

# Leon Santen<sup>they he</sup>

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! I acquired a diverse skill set spanning electrical, mechanical, and software engineering combined with human-centered design skills and sustainable design experience.

May 2024

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

After almost giving up to find a value-aligned program, I found this radically innovative education container, preparing sustainable engineers 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 in 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*

This exciting position allows me to connect engineers who share a decolonial & regenerative value system. 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.

May 2023 - present  
Community  
organizing



click me  
for more info

### Fish-safe water turbine design and fish injury research

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.

July 2021- May 2022  
Engineerin internship



### Trans-disciplinary collaboration (interface design) for systemic intelligence

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.

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



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

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, low-toxin supply chain design.

Sept 2022 - Nov 2023  
Advisory board member  
and partnership



### Off-the-grid energy system design with an intentional farm community

During COVID, I connected with a farm in North Carolina 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!

Aug 2020 - May 2021  
Community  
project



### Ground Robotics Autonomous Vehicle Lab - Autonomous Tractor

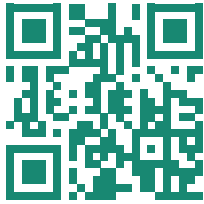
I developed a ROS-integrated, ultrasonic sensor system that sensed the amount of accumulated dirt in the tractor's box blade. When the tractor accumulated too much dirt in its box blade, it lifted the bucket to prevent stalling. This system allowed an uninterrupted flow of its autonomous task to even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

2019 - 2020  
Project group



staying in touch...

**Leon Santen** they  
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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 research & 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:

I can easily learn new skills

I am a creative & adaptive  
problem solver.

I focus on communication in all my work

I thoroughly document my work.

I'm emotionally aware & thoughtful.

My sustainability knowledge & network  
spans disciplinary boundaries.

