Joseph Tarriela

jdtarriela@gmail.com | (941) 538-2595 | linkedin.com/in/jdtarriela
Applied Research Engineer | Data Scientist | Computational Modeling & HPC

EDUCATION

Georgia Institute of Technology — *Atlanta, GA*
- Master of Science in Computer Science — *2025-Present*

University of South Florida — *Tampa, FL*
- Master of Science in Mechanical Engineering — *May 2022*
  - *Specialization: Computational Fluid Dynamics*
- Bachelor of Science in Chemical Engineering — *May 2020*

SKILLS

Programming & Data: Python (pandas, numpy, scikit-learn, LightGBM, RAPIDS, …), Java, C++, C-Shell, SQL
Optimization & ML: Supervised & Unsupervised Learning (LightGBM, k-means, DBSCAN), Surrogate Modeling, Physics-Informed ML, Multi-Objective Optimization
Data Engineering: Automated HPC data pipelines, distributed computing, workflow orchestration, Linux clusters
Modeling & Simulation: CTH, ANSYS, COMSOL, ALE3D, LS-Dyna, CHEETAH

INDUSTRY EXPERIENCE — ACTIVE CLEARANCE

Raytheon Missiles & Defense | Sr. Computational Mechanics Engineer — *Remote (NYC) | Jun 2022 – Present*
- Directed end-to-end optimization workflows: study planning, architecture, ML model selection, ETL, scalable pipelines, feature extraction, model training, and final data analysis to inform leadership decisions.
- Refactored legacy MATLAB–Fortran code into a parallelized Python HPC workflow, achieving 22× faster execution, which enabled rapid trade studies and cut program design cycles by months.
- Automated ETL workflows and HPC data pipelines to process terabytes of simulation outputs into structured datasets, supporting downstream analytics and ML workflows.
- Developed multi-fidelity optimization frameworks combining reduced-order and high-fidelity simulations to evaluate both component- and system-level performance.
- Implemented ML-based global surrogate models (LightGBM, CNN/U-Net prototypes) that reduced simulation wall time by orders of magnitude, accelerating design iteration.
- Led cross-functional teams to integrate ML optimization workflows into system-level design processes.
- Served as technical lead and program owner across multiple internally funded R&D efforts, contributing to over $3.2M in IRAD funding for advanced computational design and modeling.
- Partnered with Raytheon Technologies Research Center to integrate optimization and sensitivity analysis workflows into enterprise-level tools (DISCOVER and RCADE), enabling new product discovery and system-level optimization through campaign, system, and product studies across business units at scale.

Northrop Grumman Space Systems | Mechanical Systems Engineering Intern — *Roy, UT | Jun 2021 – Aug 2021*
- Performed RANS/LES CFD simulations of air vehicle outer mold lines to characterize aerothermal heating

Johnson & Johnson Ethicon | Robotics R&D Co-Op — *Blue Ash, OH | Jan 2021 – Apr -2021*
- Structural FEA optimization and sensitivity analysis to reduce stress along robotic endocutter stapler arm

Unbounded Labs (OTG) | Biomedical Engineer & Regulatory Specialist — *Tampa, FL | Dec 2019 – Oct 2020*
- Created test plans, requirements and led execution for system and subsystem tests on multiple product lines

Awards & Publications

Accepted Conference Paper (to be presented), *Joint Army Navy NASA Air Force (JANNAF) Conference* (2026)
- *"Machine Learning Approaches to History Reactive Burn Model (HVRB) Regression"*

2 Trade Secrets Awarded, Raytheon Missiles & Defense (2025)
- Recognized for proprietary innovations in computational design optimization

Presenter, Raytheon Mechanical, Materials and Structures Technology Network (MMSTN) Conference (2023)
Delivered talk on multi-material shaped charge liner optimization