# **Josh** Mosier

Seeking full-time position where I can apply my mechanical and software engineering background to devise unique solutions to challenging problems.

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## Experience

### MINDPETAL | Software Developer — Sep 2022 – Current

- Led development of NLP models and custom CV pipelines for unstructured document processing, improving data extraction efficiency by 95% at scale.
- Developed and deployed a custom LLM chatbot with Retrieval-Augmented Generation using cloud-based AI services, enhancing audit processing capabilities.
- Applied custom metrics to evaluate LLM performance on factual recall, text summarization, and semantic preservation tasks.

**MindPetal AI Lab Initiative**

- Led team in developing ML solutions using public OSHA data, implementing SQLite and PostgreSQL databases for efficient storage and retrieval of inspection data.
- Developed predictive ML models using scikit-learn to forecast inspection outcomes, focusing on enhancing workplace safety analytics.
- Created data visualization tools and presented insights to OSHA representatives, demonstrating potential for improved oversight through predictive analytics.

### E-YEARBOOK | RPA Engineer — Jun 2022 – Sep 2022

- Created automatic download and storage processes for digital yearbook archives.
- Leveraged multithreading and cloud VMs to catalog documents 100x faster.

### ON-AIR KICKSTARTER | Crowdfunding Campaign Founder — Jan 2021 – Dec 2021

- Successfully crowdfunded $10,000 to invent and manufacture over 100 ”On-Air” lights that sync to programs to turn on when a user should not be interrupted.
- Independently developed program syncing applications and network provisioning software. Personally sourced and assembled all electrical components.

### BLUE COLLAR ANALYTICS | Software Developer — May 2020 – Aug 2020

- Designed and developed web based tools for multi-objective decision analysis.
- Implemented sophisticated decision-making algorithms and automatically generated dynamic data visualizations.

### NOBLIS, INC | Data Science/ Machine Learning Intern — May 2019 – March 2020

- Analyzed large-scale publication data to find patterns of dishonest behavior in academia. Datamined over 200 million papers, articles, and journals. Visualized node graphs of connected authors to aid in finding linked cases of academic fraud.

**Noblis Sponsored Hackathon (1st Place)**

- Leveraged StyleGAN and image classification algorithms and recurrent neural networks to generate realistic fake personas with related demographic information.

## Projects

### MULTIMODAL HAPTIC DEVICE | Mechanical Senior Design — 2021

- Developed a cost-effective wireless haptic wristband delivering squeeze and vibration patterns for human-robot interaction, achieving identical force feedback at 1/30th the cost of comparable research devices.

### NUTRITION OPTIMIZATION TOOL | Virginia Tech Hackathon, (3rd place) — 2020

- Developed a web-application that collected nutrition data from dining halls at VT. Used linear optimization and demographics to curate a nutritionally complete diet.

## Education

### VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY (2021)

Bachelor's in Mechanical Engineering - Blacksburg, VA

School of Engineering
**Cumulative GPA : 3.3 / 4.0**

### COURSEWORK

- Software Design
- Data Structures
- System Dynamics
- Industrial IoT
- Robotics and Automation
- Data in Social Context
- Mechanical Design
- Kinematics
- Controls
- Industrial Electronics

## Published Work

**"Communicating Inferred Goals With Passive Augmented Reality and Active Haptic Feedback" (2021). "Understanding Deleted File Decay on Removable Media using Differential Analysis" (2017).**

## Skills

### PROGRAMMING

**Languages:** Python • MATLAB • Java • JavaScript • Simulink

**ML/AI:** NLP • Scikit-learn • OpenCV • PyTorch • Keras • Azure OpenAI • RAG

**Web Development:** Flutter • Flask • React • SQL • Angular • HTML • CSS

### CAD/3D MODELLING

SolidWorks • Autodesk Fusion 360 • Blender • AutoCAD