

Postdoctoral Fellowships in Artificial Intelligence for Ultrasound Medical Imaging at University of Zurich (Switzerland)

Minimum qualifications:

- PhD in Computer Science, related technical field or equivalent practical experience.
- Experience in Computer Vision, Machine Learning, Algorithmic Foundations of Optimization, Data Mining or Machine Intelligence (Artificial Intelligence).
- Programming experience in Python, Matlab, C/C++ and GPU programming.
- Contributions to research communities/efforts, including publishing papers in machine learning and computer vision (e.g., IEEE, MICCAI, JMLR, NeurIPS, CVPR, KDD, ICML, ICCV).
- Strong interest in medical imaging and in developing ultrasound technology.

Preferred qualifications:

- Experience in ultrasound physics and image formation, including beamforming and computer tomography problems.
- Demonstrable experience in Deep Learning (adversarial networks, recursive networks, time series analysis and/or autoencoders) and related software libraries (TensorFlow, Pytorch).
- Experience in medical imaging and radiomics.
- Experience in real time implementation of software algorithms on research ultrasound systems (e.g., Verasonics) or clinical ultrasound systems.
- Experience in cluster computation and big data.
- Experience with wave simulation (finite elements) and inverse full-wave problems.
- Sufficient oral communication skills in German for interaction with patients.

Job description:

At the Zurich Ultrasound Research and Translation group (www.zurt.ch), we are developing the ultrasound technology of the future. Ultrasound is a portable, hazard-free and cost-effective imaging technology, with the potential to become ubiquitous. Yet, current ultrasound echography is currently only fit for qualitative assessment of the body. Our vision is to convert ultrasound into a high-precision diagnostic tool. For this purpose, we are empowering ultrasound to provide quantitative imaging biomarkers, which until now were only available in more invasive imaging modalities. We are part of the Radiology Department at the University Hospital of Zurich (www.usz.ch), and the Medical Faculty of the University of Zurich (www.uzh.ch). Our

group is an interdisciplinary mix of engineers and radiologists to translate ultrasound technology from the workbench to the patients. We collaborate with major manufacturers of ultrasound technology.

We are searching for talented, dynamic and motivated scientists to help us realize our mission. The successful candidate will use modern machine learning techniques to extract and exploit the wealth of information about tissue mechanics and microstructure, which is contained in the time signals captured by the ultrasound probe (several GBs of data per acquisition). For this purpose, they will combine traditional quantitative features extracted with tissue biomechanical models with self-learned features extracted directly from the data. The candidates are also expected to support data acquisition and evaluation in clinical studies, provide mentoring to medical residents, technical students, and be involved in seminar teaching at the laboratory.

The positions are directed to young postdoctoral researchers. We offer a one-year fellowship with possibilities for extension. The successful candidates will have access to both a wide breadth of clinical methods and data (ultrasound, computed tomography, magnetic resonance imaging, histopathology) and computational infrastructure. They will have the opportunity to publish in both technical and clinical journals, and to present their work at international conferences. We offer a competitive salary based on the experience of the selected candidates.

The University Hospital Zurich (UHZ) is more than just a workplace. We help patients with complex health problems by using our knowledge advantage. More than 7500 employees from 87 nations work at the University Hospital Zurich, and 2500 employees conduct research. In addition to the salary, benefits and meaningful work at a university hospital, we also offer practical facilities such as a day care, health services for employees, staff accommodation and leisure activities. Due to its culture, nature and urban-style living, Zurich has been consecutively awarded 7 times as “city with the world’s best quality of life”. We are one of the largest and most influential hospitals in Switzerland. Each and every employee contributes to this success. We're looking for the best – we look forward to meeting you!

Please submit your application to contact@zurt.ch. Please use the same e-mail for questions on the position, which you can refer to Dr. sc. Sergio J Sanabria. Applications will be evaluated in a continuous basis. Preferred starting date is June 2020.