

# MITCHELL VAN DER WOUDE

## MECHANICAL ENGINEER (IR.)

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### PROFILE

Results-driven Mechanical Engineer specializing in mechanical system architecture, parametric CAD design, and finite element analysis (FEA). Proficient in SolidWorks, ANSYS, MATLAB, and Python for automated data pipelines, performance optimization workflows, and reproducible engineering analysis. Skilled in concept-to-prototype development, design verification and validation, and cross-functional collaboration to deliver projects to exacting specifications. Committed to design for reliability and high-performance, durable engineering solutions.

### PROFESSIONAL EXPERIENCE

**Mechanical Engineer Intern, Flexous Mechanisms BV, Netherlands** **September 2024 — August 2025**

- Conceived and developed a torque-compensating chronograph mechanism achieving targeted escapement torque stability under varying loads
- Designed parametric SolidWorks models for compliant flexure mechanisms, ensuring efficient assembly and integration
- Executed high-fidelity FEA simulations (ANSYS/APDL) for complex geometries, optimizing stiffness and torque parameters with <5% deviation from theoretical targets
- Streamlined kinematics and parameterization workflows by developing MATLAB-Python integration pipelines, reducing manual analysis time by 4 hours/week
- Led design verification and validation activities through performance testing, design reviews, and documentation of engineering trade-offs for multiple design iterations

**Research Engineer, The University of Texas at Austin** **January 2019 — May 2022**

- Designed, constructed, and operated specialized experimental equipment for high-reliability plasma diagnostics at the J.J. Pickle Research Campus
- Created advanced CAD models for inductively coupled plasma (ICP) torch systems while navigating complex mechanical and electrical relationships
- Coordinated experimental schedules with interdisciplinary research teams, ensuring milestones were met
- Conducted design verification and validation for refinement of advanced plasma torch assemblies

**University Research Assistant , The University of Texas at Austin** **January 2017 — July 2018**

- Designed and constructed a turbulent co-flow methane burner for high-temperature combustion experiments
- Contributed to performance optimization of burner operation while mitigating risks associated with thermal deformation and complex assembly

### EDUCATION

**MSc Mechanical Engineering - BioMechanical Design** **September 2022 — June 2025**

Delft University of Technology, Netherlands  
Thesis Title: *Mechanism Design for Torque Stability in Mechanical Chronographs with Silicon Escapements* --- Developed, modeled, and validated a chronograph torque compensation system, improving stability and efficiency without sacrificing precision

**BSc Mechanical Engineering** **August 2013 — May 2018**

University of Texas at Austin, USA  
Business Foundations Certificate

### TECHNICAL SKILLS

CAD & Modeling	Simulation & FEA	Process Automation	Prototyping & Fabrication
Design Verification & Validation	Performance Optimization	Mechanical System Architecture	Cross-Functional Collaboration

### ADDITIONAL INFORMATION

- Links:** LinkedIn, Project Portfolio
- Languages:** English, Dutch
- Hobbies:** Music, racket sports, exercise, bbq

