Michael Tänzer

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EDUCATION

Imperial College London — London, UK
PhD Artificial Intelligence for Healthcare — 2020 - 2024

Imperial College London — London, UK
MSc Artificial Intelligence and Machine Learning *GPA: 1st class - 82%* — 2019 - 2020

University of Exeter — Exeter, UK
BSc Computer Science and Mathematics *GPA: 1st class – 81%* — 2016 - 2019

PUBLICATIONS

2023

- The state-of-the-art in Cardiac MRI Reconstruction: Results of the CMRxRecon Challenge
  Lyu et al. **MICCAI 2023**
  Keywords: Cardiac MRI, Deep Learning, Image Reconstruction, Challenge

- T1/T2 Relaxation Temporal Modelling from Accelerated Acquisitions Using a Latent Transformer
  Tänzer M, et al. **MICCAI 2023**
  Keywords: Cardiac MRI, Quantitative Mapping, Deep Learning, Transformers

- Faster Diffusion Cardiac MRI with Deep Learning-based breath hold reduction
  Tänzer M, et al. **MIUA 2022**
  Keywords: Diffusion Tensor CMR, GANs, Vision Transformers, Image Enhancement

2022

- Review of data types and model dimensionality for cardiac DTI SMS-related artefact removal
  Tänzer M, et al. **MICCAI 2022**
  Keywords: Cardiac DTI, Deep Learning, Image Reconstruction, Model Architecture

- Memorisation versus Generalisation in Pre-trained Language Models
  Tänzer M, Ruder S, Rei M. **ACL 2022**
  Keywords: NLP, Language Models, Few-shot Learning, Entity Recognition

EXPERIENCE

Amazon — Edinburgh, Scotland
Research Scientist — August 2022 – December 2022

- Led research on improving conversion prediction models by addressing delayed attribution and distribution shift challenges, conducting in-depth analysis of temporal patterns across product categories
- Developed and evaluated novel delayed feedback attribution models through offline/online A/B testing, achieving 2.4% improvement in relevant metrics
- Investigated online learning approaches and implemented solutions to reduce model staleness, while conducting extensive evaluations of model biases and failure modes
- Effectively communicated technical findings and drove improvements in machine learning modeling practices across the team

GoVolt — Milan, Italy
Android Developer — June 2019 – September 2019

- Main developer of the Android application, which provided a way for the users to manage their bookings, payments and rides history.
- Managed a team of developers in charge of the development of the iOS application and of minor bug-fixes in both Android and iOS
- The application is used by more than a thousand users every day and the service is now available in multiple cities

IBM — Milan, Italy
Watson AI Global Business Services Intern — June 2018 – September 2018

- Responsible of developing a costumer support chatbot that makes use of some of the latest natural language understanding and processing technologies developed by IBM

- I managed the high level requests of the client using the available AI technologies to deliver a cutting edge product that can answer most of the questions with pertinent answers
- By the end of my internship, the chatbot I developed had been introduced in four international companies and it is now used on a regular basis

Autodesk   Tel-Aviv, Israel
Summer intern in QA department   June 2017 – August 2017

- In charge of developing an automated testing suite for the web version of the 3D model viewer
- By the end of my internship, the test suite I developed was included in the continuous integration process

PROJECT AND THESES

PhD *Medical Imaging, generative models, de-noising, de-aliasing, inverse problems*
Artificial Intelligence enabled highly efficient Diffusion Tensor Cardiac Magnetic Resonance

Master Thesis *Python, PyTorch, Deep Learning, NLP, token classification*
BERT memorisation and pitfalls in low-resource scenarios
Accepted at ACL2022 – Available on arXiv: `https://arxiv.org/abs/2105.00828`

Bachelor Thesis *Python, Keras, generative models, dimensionality reduction, manifold learning*
Manifold learning for explaining the behaviour of Recurrent Neural Networks

RESEARCH AND PROJECTS

PhD Research *Medical Imaging, Deep Learning, Acceleration Techniques*

- Led research on accelerating Diffusion Tensor Cardiac MRI acquisitions using deep learning approaches, achieving unprecedented acceleration factors of $20\times$ ex-vivo and $4\times$ in-vivo while preserving clinical utility
- Investigated multiple acceleration techniques including repetition reduction and simultaneous multi-slice acquisitions, while pioneering acquisition sequence optimization for deep learning compatibility
- Collaborated with clinicians to validate and ensure practical applicability of developed methods in clinical settings

RESEARCH INTERESTS

- **Medical Imaging**: MRI Reconstruction, Diffusion Tensor Imaging, Quantitative Mapping
- **Deep Learning**: GANs, Vision Transformers, Image Enhancement, Online Learning
- **Machine Learning**: Distribution Shift, Few-shot Learning, Model Optimization

ACADEMIC SERVICE

- **Teaching**: Graduate Teaching Assistant for Deep Learning and Computer Vision courses
- **Challenge Organization**: Co-organized CMRxRecon Challenge at MICCAI 2023
- **Reviewing**: Served as reviewer for MICCAI, MIUA conferences

SKILLS

Languages:	Italian (native), English (full professional proficiency).
Programming:	Python, PyTorch, Java, Git, Android, JavaScript, NodeJs, VueJs.
Frameworks:	PyTorch, Keras, TensorFlow, Vue.js, Node.js.
Development Tools:	Docker, Linux, LaTeX, Jupyter, Git.
Medical Imaging:	MRI Acquisition, Image Processing, DICOM.

AWARDS

Reinforcement Learning Competition Winner   Imperial College London
Internal Reinforcement Learning competition across over 150 students   December 2020

Dean's Commendation for Academic Excellence   University of Exeter
                                                                                June 2019

Dean's Commendation for Academic Excellence   University of Exeter
                                                                                June 2017