

Leon Santen

Engineering Student: Robotics and Sustainable Design

Education

Olin College of Engineering, B.S. Engineering: Robotics

May 2021

#1 or #2 most innovative engineering institution worldwide (MIT-study)

Recipient of 4-year, 50% Olin Merit Scholarship

Lessing-Gymnasium, Frankfurt am Main, German High School Diploma

May 2016

German Physics Society Award for outstanding students

Among five best students out of 100, Final Exams: 15/15 Points in AP Physics and Mathematics

Experience

Sustainable Design - Research Assistant of Ph.D. Benjamin Linder

Feb. 2018 - Now

Publication in June 2020 - *"The Effects of Behavior Prompts on Laundry Habits"*

Many people wear their shirts once before they launder them. Therefore, the environmental impact of clothing is particularly high during the use phase. We conducted a study with 90 participants to investigate the effect of a small, abacus-like counter to increase the wear-count before laundering. We reviewed many behavior modification techniques, and designed the counter accordingly. Self-reported wearings of denim jeans and similar pants increased from 5.6 to 8.2 wearings per wash cycle on average.

Ground Robotic Autonomous Vehicle Lab - Autonomous Tractor

Aug. 2019 - Now

I am developing a ROS-integrated, ultrasonic sensor system that senses the amount of accumulated dirt in the tractor's bucket. The tractor will lift the bucket to prevent the tractor from stalling when it autonomously evens out hills.

Research Publication - Technical University Munich - Prof. Dr. Lienkamp

Aug. 2018

Publication in June 2019 - *"Should We Allow Him to Pass?" Increasing Cooperation Between Truck Drivers Using Anthropomorphism*

Adding human characteristics to interfaces improves the interaction between the human and this object. This study investigated the potential to increase the willingness of truck drivers to cooperate during overtaking scenarios using anthropomorphized interfaces. Drivers were in favor of the human-like agent while the result did not indicate an increase in willingness to cooperate.

I coordinated, planned, and executed the study. These tasks included the coordination of subteams, state machine programming (ruby), CAN bus integration, and study design.

Additionally I constructed a modular dynamic driving simulator for future studies

Tasks included CAD, buildup, sub-team and shop coordination

Off-Road Vehicle Suspension Design - BAJA

May 2018

As a member of a 25 person team, I designed the upper and lower suspension A-arms. My design ensured no interference with the shock absorber and worked perfectly during two off-road vehicle competitions.

Using fiberglass composites, I designed and fabricated the driver's seat.

Fabrication Internship - SCHÜTZ GmbH, Germany

May 2017

Three-month long internship that lead me through all manufacturing processes of IBC-containers at medium-sized company.

Manufacturing processes included: Injection molding, CNC milling/lathing, machine construction, CAD, extrusion molding, welding

Personal Info

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Portfolio • Website

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LinkedIn

linkedin.com/in/leonsanten

Skills

Python, C++, R

SolidWorks, CATIA, Fusion 360

MATLAB, Simulink, Mathematica, ROS

CNC Mill, CNC Lathe, MIG Welding, 3D-Printing

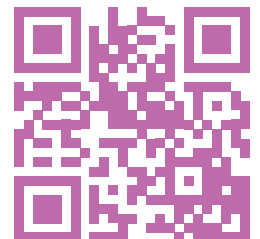
Composites

Max/MSP, Serato DJ

Cello, DJing

Languages

English, German



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