ROBERT FRANZ ROCHEL, E.I.T.

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PROFESSIONAL EXPERIENCE

Skidmore, Owings & Merrill (SOM) — **January 2025 - Present**
Structural Design Engineer — San Francisco, CA, USA

- Seismic design and analysis for buildings in high seismic regions (Rhino, ETABS)
- Develop designs and concepts for competitions and proposals
- Key contributions to lunar infrastructure initiatives at SOM, including STTR/SBIR NASA grants

Space Robotics Lab – Tohoku University (SRL) — **July 2024 – November 2024**
Space Exploration Robotics Intern, Advisor: Dr. Kazuya Yoshida — Sendai, Japan

- Project title: **Self-evolving AI Robot System for Lunar Exploration & Human Output Construction**, Moonshot R&D Program Goal 3 by the Japanese Cabinet Office
- Assisting in CAD modeling and testing of modular lunar robots for JAXA demonstrations (Fusion360, 3D printing, etc.)
- Programming and testing of robotic arm for self- and infrastructure-assembly (ROS, MoveIt, Ubuntu, IsaacSim)

Simpson Grumpertz & Heger (SGH) — **June 2022 – August 2022**
Structural Engineering Intern — Oakland, CA, USA

- Assisted in scripting and post-processing of parametric finite element analysis (Abaqus, Python)
- Oversaw construction of high-profile job sites & analyzed mechanics of construction sequences for Marine projects

NASA Johnson Space Center — **January 2022 – May 2022**
Sustainability Intern — Houston, TX, USA (remote)

- Monitored LEED building performance at the NASA Johnson Space Center Campus
- Published blog posts (e.g. 60-year History of Sustainability at JSC) and monthly newsletters

EDUCATION

International Space University (ISU), *Strasbourg, France*
Master of Space Studies, *Space Engineering & Applications* — **September 2023 – May 2025**

California Polytechnic State University (Cal Poly), *San Luis Obispo, CA, USA*
Master of Science in Architectural Engineering, *Structural Emphasis* — **September 2022 - June 2023**
Bachelor of Science in Architectural Engineering, *Structural Emphasis* — **September 2018 - June 2022**
Minors: German and Astronomy

Study Abroad at Hochschule Luzern, *Lucerne, Switzerland*
School of Engineering and Architecture, Fall 2021 — **August 2021 – December 2021**

PROJECTS

Sustainability Evaluation of Space Projects[1] — **November 2023 – June 2024**
International Space University, Team Project — Strasbourg, France

- Partnered with the European Space Agency (ESA) and Airbus to build upon current sustainability LCA methodology
- Goal is to improve outcomes of future space missions within UN SDGs, EU Green Deal, and ESA Green Agenda framework

MILA Project - High Voltage Team Lead & Structures Engineer — **October 2020 – June 2023**
Cal Poly Prototype Vehicles Laboratory (PROVE Lab) — San Luis Obispo, CA, USA

- Led the High Voltage team of student engineers designing electric endurance vehicle's batteries and structural system
- Development, fabrication, and test using composite materials for mechanical and structural components (NX, machine shop)

Structural Engineering Students for Humanity (SESH) — **August 2022**
Cal Poly Architectural Engineering — Pedernales, Ecuador

- Helped rebuild a bamboo structure for a local learning center, which collapsed following 7.8 magnitude earthquake in 2016
- Collaboration with Miyamoto Engineering Global Disaster Relief

RESEARCH

Quantitative Investigation of Lunar Surface Habitat Structure Technologies — **November 2023 – February 2024**
International Space University, Advisor: Danijela Stupar — Strasbourg, France

- Literature review article to identify specific challenges in designing extraterrestrial habitats
- Comparison study between inflatable, deployable, and ISRU structures
- Presenting at the International Astronautical Congress (IAC) in Sydney, Australia, in September 2025

LANGUAGES

Native **English** ● Fluent **German** ● Elementary **Chinese** ● Elementary **Spanish** ● Elementary **French**

SKILLS

Software: Fusion360 ● IsaacSim ● ROS ● MoveIt ● Abaqus ● RISA ● SAP 2000 ● RAM ● SAFE ● Siemens NX ● ANSYS ● ETABS ● Rhino ● Grasshopper ● STK ● Python ● MATLAB ● Java ● C++ ● Revit ● Adobe Suite ● Bluebeam ● AutoCAD ●Ubuntu

Technical: Shop Tools ● Machine Shop Tools ● Woodworking & Construction ● Concrete Construction

Design Codes: ASCE 7-22 ● AISC 360-16 ● ACI 318-19 ● NDS 2018 ● SDPWS 2015 ● TMS 402-16

PUBLICATIONS

- [1]Rochel, Robert et al. (2024). MESSA: A Methodology for Evaluating the Sustainability of Space Applications. 207-214. 10.52202/078366-0024.