

JOSH VAN 'T SANT

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RESEARCH INTERESTS

Soft Robotics, Bio-Inspired Design, Artificial & Embodied Intelligence, Compliant Mechanisms

EDUCATION

Delft University of Technology <i>Master of Science with Honours - Specialisation: BioMechanical Design</i>	Delft, NL 2022-2024
University of Canterbury <i>Bachelor of Engineering with Honours - Specialisation: Mechatronics Engineering</i>	Christchurch, NZ 2014-2017

RESEARCH EXPERIENCE

Aerospace Engineering, Delft University of Technology <i>Research Assistant at Biomorphic Intelligence Lab</i>	Delft, NL 2025-current
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Research advisors: Asst. Prof. Dr. Ir. Salua Hamaza and Dr. Ir. Fernando Ruiz Vincueria

- Design of soft robotic manipulators for physical compliant interaction in space environments with a focus on motor-free SMA actuation
- Developing space-compatible soft material grippers for planned dynamic testing in thermal vacuum chambers and microgravity environments

Precision and Microsystems Engineering, Delft University of Technology <i>Graduate Thesis Project in Collaboration with Flexous</i>	Delft, NL 2023-2024
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Research advisor: Prof. Dr. Ir. Just Herder

- Researched and evaluated design methodologies for compliant mechanisms
- Modelled, computationally optimised, and fabricated a compliant mechanism design for a mechanical chronograph

Honours Programme <ul style="list-style-type: none">• Researched different mechanical design processes to assess future augmentation with artificial intelligence	Delft, NL 2023-2024
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Joint Interdisciplinary Project, Delft University of Technology <i>Interdisciplinary Internship Project in Collaboration with Layco Medical Devices</i>	Delft, NL 2023
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- Assessed feasibility of a sustainable medical device for developing countries through interdisciplinary collaboration with TU Delft students and Layco
- Conducted fieldwork in Uganda to evaluate local context and identify future partners

Alta Scuola Politecnica, Politecnico di Milano <i>Interdisciplinary Winter School Participant</i>	Bardonecchia, IT 2024
<ul style="list-style-type: none">• Collaborated with various technical universities to design a multidisciplinary shared innovation spaces	

PUBLICATIONS

SMA-Based Actuation for Soft Robotic Grippers in Space Applications - ICRA (Submitted), 2026 - Vincera F., **van 't Sant, J.**, & Hamaza, S.

- Co-authored proof-of-concept study on SMA-actuated robotic grippers for space debris removal
- Contributed to design, integration, and testing of mechanical and electrical components in vacuum conditions
- Assisted with writing and review of paper submission to ICRA 2026 conference

PROFESSIONAL EXPERIENCE

Innovative Solutions in Space

Mechanical Design Engineer

Delft, NL

2025-current

- Hands-on assembly and testing of deployer systems, collaborating closely with mechanical, aerospace, and electrical engineering teams
- Developing automation solutions using Python to streamline production workflows, including thermal chamber operations.

Health New Zealand | Te Whatu Ora Te Matau a Māui

Engineering Consultant & Project Manager

Hastings, NZ

2020-2022

- Implemented and worked as key lead on various projects at the main hospital in Hawke's Bay, New Zealand such as the COVID rehabilitation ward
- Worked with multiple interdisciplinary contractors to set a construction programme, maintain quality control, and communicate effectively with multiple stakeholders

Brevity

Mechanical Design Consultant

Christchurch, NZ

2018-2019

- Design and simulate mechanical components and mechanisms to secure non-structural building elements using methods such as finite element analysis
- Project manage, plan and execute construction monitoring on seismic restraint systems in construction and industrial projects

SKILLS

Programming languages:

MATLAB, APDL, Python, Latex, Excel

Hardware & Embedded:

Sensor integration, Arduino, Altium

Software:

SOLIDWORKS, ANSYS, Axis VM, Word, G-Suite

Communication:

Advanced Diploma in Public Speaking (Adv ASB), Toastmasters

Technical:

Soldering, Welding, Additive Manufacturing, Laser Cutting

AWARDS

- **Runner Up of 4TU Creathon, 'Energizing the Future'** - Awarded runner up startup pitch for presentation on "Battalyser" 2024
- **University of Canterbury, Certificate of Merit** - Awarded for academic performance 2016
- **Golden Key Candidate** - Awarded for academic performance 2014

TEACHING EXPERIENCE

Delft University of Technology

Teaching Assistant: Spierskeletstelsysteem en Biomechanica (Musculoskeletal System and Biomechanics), Neuromechanics & Motor Control, and Musculoskeletal Modelling

Delft, NL

2023-2024

- Led weekly exercise sessions presenting and solving problem sheets
- Assessed graded homework exercises and developed custom modelling exercises

University of Canterbury/Brevity

Company Supervisor for Final Year Project

Christchurch, NZ

2019

- Tom Goodman, Luke Doyle, Irfan McQuilan, Oli Knopp, Jintao Wen, Danny Humm, and Gerard Evans (2019), "Automation of Interior Fit-Out Design"

OUTREACH ACTIVITIES

- Organised and participated in a study tour for master students in Mechanical Engineering at TU Delft to help promote the master programme and provide networking opportunities with multiple universities and companies in Stockholm, SE and Berlin, DE in the summer of 2023
- Organised and coordinated multiple engineering events in Hawke's Bay, NZ for Engineering New Zealand as part of the Young Engineers committee from 2020 to 2022
- Presented STEM demonstrations at various middle schools in Canterbury, NZ to engage with students as part of the Wonder Project Outreach from 2018 to 2019