

# Lucas Smith

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**SUMMARY:** Generalist mechanical engineer and machine learning enthusiast with a passion for robotics and automation. Over 7 years of experience integrating mechanical systems with automation tools and AI to develop innovative robotics solutions. Skilled in designing robotic systems, ROS2 development, and applying machine learning techniques to enhance automation and control.

## SKILLS

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- **Robotics and Automation:** Python (Tensorflow, PyTorch, Scikit-learn, etc.), deep learning, data scraping, preprocessing and visualization, model building and evaluation, cloud computing.
- **Programming:** R, MATLAB, Bash, Git, Linux (Ubuntu), SQL, ROS2, LLMs, APIs, newly released AI tools.
- **Other:** Security clearance: SSBI completed April 2018 (held DOE Q and higher clearances), CAD (PTC Creo, Autodesk Fusion 360, Catia 3DEXperience, ANSYS)

## PERSONAL PROJECTS

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- Developing a tool-calling LLM agent within a ROS2 framework to automate task execution for robotics applications.
- Created and host a fantasy football analysis show that uses ML and data analysis to provide data-driven predictions.
  - Automated workflows for data retrieval, cleaning, and presentation, delivering weekly reports to viewers in an engaging and humorous video format.
  - Developed custom models to generate predictions and identify under-the-radar players.
- Experimented with tokenization and embedding of 3D CAD parts for training in transformer models, aimed at improving part recognition, classification, and potentially generation.
- Coursework Projects and Areas of Study:
  - Designed, trained, and performed hyperparameter tuning on a CNN to achieve 95%+ accuracy in classifying images by blood cell type (Blood MNIST dataset).
  - Trained autoencoder-MLP architecture model to predict next-day prices for commonly traded securities.

## RELEVANT EXPERIENCE

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### Northrop Grumman – Space Sector

Remote Employee - Redondo Beach, CA

Mechanical Grounds Systems Engineering (MGSE) Mechanical Engineer

October 2019 – April 2024

- Led redesign effort of program cost estimation tool – used simple ML techniques to simplify cost estimation and improve accuracy.
- Earned company “Bravo” award for successfully and rapidly reworking test-critical hardware components, drastically reducing project downtime.
- Facilitated weekly interdisciplinary working groups, driving alignment between stakeholders and ensuring on-time delivery of mission-critical space hardware.

### Los Alamos National Laboratory – Weapons Division

Los Alamos, NM

Research and Development Engineer

May 2017 – September 2019

- Utilized additive manufacturing techniques to create weapons system demonstrations for customers.

## EDUCATION

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University of Houston – College of Natural Sciences and Mathematics

Fall 2022 – Spring 2024

M.S. Statistics and Data Science | Completed May 2024 | **3.87 GPA**

- Developed expertise in machine learning, data mining, and statistical analysis through coursework and hands-on projects.

Texas Tech University – Whitacre College of Engineering

Fall 2013 – Spring 2017

B.S. Mechanical Engineering | Minor in Mathematics | Completed May 2017 | **3.64 GPA**

- Graduated *cum laude* and with Honors from the university’s Honors College.

## LEADERSHIP AND COMMUNICATION

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- Excellent communication/presentation skills. Regularly volunteered to give presentations and briefings.
- Piloted launch of new CAD tool, provided feedback to developers, and assisted coworkers learning the software.
- Mentored newer team members and helped author a new hire best practices and resource guide.

## INTERESTS

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Professional: Robotics, LLMs, agentic frameworks, automation, generative AI, AGI, AI safety and policy.

Personal: woodworking, content creation, photography, programming, reading, hiking, snowboarding, and weightlifting.