## Leon Santenthey

currently in 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

#1 or #2 of most innovative engineering institutions worldwide (MIT-study): GPA: 3.76

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

A radically innovative program, 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.

### Experience

#### Getting a 50 kW vertical wind turbine market ready with the Just Energy Hub

During my master's program, I explored technical & social deployment opportunities for a vertical axis wind turbine in off-the-grid & disaster relief settings. I worked as a designer with Olin College students to envision installation scenarios for the wind turbine and guided industrial engineering students from the California Polytechnic State University during their capstone for an ethical supply chain design.

#### 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 reduce eco-system damage. My work ranged from cavitation test design & pneumatic system design, working with programmable logic controllers to conducting scientific studies on fish passage. 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.

## Off-the-grid battery system protection, pan-tilt mechanisms for solar panels, siting study and design for a Savonius turbine...

During COVID, I organized 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.

#### Duodenoscope valve redesign at Boston Scientific

During this two semester long project, we redesigned the internal valve system of a medical device used for endoscopy procedures. After an extensive overview of all valve types, we creatively prototyped many valves with 3D resin printing and iterated on our designs many times. Flow performance, haptic feedback, intuitive use, and manufacturability were in the center of our design process. Not to brag, but I came up with the final mechanism that went into patenting.

#### 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.

#### Off-road vehicle suspension design - BAJA

As a member of a 25 person team, I designed the upper and lower suspension A-arms of an off-road vehicle. My FEA-based design worked perfectly during two off-road vehicle competitions. I further designed and fabricated the driver's seat with composite molding.

Building a driving simulator & research publication - Technical Univ. of Munich learned and

I lead the assembly and partial design of a modular, moving driving simulator for trucks. I further programmed another driving simulator and helped to conduct a study to alter the willingness of truck drivers to cooperate during overtaking scenarios.

#### Fabrication internship - SCHÜTZ GmbH, Germany

I learned and participated in all manufacturing processes for IBC-totes (large plastic containers for liquids): injection molding, CNC milling/lathing, machine construction, CAD, blow-stretch molding, and welding. I took away many insights regarding communication between workers & engineers.

Sept 2022 - Nov 2023 Advisory board member and partnership

May 2021

May 2024

click me for more info

July 2021- May 2022 Engineerin internship



P

Aug 2020 - May 2021 Community project

Aug. 2020 - May 2021 Bachelor's capstone

> 2019 - 2020 Project group

2018 - 2019 Project group

Aug. 2018 R&D Internship

> May 2017 Internship



### staying in touch... Leon Santen 🗤



**Phone** + 1 (781) 535-4848

E-mail Isanten@olin.edu

Portfolio • Website leonsanten.info

leonsanten.info



LinkedIn linkedin.com/in/leonsanten

## Skills that are a big part of шho I ат:

- 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

# My technical and engineering skills:

- Python, C++, R
- SolidWorks, CATIA, FEA
- Electrical prototyping & design
- Working with ecosystems and complex living systems
- MATLAB, Simulink, Mathematica, ROS
- CNC Mill, CNC Lathe, MIG Welding, 3D-Printing
- Graphic design (Illustrator, Photoshop)
- Scientific study design
- Participatory reseach & design

# My unique strengths as a team member:

I can easily learn new skills

l 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.