Università
della
Svizzera
italiana

Research Assistant – Computational Design & Digital Fabrication for Sustainable Concrete Construction (Foldcast)

Academy of Architecture, Università della Svizzera italiana (USI)
Fabrication and Material Aware Architecture (FMAA) Research Group

About USI and FMAA

Università della Svizzera italiana (USI) is a young and lively university, a hub of opportunity open to the world where students are offered a quality interdisciplinary education in which they can be fully engaged and take center stage, and where our researchers can count on having the space to freely pursue their initiative. 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, the Fabrication and Material Aware Architecture (FMAA) research group, led by Prof. Ena Lloret-Fritschi, is at the forefront of exploring sustainable design methods in architectural practice with cutting edge technology.

About the Project

The **Foldcast Derma** project, funded by the Gebert Rüf Stiftung InnoBooster programme, develops recyclable paper formwork systems for low-carbon architectural concrete façade elements. Combining computational design, structural optimisation, digital fabrication, and full-scale prototyping, the project aims to advance more sustainable concrete construction.

This position offers a unique opportunity to work at the interface of academic research and industrial innovation, collaborating closely with Foldcast Sagl, the USI spin-off commercialising the technology, as well as researchers and industry partners.

Main Responsibilities

You will contribute to the development of a research project focused on low-carbon precast concrete façade systems using recyclable paper formwork.

- Develop computational design workflows using Rhino and Grasshopper.
- Develop and/or operate Python scripts supporting digital fabrication.
- Prepare fabrication files for CNC cutting and digital fabrication workflows.
- Fabricate, assemble and test full-scale paper formwork prototypes.
- Participate in concrete casting, laboratory testing, and prototype validation.
- Produce technical drawings and fabrication documentation.
- Contribute to scientific publications, exhibitions and conferences.
- Collaborate with industrial partners and Foldcast Sagl to validate research outcomes.

Candidate Profile

We are looking for a highly motivated candidate with a passion for sustainable construction, computational design, digital fabrication, and hands-on prototyping.

Required qualifications:

- Master's degree (or equivalent) in Architecture, Industrial Design, Digital Fabrication, Computational Design, Civil Engineering or a related discipline.
- Excellent knowledge of Rhino and Grasshopper.
- 2+ years of relevant experience with digital fabrication workflows.
- Enthusiasm for hands-on fabrication and experimental research.
- Strong problem-solving skills and structured working methods.
- Excellent English; Italian/German is an advantage.

Preferred qualifications:

- Programming experience in Python or similar scripting languages.
- Experience coordinating research or architectural projects.
- Experience with CNC machining or robotic fabrication.
- Knowledge of concrete construction or structural design.
- Scientific writing or publication experience.

What We Offer

You will work at the intersection of research and industry, contributing to next-generation construction technologies while gaining hands-on experience from computational design and digital fabrication to product development and industrial implementation.

- Opportunity to contribute to internationally recognised research with tangible impact on the future of sustainable construction.
- Collaboration with leading industry partners and the USI spin-off Foldcast Sagl.
- Access to CNC cutting facilities, advanced digital fabrication equipment, and experimental concrete construction laboratories.
- Participation in full-scale demonstrators and experimental construction.
- Contribution to scientific publications, international conferences, and exhibitions.
- A dynamic interdisciplinary research and innovation environment.

Contract Terms

- 12-month contract (renewable depending on project funding and performance).
- Employment: 80-100%.
- Competitive salary according to USI employment regulations.
- Start date: As soon as possible (at latest by October 1st, 2026).
- Workplace: Academy of Architecture, Mendrisio, Switzerland.

The Application

Please submit a single PDF including:

- Motivation letter
- Curriculum Vitae
- Portfolio (academic and professional work)
- Contact details of two references

Applications should be sent to: fabio.amicarelli@usi.ch

Applications will be reviewed as they are received. Early applications are strongly encouraged.

USI strives to be an equal opportunity and family friendly employer and is further responsive to the needs of dual career couples. We guarantee that the selection process will give equal opportunities to female and male researchers.

As an institution that values diversity, USI particularly encourages applications from women and from all individuals from underrepresented groups.

Only shortlisted candidates will be contacted for interviews.

Mendrisio, 09.07.2026