

Jakub (Kuba) Preis

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Education

Doctor of Philosophy in Mechanical Engineering

January 2021 - August 2024

Oregon State University

- Main Project: Developing metallurgical pathways for the defect free fabrication of Inconel - Cu alloy multi-metal components via additive manufacturing.
- Advisor: Dr. Somayeh Pasebani

Bachelor of Science in Manufacturing Engineering

September 2015 - June 2019

California Polytechnic State University, San Luis Obispo

- Main Project: Redesign, validation, and printing of a 1U cubesat frame using laser powder bed fusion.
- Advisor: Dr. Xuan Wang

Teaching Experience

Teaching Assistant and Laboratory Instructor

January 2023 - March 2023

Oregon State University

Corvallis, Oregon

- Led laboratory sections for MFGE 337 (Materials and Manufacturing Processes) to provide a hands-on counterpart to the lecture.
- Responsible for developing course material, rubrics, and grading student lab reports.

Guest Lecturer

January 2021 - June 2024

Oregon State University

Corvallis, Oregon

- Developed content and conducted lectures for the following classes:
 - MFGE 337 (Materials and Manufacturing Processes)
 - MFGE 551 (Additive Manufacturing)

Workshop Instructor

September 2016 - June 2019

Academic Skills Center, California Polytechnic State University, SLO

San Luis Obispo, California

- Taught a 1 unit, bi-weekly workshop in mathematics to supplement lecture course, class size ranging from 10 - 30 students.
- Prepared engaging problem-sets for students to complete.
- Prepared intelligent course schedule to efficiently occupy the 90 minute classroom time.
- Tracked attendance and student performance.
- Instructed the following workshops:
 - MATH 128 (Precalculus Algebra Workshop)
 - MATH 151 (Calculus 1 Workshop)
 - MATH 192 (Calculus for Architecture and Construction Management Workshop)

Professional Experience

Research and Development Engineer

October 2024 - Present

Valcun

Ghent, Belgium

- Part of a team of 5 engineers developing a novel aluminum additive manufacturing technology.
- Responsible engineer for design, development, and testing of hardware and PLC programming (i.e. system control and modeling).

Graduate Research Assistant

January 2021 - August 2024

Metal Additive and Gradient Microstructure Alloys Laboratory, Oregon State University

Corvallis, Oregon

- Fabricated metal additive manufacturing samples via Laser Powder Bed Fusion, Powder - Wire Directed Energy Deposition.
- Conducted metallurgical characterization and analysis such as SEM, EDS, EBSD, TEM, and mechanical testing.
- Served as lab manager for metallography lab.

Additive Manufacturing Engineer <i>Divergent Technologies Inc.</i>	June 2020 - December 2020 Lübeck, Germany
<ul style="list-style-type: none"> • Responsible for build preparation, machine operation, and testing of parts printed using a prototype 12 laser laser powder bed fusion machine. • Submitted recommendations to laser powder bed fusion machine designers with the goal of improving end user experience. 	
Additive Manufacturing Engineer <i>Divergent Technologies Inc.</i>	August 2019 - June 2020 Los Angeles, California
<ul style="list-style-type: none"> • Developed a statistical laser powder bed fusion machine health model using C++ database software. • Prepared parts for additive manufacturing using Materialise Magics (build orientation and support addition). • Conducted R&D experiments to quantify additive manufacturing design constraints and document results. 	
Undergrad Research Assistant <i>Additive Manufacturing Research Group, Cal Poly SLO</i>	January 2019 - June 2019 San Luis Obispo, California
<ul style="list-style-type: none"> • Derived load requirements, designed Cubesat, and analyzed design via mechanical and thermal FEA. 	
Test and Validation Engineering Intern <i>Divergent Technologies Inc.</i>	June 2018 - September 2018 Los Angeles, California
<ul style="list-style-type: none"> • Designed, machined, and assembled fixturing connecting 3D printed lower control arm to actuators for destructive testing. • Conducted stress analysis on actuator mounts, and managed outsourced manufacture of actuator mounts. 	
Manufacturing Process Improvement Engineering Intern <i>Plastikon Industries Inc.</i>	June 2017 - September 2017 Hayward, California
<ul style="list-style-type: none"> • Worked on the recently released Tesla Model 3 HVAC unit and center console manufacturing lines. • Designed and built ergonomic fixtures. • Authored, presented, and implemented process improvement recommendations. 	

Students Mentored

Fran Van Limberghen	February 2025 - June 2025
<ul style="list-style-type: none"> • Project: Integration of polymer extrusion into existing molten-aluminum additive manufacturing machine. • Outcome: Student gained experience through the entire life cycle of the engineering design process covering planning, design, prototyping, troubleshooting, and final product refinement. 	
Tyler Finch	September 2023 - June 2024
<ul style="list-style-type: none"> • Project: Characterization of Inconel 718 - GRCop42 mixtures • Outcome: Student gained metallurgy experience and learned python programming, student learned thermodynamic modeling, student continued onto a funded PhD program within the lab. 	
Mithrandir Eichner	September 2023 - June 2024
<ul style="list-style-type: none"> • Project: Characterization of 4043 Al fabricated via Molten Metal Deposition • Outcome: Student gained metallurgy experience and learned python programming, student learned thermodynamic modeling, student continued onto a funded PhD program within the lab. 	
Vaishnavee Selvarajoo	September 2020 - June 2022
<ul style="list-style-type: none"> • Project: Characterizing Cu-Inconel bimetallic joints via Laser Powder Bed Fusion • Outcome: Student gained metallurgy experience and learned python programming, student continued onto a funded masters program within the lab. 	
Adam Moar	September 2020 - June 2021
<ul style="list-style-type: none"> • Project: Fabricating Cu-Inconel bimetallic joints via Laser Powder Bed Fusion • Outcome: Learned to operate a Laser Powder Bed Fusion machine and the fundamentals of metallurgical characterization. Learned python programming. 	

Book

Preis, J., Core Engineering Concepts and Derivations, 2027 (expected).

Description: This book takes a pyramid approach by presenting axioms in the mathematics, applied statistics, physics, and chemistry chapters, and using these to derive fundamental equations within classical mechanics, materials engineering, solid mechanics, thermodynamics, fluid mechanics, heat transfer, and electrical engineering. Work in progress.

Publications

Preis, J., Lawson, S.B., Wannenmacher, N., Pasebani, S., 2025, Joining Inconel 718 and GRCop42: A framework for developing transition compositions to avoid cracking and brittle phase formation. *Materials & Design*, 252, p.113733.

Preis, J., Lawson, S.B., Lee, I., Kawasaki, M., Bay, B.K., Manoharan, S., Paul, B.K. and Pasebani, S., 2024. Influence of travel speed on microstructure and mechanical behavior of Inconel 625 fabricated using wire fed laser directed energy deposition. *Journal of Materials Processing Technology*, p.118464.

Preis, J., Wang, Z., Howard, J., Lu, Y., Wannenmacher, N., Shen, S., Paul, B.K. and Pasebani, S., 2024. Effect of laser power and deposition sequence on microstructure of GRCop42-Inconel 625 joints fabricated using laser directed energy deposition. *Materials & Design*, 241, p.112944.

Preis, J., Xu, D., Paul, B.K., Eschbach, P.A. and Pasebani, S., 2024. Effect of Liquid Miscibility Gap on Defects in Inconel 625–GRCop42 Joints through Analysis of Gradient Composition Microstructure. *Journal of Manufacturing and Materials Processing*, 8(1), p.42.

Zardoshtian, A., Rezaei, A., Esmaeilizadeh, R., **Preis, J.**, Minasyan, T., Keshavarz, M., Pasebani, S., Jahed, H., Toyserkani, E. Insights into Microstructural Evolution in Functionally Graded Additive Manufacturing of IN625–CuCrZr Alloys: A CALPHAD-Based Thermodynamic Analysis and Experimental Study on the Role of Metastable Miscibility Gap. *Journal of Materials Research and Technology*, 39, p.1612.

Service

Academic journal reviewer for *Nature Advanced Manufacturing and Additive Manufacturing*
Academic tutor working with foster youth and unhoused populations, San Luis Obispo, CA

September 2023 - Present
September 2016 - June 2019

Conferences

AMPM 2019, Phoenix, Arizona (Presenter)
Westec 2019, Long Beach, California (Attendee)
Formnext 2019, Frankfurt, Germany (Attendee)
TMS 2023, San Diego, California (Presenter)
ICAM 2023, Washington DC, California (Presenter)
Formnext 2023, Frankfurt, Germany (Presenter)
Formnext 2024, Frankfurt, Germany (Attendee)
SFF 2025, Austin, Texas (Presenter)

Other

- Languages:
 - English (Native)
 - Polish (Native)
 - Spanish (professional working proficiency)
 - German (professional working proficiency)
 - Dutch / Flemish (intermediate)
- Hobbies: backpacking, running, biking, traveling