Thomas Pierson

San Jose, CA / Albuquerque, NM | US Citizen/Previous AFRL Clearance
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Education

Carnegie Mellon University **Pittsburgh, PA**
Masters of Science in Mechanical Engineering *2026–2028*
Research under Dr. Carmel Majidi | Perception and Soft Circuits

New Mexico Institute of Mining and Technology **Socorro, NM**
Bachelors of Science in Mechanical Engineering *2022–2026*
GPA: 3.85/4.0 | Los Alamos National Labs Research Fellow | Expected Graduation: May 2026

Work Experience

Design Project Mentor, Space Vehicles Directorate **2024**
Air Force Research Laboratory *Kirtland AFB, Albuquerque NM*
- Mentored, lead team of 12 interns in robotics and autonomous systems
- designed and implemented 2 robotic arms in 3 months, using embedded C on Arduino microcontrollers.
- Wrote internal reports on progress, presented external report at New Space Nexus Conference
- Implemented a point-cloud lidar mapping system on a raspberry pi that achieved 8x the resolution of an Arduino-mega based system.

Mechanical Engineering Teaching Assistant **2023-2025**
Mechanical Engineering Dept., NMT ***Socorro, NM***
- Developed robotics/embedded system lab curriculum
- Improved student completion of robotic final project by 20

Robotics Outreach Tutor **2022–2024**
Mechanical Engineering Dept., NMT ***Socorro, NM***
- Mentored robotics teams from 4 high schools, winning 2 national Engineering Design competitions
- Tutored high school teams to build embedded sensor systems and implement Kalman filters, and improved written presentation quality

Research Projects

Robotic Laser Ultrasound for Inspection of Complex Structures
Los Alamos National Laboratory *2026*
- (Upcoming) Using a Neural Radiance Field with a laser Doppler vibrometer to build an 3D ultrasonic image of structures.

ISS Guided Wave Experiment
Intelligent Sensing and Structures Laboratory *2024-present*
- Developed a first-of-its-kind ISS payload to study elastic guided wave propagation.
- Built sensor network of 8 PMUTs, programmed embedded data processing algorithm for in-space structural health monitoring.
- Initiated research project on accoustic wave signal extraction comparing 1D-CNN, Kalman filter, hilbert envelope, and cross corelation methods.

Optical Strain Sensing for Pipe Monitoring
Intelligent Sensing and Structures Laboratory *2023-2024*
- Calibrated optical cable with 3 FBGs and 4 strain gauges. Built LabVIEW VI to validate sensor readings with 96 % theoretical accuracy

Mechano-luminescent Composite Sensor
Lab for Smart Materials and Structures *2024-2025*

– trained ML-based image processing algorithm for crack detection, achieving 97 % accuracy compared to DIC.
– Conducted emissivity testing for strained PDMS composites, spin-coated and tested >20 thin-film devices.

Optical and Ultrasonic Sensor Package

NASA Human Lander Challenge *2025*

– Organizer and lead of 4-person research team
– Proposal accepted and funded $ 10k by NIA/NASA for ultrasonic and FBG optical cable wall monitoring sensor system.

Capstone Projects

NMT Mechanical Engineering Department *2024-2026*

– Shaker table instrumentation team lead, built LabVIEW sinusoidal sweep for modal testing
– CubeSat team member, designed and FEA modeled 2 CubeSat frames, designed 3 electrical components and deployment mechanisms for optical sensing satellite.

Presentations

2026: **Conference Paper, ASME-QNDE**

Machine learning techniques in guided wave extraction for non-destructive evaluation in small-size plates **2026**: **Conference Paper, SPIE SS/NDE**

Structural Health Monitoring Payload for the MISSE Platform on the International Space Station
2025: **Research poster, NMSU-URS**

Payload Design for Guided Wave Structural Health Monitoring in the ISS
2025: **Conference Paper, ASEE Gulf-Southwest**

Robotic Opportunities for Rural Communities. DOI: 10.18260/1-2–55076.
2025: **Research poster, NMT-SRS**

CubeSat Frame Development.
2024: **Research poster, NMT-SRS**

Validation of FBG Strain Sensors and their Use for Pipe Monitoring.

Skills

Coding: MATLAB, Python, LabVIEW, Arduino, C++, Latex

Machine Learning: Keras, TensorFlow, Image Processing

CAD/Circuit Design: SolidWorks, Inventor, Generative Fusion360, KiCad, Onshape

Design Analysis: ANSYS, COMSOL, Modal and Thermal analysis

Manufacturing: PCB design, Machining, Milling, 3D printing

Signal Processing: FFTs, Hilbert Transforms, Oscilloscopes

Leadership: Design Team Lead, Project Mentor, English and Spanish

Relevant Coursework

Grad-level: Sensor Networks (In Progress) Image Processing (In Progress) Fracture Mechanics (A+)
Undergraduate: Mechatronics (In Progress) Controls for Dynamic Systems (A) Vibrations and Dynamics (A+) Numerical Methods (A) Engineering Dynamics (A-)

Leadership

Co-Founder & Vice President: ASME NMT Chapter

Founder & President: NMT Basketball Club

Team Lead: NASA Human Lander Challenge Design Team

Team Lead: NMT Shaker Table Capstone Design Team

Technical Consultant: MESA Robotics and Embedded Systems Competition Team

Awards & Scholarships

2025–2026: Los Alamos National Labs Dynamics Research Fellow
2025–2026: NASA HuLC Competition Finalist – $10,000 Project Funding
2026: Passed Fundamentals of Engineering Exam
2025–2026: NM AMP Undergraduate Research Scholar Award, NMSU – $5,000 research support.
2023–2024: Sandia National Labs Sophomore Research Scholarship, NMT – $5,000 research support.
2022: Burger King Scholars – $1,000 tuition award.
2022–Present: NMT Gold Scholar – $5,000 per year tuition scholarship for academic honors.