OPEN POSITION
MATERIALS CLOUD SOFTWARE ENGINEER/WEB DEVELOPER

An open position for a software engineer/web developer is available at EPFL (Lausanne, Switzerland) in the MARVEL NCCR (http://marvel-nccr.ch), the Swiss centre for “Computational Design and Discovery of Novel Materials” involving 41 principal investigators (more information in the link above).

Excellent candidates are sought with experience in the development of complex web architectures powered by cloud technologies, to support the development and deployment of the Materials Cloud (www.materialscloud.org), a web portal for computational materials science powered by AiiDA (www.aiida.net). [AiiDA is a materials’ informatics framework that acts as a flexible and scalable infrastructure to manage high-throughput computations; Materials Cloud is a portal for computational materials science and an online cloud platform. Such infrastructure underpins the efforts of the MARVEL NCCR; close collaboration takes also place with the H2020 Centre of Excellence MaX for “Materials Design at the Exascale” (http://www.max-centre.eu/)].

The project will focus on research case studies for the existing Materials Cloud platform, with primary focus on the portal frontend (in AngularJS) and optimization of its user interface and its ergonomic design, as well as support for the backend development (Python+Flask).

The software engineer would work with a team of 10+ PhD students, postdocs, and software specialists with diverse backgrounds (physicists, chemists, materials scientists and computer scientists) contributing both to AiiDA and the Materials Cloud.

For interested applicants scientific research challenges can also be incorporated in the effort (but this is not a requirement).

Major duties and responsibilities:

Maintenance and development of the Materials Cloud web portal:

- development and extension of the main AngularJS web framework for the whole portal
- development of custom views to present scientific data interactively (e.g. using Three.js/WebGL, d3.js, …), with data retrieved from the backend REST API
- implementation of authentication and authorization to support the protocols available at national HPC facilities, such as OAuth2, Shibboleth, Keystone
- deployment of the infrastructure on cloud resources using OpenStack, optimization of service scalability and availability
- communication with users for support, feedback, and strategic development

Additionally, support further development and extension of the existing python backend that provides the REST API (using the Flask framework via AiiDA) and interacts with large data sets via PostgreSQL and the Swift object store.
Requirements:

- Web frontend technologies (AngularJS, HTML5, CSS3), web/UI frameworks (like Bootstrap or Angular Material)
- Modern JS visualization and UI libraries (three.js, d3.js, Kendo UI, …)
- Management of large codes/projects in a team (version control systems, issue trackers, unit test, continuous integration and other good software practices)
- Python experience

Typical candidates will be independent, motivated and passionate, and have a MSc in computer science or comparable skills and experience.

A scientific background (e.g. physical or engineering sciences) is welcome but not required. As mentioned, for interested applicants scientific research challenges can be incorporated in the effort – in this case a PhD in science or engineering would be preferable, and the position would have both elements of software engineering and of postdoctoral research.

Other desirable skills:

- Experience with cloud services - Amazon AWS, Google Cloud Platform or OpenStack
- Database systems (SQL/NoSQL, triggers, transactions, …)
- Experience with handling large amounts of data
- Knowledge of software design (UML, design patterns, agile development, …)

The environment:

The position will be hosted at EPFL in the MARVEL NCCR. EPFL offers a thriving intellectual environment, outstanding computational resources and facilities, and a very lively and active community. It is located in Lausanne, on the shores of Lake Geneva and in close proximity to the Swiss and French Alps.

Applications:

Candidates should submit 1) a full CV, including contacts for at least two references, and 2) a cover letter of intent. These documents (send PDF only) should be emailed to both giovanni.pizzi@epfl.ch and berend.smit@epfl.ch, with the exact text “MARVEL Web Engineer” in the subject line.

For best consideration, applications should be submitted by May 31st; the position will remain open until filled. Shortlisted candidates will be contacted individually for interviews, usually over Skype videoconferencing.

Duration of the contract: 1 year, renewable depending on funding availability. Salaries with a MSc qualification start at ~75,000 CHF, for a PhD at ~82,000 CHF.