Master in Data Science and Engineering, highest honors, Valedictorian   2021-2023

Université de Rouen   Rouen, France
Bachelor in Computer Science and Data Science, honors, Valedictorian   2020-2021

IUT de Vannes   Vannes, France
2 Years University Diploma in Computer Science   2018-2020

CURRENT & PREVIOUS EMPLOYMENT

IT University of Copenhagen   Copenhagen, Denmark
Research Assistant, Department of Computer Science   October 2023 − now
- I assess the usage of non-relevant information (e.g. background) in chest X-ray images by CNN models
- I studied the presence of public medical datasets in scientific papers and created open-access tools based on the research
- I defined and wrote a PhD project proposal on the evaluation of multi-modal datasets and models
- I assisted in the data collection or data processing of other lab projects

IT University of Copenhagen   Copenhagen, Denmark
Assistant Lecturer, Department of Computer Science   January 2024 − now
- I prepare and give lectures to bachelor's students of the Project in Data Science course (Git, decision trees, ensemble of classifiers, common problems in machine learning projects)
- I design the exercises for the practical sessions
- I coordinate the teaching assistants during the practical sessions

IT University of Copenhagen   Copenhagen, Denmark
Teaching Assistant, Department of Computer Science   October 2023 − January 2024
- I assisted students during practical sessions of the Data In the Wild Course
- I assisted teachers in the preparation of the exercises

Capgemini Engineering   Illkirch-Graffenstaden, France
Data Scientist Intern, Medic@   April 2023 − September 2023
- I performed teeth detection, segmentation and numbering in X-ray dental panoramic to help diagnose rare diseases for both adults and children.
- I compared the performances of Mask-RCNN and Detection Transformer (DETR)
- I assessed the effect of different "classical" data augmentation techniques
- I defined an algorithm to generate new dental panoramics using existing images and inpainting models
- I used different generative models (GAN, diffusion models) to generate new teeth

IT University of Copenhagen   Copenhagen, Denmark
Research internship, Department of Computer Science   March 2023 − April 2023
- I studied the use of datasets in scientific papers on the segmentation of medical images
- I identified and evaluated tools to collect scientific papers' information such as content and citations
- I performed various NLP techniques to evaluate the organ focused in a paper

See-d   Vannes, France
Developer intern   April 2021 − July 2021
- I developed a storage-related data analysis website with Python and a Qlik Sense dashboard
- I improved existing features and developed new parts of both the website and the API such as the forecasting with auto-regressive models (ARIMA)
- I was responsible for demonstrating the tool at internal meetings and helped prepare external demonstrations

UNIVERSITY PROJECTS

Comparaison of U-Net and Segformer Architectures   Université de Rouen, $2022 - 2023$
- I compared the U-Net and the SegFormer architecture on the segmentation of cardiac structure in ultrasound images
- I worked in collaboration with a PhD student to extend my study to other segmentation tasks

Glaucoma detection with CNN   Université de Rouen, $2021 - 2022$
- I classified eye fundus images for glaucoma detection with convolutional neural networks
- I evaluated the effect of different techniques for mitigating data imbalance, such as data augmentation, weighted loss and resampling

PUBLICATIONS

- [Citation Needed] Data usage and citation practices in medical imaging conferences. **T. Sourget**, A. Akkoç, S. Winther, C. L. Galsgaard, A. Jiménez-Sánchez, D. Juodelyte, C. Petitjean, and V. Cheplygina. Submitted to Medical Imaging with Deep Learning, 2024. under review.
- Detection transformer for teeth detection, segmentation, and numbering in oral rare diseases: Focus on data augmentation and inpainting techniques, H. Kadi, **T. Sourget**, M. Kawczynski, S. Bendjama, B. Grollemund, and A. Bloch-Zupan. Accepted for publication in The 2023 International Conference on Computational Science and Computational Intelligence (CSCI'23).
- Can Segformer be a true competitor to U-net for medical image segmentation? **T. Sourget**, S. N. Hasany, F. Mériaudeau, and C. Petitjean. In Annual Conference on Medical Image Understanding and Analysis, pages 111–118. Springer, 2023.

OTHER ACHIEVEMENTS

- Recipient of a DDSA visit fund of 1645€ in 2023 to work with Dr Veronika Cheplygina at the IT University of Copenhagen
- Recipient of the Graduate school MinMacs scholarship of 15 000€ (funded by the Normandy region) during both the first and second year of my Master's degree, giving access to funding, a supervisor and an immersion in laboratories
- Presentation of the work on the study of dataset usage and citations at the D3A Conference 1.0 2024
- Presentation of the work on the segmentation of cardiac ultrasound images at the GRETSI 2023
- Presentation of an introduction to dynamic graph neural networks at the Graduate School MINMACS reading group 2023.
- Volunteered in a children's tutoring group