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# Doctoral Position within the field of Construction and Technology at the Academy of Architecture of the Università della Svizzera italiana (USI)

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**Università della Svizzera italiana (USI)** is a young and lively university, a hub of opportunity that is open to the world, where students are offered a quality interdisciplinary education in which they can be **fully engaged**, and **where our researchers can count on having the space to freely pursue their initiatives**. Established in 1996, USI is in constant evolution, always taking on new challenges while remaining true to its three guiding principles: quality, openness and responsibility.

**At the Academy of Architecture in Mendrisio**, a faculty of the Università della Svizzera italiana (AAM-USI). Prof. Dr. Ena Lloret-Fritschi, aims to lay the foundation for a new sustainable design method for architecture using cutting edge technology with cementitious materials.

**Prof. Dr. Lloret-Fritschi** is a pioneer in the field of digital concrete, with the project Smart Dynamic Casting – a project that has led to a family of concrete processing technologies known as Digital Casting Systems (DSC). DSC controls the hardening of concrete on the fly of production. In doing so, it, enables concrete construction using minimal formworks and thereby reducing the materials used. These new technologies and processes were developed in an interdisciplinary context at the ETH in Zürich, and the goal of the Chair is now to understand how these novel concrete processing techniques can be better integrated into architectural practice. To achieve that, the Chair seeks to establish an iterative information flow between? design, material and fabrication, thus establishing a process which is efficient in terms of material, time and cost and which can be transferred to a range of building materials, including clay, earth, hempcrete, steel, and glass. The aim is to develop a material and fabrication agnostic design architecture to design buildings with less material.

**The Academy of architecture, for the project on fabrication and material aware architecture is searching for:**

Two PhD candidates who focus on the development of fabrication and material aware workflows. Here they will investigate the design potential of architecture built with ultra-thin formworks by leveraging recent cutting-edge technological advancements made in Digital Concrete that facilitate the design of structures using reduced construction materials.

**You are a** highly motivated architect / engineer with an architectural or advanced technical degree and with a strong interest in computational design and digital fabrication and processing. We expect good programming skills, possibly in multiple programming languages (in particular Python), and experience in digital design workflows and/or robotic fabrication. An interest in mathematics, cutting edge technology, mechanical and structural engineering is preferable. You should be fluent in English, be able to take the initiative and work independently and enjoy working in an interdisciplinary research team.

**PhD applicants must hold** a Master's degree acquired at university level (equivalent to the FHEQ-Level 7) in architecture or related fields

**General terms:**

- Minimum three years up to four years contract (after trial period).
- Start date: 01.07.2022
- Workplace: Academy of Architecture located in Mendrisio, Switzerland.
- Availability to travel to other parts of Switzerland and abroad (for purposes of collaboration and research) is required.

**Application**

- Applications can be submitted to: [ena.lloret.fritschi@usi.ch](mailto:ena.lloret.fritschi@usi.ch)

**All applications must include a completed CV, which includes:**

- Personal data (name, age, date of birth)
- Academic path / Information about qualifications obtained
- Professional experience
- Awards (if applicable)
- Exhibitions / Conferences
- List of publications from previous symposiums or conferences.
- Language skills
- Programming skills

**The following documents are mandatory:**

- Motivation for submitting the application.
- Max two-page research statement outlining areas of research the candidate would be interested in developing.
- Portfolio of work in academia and/or practice
- Educational and work certificates (last qualification obtained).
- At least two academic references

**Applications received in any other form will not be considered. Applications received before 31.03.2022, 23:59 CET will be given priority.**

A process of assessment will be followed by an invitation to interview. Interviews will take place in early April 2022.