PhD Thesis in data processing for cryo-electron ptychography

The EPFL ranks among the world's top scientific universities. We are located in Lausanne in Switzerland, a beautiful and highly international city on the shores of scenic Lake Geneva, situated within an Alpine setting in the heart of Europe. French is the main language spoken in the city of Lausanne, and English is the main language at the EPFL and in our laboratory. EPFL is committed to being an equal opportunity employer.

The successful candidate will join a vibrant, collaborative, international, and diverse research team with interdisciplinary expertise in biology, physics, computer science and engineering. The focus of research activity at the LBEM is centered around neurodegeneration and method development in cryo-electron microscopy. For this, the LBEM is operating unique instrumentation, including a 300kV Titan Krios with probe corrector and high-speed direct electron detector, which is an ideal setup to develop 4D STEM, ptychography and related methods.

Your mission:
We are looking for a researcher to participate in the development and application of image analysis software for cryo-electron microscopy data with a specific focus on diffractive imaging and ptychography. Data are from conventional cryo-EM imaging, and from 4D-STEM experiments. For the latter, a high-speed camera will run at 120'000 frames per second and record diffraction patterns from different probe positions on the sample. These are then combined by ptychography algorithms to obtain high-resolution images and 3D reconstructions of the sample. Our lab has ample computing equipment available, including multi-GPU clusters.

A background in Mathematics, Computer Sciences, Physics, or related disciplines, or alternatively a background in natural sciences combined with a fascination for software development and algorithms is required. Funding is secured by an ERC grant.
For more information please see: https://www.lbem.ch/open-positions

Your profile:
Candidates should have good expertise in programming (python, C++) and a basic understanding of algorithms, image processing and electron optics.

How to apply:
Please send your application with PDF documents including a Cover letter, a CV and the contact information of 3 references to henning.stahlberg@epfl.ch.

For the PhD fellowship:
The student will be part of a doctoral school at the EPFL. The employment extends to a total of 4 years, assuming a successful evaluation after the first year of PhD. Applicants are expected to hold a Master degree in physics or related disciplines by the start of employment.

Start date:
The position is available immediately, the starting date is flexible.

Contact:
For questions or additional information, please contact Prof. Henning Stahlberg at henning.stahlberg@epfl.ch.

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