Leon Santen they he

currently on Ohlone Land (Oakland, California)

born in Frankfurt, Germany

sustainability engineer • roboticist • complex systems thinker

co-creating life-affirmative climate change solutions

Education

B.S. Engineering: Robotics: Olin College of Engineering **May 2021**

Ranked #1 or #2 of most innovative engineering institutions worldwide (by MIT). Why innovative? Because we learned how to work in groups and apply theoretical ideas in the real world. What I really learned was how to teach myself anything!

M.S. Engineering, Sustainability, and Health (MESH): University of San Diego **May 2024**

After almost giving up to find a value-aligned program, I found this radically innovative education container, preparing sustainability organizers to make informed choices in the fields of water-, energy-, waste-, food-, health-, and just human systems, all applied to self-directed real-world projects.
During this time, I chose to invest into learning how to draw digitally to express all my (systems) insights and ideas and find my critical voice by writing blog posts, creating videos, and collaborating with change-makers .

Experience

Secretary for the organization *Engineering, Social Justice, and Peace*

May 2023 - present
Community organizing

click me for more info

This exciting position allows me to connect engineers who share a decolonial & regenerative value systems. Through this network, I have met some of the most inspiring engineers I know. Sometimes, I host retreats in the San Francisco Bay Area, other times I send out emails to organize conferences.

Fish-safe water turbine design and fish injury research

July 2021- May 2022
Engineerin internship

As part of Natel Energy's engineering team, I helped to design water turbines that allow fish to pass safely reduce eco-system damage. My work ranged from cavitation test design & pneumatic system design, working with programmable logic controllers to conducting scientific studies with fish passage to ultimately protect their health. With my help as a data analyst & illustrator, we published a milestone fish-passage study that has helped Natel Energy to establish their reputation as the first fish-safe turbine designers.

Trans-disciplinary collaboration (interface design) for systemic intelligence

Aug 2022 - May 2024
Master's capstone & life project

My master's community of my program called "Engineering, Sustainability, and Health" consists of many different change-makers. My capstone project was an interface and human-centered design study (including 20 interviews) to build transdisciplinary communication spaces for communities of change-makers, enabling vision-building, emotional sensing, and cooperation across institutional & disciplinary boundaries. This is a project for life. After this project, I know that my community sees a great need to improve our current communication patterns through visual systems reasoning and empathetic spaces.

Exploration of energy sovereignty & ethical supply chains with the *Just Energy Hub*

Sept 2022 - Nov 2023
Advisory board member and partnership

I explored technical & social deployment opportunities for a vertical axis wind turbine in off-the-grid & disaster relief settings to empower local communities. I worked as a designer with Olin College students to envision installation scenarios for the wind turbine and guided industrial engineering students from the Cal Poly San Luis Obispo during their capstone for an ethical supply chain design.

Off-the-grid energy system design for in an intentional farm community

Aug 2020 - May 2021
Community project

During COVID, I connected with a farm in North Caroline to host 15 engineering students to live in community and gain experience building off-the-grid systems with a direct human impact. My proudest creations were a large-scale pan-tilt mechanisms for a five solar-panel array and the creation of a wireless system that monitored & controlled the battery system health. I also ran a siting study for a 4 kW vertical wind turbine and prototyped its blade design. Oh, and we all built several dwellings!

Ground Robotics Autonomous Vehicle Lab - Autonomous Tractor

2019 - 2020
Project group

I developed a ROS-integrated, ultrasonic sensor system that sensed the amount of accumulated dirt in the tractor's box blade. When the tractor accumulated too much dirt in its box blade, it lifted the bucket to prevent stalling. This system allowed an uninterrupted flow of its autonomous task to even out hills.

staying in touch...

Leon Santen

they
he

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click me for more info

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Skills that are a big part of who I am:

- Always working toward deeper co-operation and knowledge sharing
- Illustrating, drawing, sharing ideas visually
- Woodworking
- DJing, sound healing, cello
- Massage therapy
- Community work, co-creative art
- Dancing
- Baking

Some skills of mine:

- Python, C++, R
- SolidWorks, CATIA, FEA
- Electrical prototyping & design
- MATLAB, Simulink, Mathematica, ROS
- CNC Mill, CNC Lathe, MIG Welding, 3D-Printing

- Participatory reseach & design
- Scientific study design & analysis

- Working with ecosystems and complex living systems
- Illustration design & visual reasoning (Illustrator, Photoshop)
- Intentional (media) communications

My unique strengths as a team member: