

Fully funded PhD in Engineering Physics and Materials at Ca' Foscari University of Venice in collaboration with Zurich University of Applied Sciences ZHAW

Title: AI for Analysis of Spectroscopy Data

The PhD in Engineering Physics and Materials will be awarded by Ca' Foscari University of Venice. See link below and select **Engineering Physics and Materials**
<https://www.unive.it/web/en/2164/positions-and-scholarships>

The position will be integrated in a research team that is devoted to applications for Industry. Based on previous work of two PhD students, the candidate will develop machine learning techniques for the analysis of spectroscopy data from industrial applications (e.g. in pharma or chemical industry). Close collaboration with industry is intended. Moreover, **an extension to quantum computing technology is planned.**

We offer a four-year position: The PhD student will spend three years in Venice and one year at Zurich University of Applied Sciences (in Winterthur, close to Zurich). **For the year in Switzerland a significant higher compensation is offered due to the higher cost of living in the Zurich area.**

Your responsibilities:

- Develop Artificial Intelligence-based tools for the analysis of spectroscopy spectra
- Become an expert in the field of AI technology, with a track record of published own research results and successful technology transfer
- Elaborate quantum computing technologies for spectroscopy data analysis
- Apply for the PhD Program at Università Ca' Foscari Venice.

The successful candidate has finished a Master's degree in physics, physical chemistry, or computer science at a research university or a university of applied sciences within the last two years. He or she must have reliable experience in neural networks or other machine learning technologies (e.g., done coursework and own experimentation, ideally proven by successful projects or publications). We expect a good command as well as a passion for programming, ideally in python. Good communication skills in English are also crucial for the work in multidisciplinary teams. The ideal candidate has sound knowledge of spectroscopy and the underlying quantum mechanics. The PhD candidate will be part of an interdisciplinary team of researchers at Ca' Foscari University of Venice and ZHAW. Particular emphasis is given to developing prototypes, experimenting hands-on with data, and scientific evaluation and publication of results.

Please address further enquiring to Prof. Achille Giacometti (achille.giacometti@unive.it)

Zurich University of Applied Sciences ZHAW is one of Switzerland's largest multidisciplinary universities of applied sciences, with over 14,000 students and 3,500 faculty and staff.

As one of the leading Engineering Faculties in Switzerland, the ZHAW **School of Engineering (SoE)** emphasises topics which will be relevant in the future. Our 14 institutes and centres guarantee superior-quality education, research and development with a focus on the areas of energy, mobility, information and health.

Since 2013 the **Institute of Applied Mathematics and Physics (IAMP)** has teamed up with five other institutes from three departments to establish one of the first interdisciplinary Data Science Centres in Europe – the ZHAW Datalab (www.zhaw.ch/datalab). It runs a focus area on deep learning methodology, spanning several research groups, with several multi-year research projects on the applicability of reinforcement learning to areas from home automation to applications in medical technology. Within the Research Group Applied Complex Systems Sciences of the Institute of Applied Mathematics and Physics (www.zhaw.ch/iamp), we are looking for a highly motivated and excellent candidate.

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