# Eric Crisp


Contact Information
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## Education

**University of Pennsylvania**, Philadelphia, PA — Jan 2025 - Dec 2025
**M.Sc., Data Science**

**Pennsylvania State University**, State College, PA — Aug 2015 - May 2021
**M.Sc., Mechanical Engineering**
**B.Sc., Aerospace Engineering**

## Technical Skills

| **Programming** | **Data Science, AI/ML** | **Tools & DevOps** |
|---|---|---|
| `Python, C++, MATLAB` | `TensorFlow, PyTorch, Scikit-learn` | `Docker, AWS, CI` |
| `JavaScript` | `SQL, Spark, Pandas, Numpy` | `Git, React, Node` |

## Summary


I am seeking to transition into data science or AI/ML engineering, leveraging the engineering, analytical, and leadership experience I've developed throughout my career alongside the foundational AI/ML skills I built at Penn.


## Experience

**Engine Systems Analyst III, Real-Time Modeling** — Apr 2022 – Nov 2024
**Blue Origin, Seattle, WA**
- Led a small, multi-disciplined team responsible for all RTM (real-time model) activities across Blue Origin.
- Developed RTMs for use in HIL, test support, controller development, and requirements validation including trade studies and performance optimization.
- Served as RTM project manager from project conception by managing scope, deliverables, and deligation.
- Identified critical software bugs on flight HIL systems via RTM integration, increasing reliability and value.
- Reduced testing manpower requirements by up to 35% with RTM, accelerating development timelines.
- Effectively communicated the value and impact of technical outcomes from RTM to both technical and non-technical steakholders.
- Architected the RTM framework and developed source code, tooling, supporting algorithms and solvers.

**Propulsion Development Engineer, Combustion Devices** — May 2021 – Apr 2022
**Firefly Aerospace, Austin, TX**
- Developed an automated thermal-structural design process that reduced engine production costs by 12%.
- Contributed to clean sheet engine design through production, exceeding performance requirements by 4%.
- Conducted root cause investigations of failures and implementated systematic and engineering solutions.
- Enhanced engine test visibility with automated visualizations of the engine state relative to test sequence.

## Projects

**Fundamental Physics Models from Physics Informed Neural Networks** — Aug 2025 – Present
- Investigating the use of neural-symbolic approaches that combine Physics-Informed Neural Networks (PINNs) with symbolic differentiation to dynamically derive optimally simplified representations of governing PDEs.
- Developing PINN architectures and supporting functionality from scratch while selectively leveraging open-source libraries including PyTorch, JAX, and CoolProp.
- Identifying violations of fundamental conservation laws (energy, mass, momentum) to provide insights into model architecture limitations and improve interpretability within scientific computing domains.

**Machine Learning Pipeline for Food Classification and Health Scoring** — Jun 2025 – Jul 2025
- Built an ML pipeline to classify food items and generate health scores using supervised learning algorithms, with model optimization through GridSearchCV hyperparameter tuning achieving 91% accuracy on test data.
- Implemented comprehensive data preprocessing using Pandas for large-scale dataset manipulation, NLTK for ingredient text processing and nutritional analysis, applied normalization, imputation, and encoding for PCA, and automated visualizations in postprocessing with Seaborn and Matplotlib.

**Restaurant Reccomendation System** — May 2025 – Jun 2025
- Developed a full-stack restaurant recommendation application using PostgreSQL on AWS RDS, React frontend, Node.js backend with RESTful APIs, and NLTK for natural language processing. Implemented location-based search, similarity matching, and personalized recommendations with optimized SQL queries.

## Awards and Activities

**Blue Origin Engines Challenge Award** — Jul 2022
Awarded for technical successes in developing the real-time modeling capabilities at Blue Origin.