CV

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Work experience

2021 – **Project Assistant** at **Dept. of Architecture & Built Environment, LTH**

Working with the research project Biomimetic fabrication through robotic 3D-printing. Research conducted in a collaboration between the Department of Architecture & Built Environment, the Department of Automatic Control and the Construction Robotics lab.

Responsibilities included project management, software and hardware prototyping and development, academic writing and experimentation.

2022 – **Project Assistant** at **Dept. of Automatic Control, LTH, Lund University**

In the research project Eurostars SelectiCa, a collaboration between the LTH Robot Lab and Proxima Centauri ApS.

Responsibilities included project management, software and hardware prototyping and development, academic writing and experimentation.

2021 – 2022 **Project Assistant** at **Dept. of Automatic Control, LTH, Lund University**

In the research project Digitalisation and Standardisation for Customized Mass Production, a collaboration between the Department of Automatic Control, IUC Syd/IUC lab and SWEP international.

Responsibilities included project management, software and hardware prototyping and development, academic writing and experimentation.

2020 **Trainee** at **Gramazio Kohler Research, ETH Zürich**

Full scale on site construction of clay wall for SEMusicLab in Bern.

2020 **Student assistant** at **Gramazio Kohler Research, ETH Zürich**

Code documentation and testing, assistance in acoustic experiments.

2020 **Student assistant** at **Digital Building Technologies, ETH Zürich**

3D-printer repair and maintenance.

2017 – 2018 **Architect** at **Sesam Arkitektkontor, Kristianstad**

Ten month internship working mostly in residential projects from proposal to tender.

2017 – 2019 **Teaching assistant** at **Dept. of Architecture & Built Environment, LTH, Lund University**

Assisting and teaching in digital tool courses for architecture students in year 1–3.

2016 **Architect trainee** at **Accent Arkitekter, Värnamo**

Four week full-time internship in 2016 and an additional four weeks in 2017.

Academic achievements

2014 – 2021 **Master of Architecture**

LTH, Lund University

2019 – 2020 **Master of Advanced Studies in Architecture and Digital Fabrication**

ETH Zürich

Work samples

2020 – 2021 **Meristem Wall, binder-jet sand 3D-printed prototype for building envelope**

Meristem Wall is a prototype of a fully 3d printed building envelope. It is made using sand binder jetting by Voxeljet and Sandhelden, complemented by a custom CNC knitted fabric developed and fabricated in collaboration with Dr. Mariana

Popescu of Block Research Group at ETH Zürich.

The wall is designed using an interdependent model that negotiates the space and relationship between a wide range of functions including utilities such as electric wiring, aesthetic preferences, structural performance, and bioclimatic considerations. This self-organising simulation is capable of creating unique compositions of space to fit a wide range of context and functional needs.

Location	Biodigital Futures, part of the Venice Biennale collateral event Time Space Existence
Roles	• development of digital workflow • performance optimization of volumetric modeling tools
Context	bioDigital Matter, Department of Architecture and Built Environment, LTH & Block Research Group, ETH Zürich

2020 – 2021

Clay Rotunda / SEMusicLab, indoor circular clay wall

A circular undulating clay wall 5 m high with a 6 m radius built using a method of robotic clay aggregation developed at MAS DFAB and in my thesis project Adaptive Clay Formations. The project was preceded by the construction of a full scale prototype of a quarter of final design in Brunnen, Switzerland. The wall is built to surround a acoustic lab built in a new co-working space in the Gurtenbrauerei in Bern.

Location	Gurtenbrauerei, Bern, Switzerland
Roles	• research & development • programming lead • on site construction
Context	Gramazio Kohler Research. Project partners: Gotham Design, Lehmag & Seforb

2020

Adaptive Clay Formations, clay wall segment

MAS DFAB thesis project where a robotic clay aggregation method developed at MAS DFAB were further explored and refined. The project resulted in a 3.2 m long and 1.2 m high wall segment built using a six axis industrial robot mounted on a movable platform, and built with the robot re-localized three times. In this project we refined robot end effector, we experimented with feedback driven fabrication and trajectory planning for the robotic arm. The project was undertaken by Edurne Morales Zúñiga and myself with tutors David Jenny, Coralie Ming, Nicolas Feihl & Gonzalo Casas at Gramazio Kohler Research, ETH Zürich.

Location	Robotic Fabrication Lab, ETH Zürich

Roles	• research & development • programming lead • on site construction
Context	MAS DFAB 19/20, ETH Zürich

2020

Digital Bamboo Pavilion, bamboo outdoor structure

40 m² pavilion made out of straight bamboo members and bespoke 3D-printed nylon joints. Designed and built by the whole class of MAS DFAB 19/20, project led by Marirena Kladeftira at Digital Building Technologies, ETH Zürich.

Location	Zentrum Architektur Zürich, Zürich, Switzerland
Role	team member in design team
Context	MAS DFAB 19/20, ETH Zürich

2018

Swallows' Nest, clay model

Research project into bio-mimetics and clay printing where a method of discrete depositions of clay globules using an off-the-shelf 3D printer was developed. With Erik Hildorsson at Spatial Experiments, a studio led by David Andréen & Ana Goidea.

Location	School of Architecture, LTH, Lund
Role	design studio student
Context	Spatial Experiments, School of Architecture, LTH

Publications

Johansson, A., & Morales Zúñiga, E. (2021). ***Adaptive Clay Formations*** [Lund University]. http://lup.lub.lu.se/student-papers/record/9041159

Andréen, D., Goidea, A., Johansson, A., & Hildorsson, E. (2019). Swarm Materialization Through Discrete, Nonsequential Additive Fabrication. ***2019 IEEE 4th International Workshops on Foundations and Applications of Self* Systems (FAS*W)***, 225–230. https://doi.org/10.1109/FAS-W.2019.00059

Teaching experience

2021 –

Spatial Experiments I, School of Architecture, LTH, Lund University

Design studio at the Masters programme at the School of Architecture. Mainly technical assistance (e.g. 3D-printing, robotics).

2021 – **Creative Tools I, School of Architecture, LTH, Lund University**

Course in computational design and digital fabrication. Mainly technical assistance (e.g. robot control).

2017 – 2019 **Digital Tools II, School of Architecture, LTH, Lund University**

Teaching assistant

Skills

Fabrication

- Material extrusion 3D printers (FDM & clay)
- CNC milling
- laser cutting
- cutting plotter
- robotic arms (ABB, UR, Stäubli, ROS-I)

DevOps

- Containerization (Docker, Podman)
- Continuous Integration (GitHub Actions, Travis CI, GitLab Runners)
- Automated server management (Ansible)
- Cloud computing (Amazon AWS, DigitalOcean)
- LAMP/LEMP stacks

3D-modeling

- Architectural (Rhino3D, Autodesk Revit, Autodesk AutoCAD)
- Solid modeling (Autodesk Fusion 360, OpenSCAD, FreeCAD)
- Animation and rendering (Blender, Houdini, VRay)
- Electrical circuit design (KiCAD)

Programming

- Python (NumPy, SciPy, OpenCV)
- C
- C++ (ROS, CGAL)
- C# (Rhino.Common)
- SQL
- JavaScript (TypeScript, React)
- GraphQL
- Bash & Posix SH

Graphic design

- Image manipulation (Adobe PhotoShop)
- UI & vector graphics (Adobe Illustrator, InkScape, Figma)
- Print layout (Adobe Indesign)
- Web design (CSS, SCSS, CSS-in-JS)

Languages

Swedish

Native Speaker

English

Fluent