

# Jianhao Zhu

Email: [jianhao.zhu.338@my.csun.edu](mailto:jianhao.zhu.338@my.csun.edu)

Phone Number: (+1) 626-876-3133

## RESEARCH INTERESTS

My research focuses on **Additive Manufacturing (AM)** and **Process Intelligence**. For **AM**, I primarily work on the generative design, process optimization, and material characterization for metal AM through laser powder bed fusion system (**Renishaw AM400**) to develop high-performance super alloys for aerospace and medical industries. For **Process Intelligence**, recognizing that metal printer training can be costly and complex, I am interested in advancing process intelligence as a human-centric knowledge system, one that empowers users by capturing expert knowledge and delivering it in a way that enhances learning, decision-making, and operational efficiency.

## EDUCATION

- California State University Northridge (CSUN)** United States  
*M.S. in Manufacturing Systems Engineering* GPA: 3.45/4.0 Jan. 2024 - May. 2025
  - Core Courses:** Intelligent Manufacturing (A), CAD/CAM Systems and Lab (A), Computer Aided Manufacturing Systems (A-), Robotics with Applications and Lab (A-), Robotics and Programmable Automation (A)
- California State University Northridge (CSUN)** United States  
*B.S. in Mechanical Engineering* GPA: 2.98/4.0 Aug. 2018 - Dec. 2023
  - Core Courses:** Hydraulics (A-), Mechanics of Solids (A-), Mechatronics (B), Electrical Engineering Fundamentals (B+), Fluid Mechanics (A-), Engineering Dynamics (A-).

## PUBLICATION

- Changyu Ma, Natan Roberto de Barros, Tianqi Zheng, Alejandro Gomez, Marshall Doyle, **Jianhao Zhu**, Himansu Sekhar Nanda, Xiaochun Li, Ali Khademhosseini, Bingbing Li\*, **3D Printing and Surface Engineering of Ti6Al4V Scaffolds for Enhanced Osseointegration in an In Vitro Study**, Biomimetics, 2024, Vol. 9 (7), p. 423. <https://doi.org/10.3390/biomimetics9070423>
- Changyu Ma, Tianqi Zheng, Yu-Keng Lin, **Jianhao Zhu**, Xiaochun Li, Y. Morris Wang, Bingbing Li\*, **Microstructure and Mechanical Properties of Haynes 282 Fabricated by Pulsed Wave (PW) Laser Powder Bed Fusion (L-PBF)**, Progress in Additive Manufacturing. Under Review
- Haolin Fan, Zhen Fan, Jianhao Zhu, Chenshu Liu, Tom Gibbs, Jerry Ying Hsi Fuh, Wen Feng Lu, Bingbing Li\*, **A Knowledge Graph-Driven Human-Centric Knowledge System for Metal Additive Manufacturing**, npj Advanced Manufacturing. Second Revision

## SKILL

- CAD/CAM: Autodesk Fusion 360, Solidworks, Master CAM Year 2019-2024
- Coding: Arduino, Matlab, Python Year 2021-2024
- Automation: RoboDK, Tecnomatix Year 2023-2024
- 3D Printer Operation: Renishaw AM400 PBF printer for metal by Materialise Magics, Formlabs SLA printer for resin by Formlabs PreForm. Year 2020-2024

## EXPERIENCE & PROJECT

- CSUN NASA funded Autonomy Research Center for STEAHM (ARCS)**  
*Student Fellow* 2023 - 2024
  - Research Field: Additive Manufacturing, Process Intelligence for Manual Replacement.
- CSUN Laboratory for Smart and Additive Manufacturing**  
*Research Assistant* 2021 - 2024  
Smart Manufacturing Projects
  - \* **Energy and Appliance Standards for Plug Loads: Assessing Current Needs and Future Opportunities:** This project primarily focuses on simulating device operations and analyzing data to provide recommendations for California's energy efficiency policies based on simulation protocols and standards. It also involves conducting basic tests on plug load devices and developing reliable testing procedures to quantify energy usage across various operating modes.
  - \* **Workers and Technology Together (WATT):** This project focuses on automating waste sorting by using machine learning to classify different types of waste. A large labeled dataset of waste images is created to train the system, enabling accurate and efficient waste segregation for improved recycling and sustainability. Increasing the volume of labeled image data leads to improved classification accuracy. The model is trained to identify thirteen distinct waste categories, such as cardboard, aluminum cans, and plastic bags.

\* **State Prediction and Energy Disaggregation using LSTM-Transformer Model for Sustainable Manufacturing.** This project focuses on predicting the next-second state based on previous time states, achieving an accuracy of over 90%. It involves six devices, with data collection and analysis independently managed across two related sub-projects. Based on the first data collection phase, the project analyzed time-series data to distinguish between different temporal states at various timestamps and prepared the results for structured database storage. Additive Manufacturing Printing Projects.

\* **Additive Manufacturing of Aerospace Heat Exchanger:** With extensive experience in metal printing, particularly with aluminum, titanium, and stainless steel, currently focused on researching stainless steel 316 (SS316), Haynes 282, and AlSi10Mg materials. I am currently engaged in a research project on AlMg10 metal powder recycling, aiming to study the performance characteristics of metal powder after its initial use, followed by screening and detailed analysis.