ABHINAYA PARAMESWARAN

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SKILLS:

Mechanical Prototyping: SolidWorks, GD&T, Ansys, CNC (3 & 3+2 axis), CMM Programing/Inspection, High Precision Fabrication/Assembly, R&D, and Rapid Prototyping.
Programing & Controls: MATLAB, CNC, C++, Python, LabVIEW, Arduino, and Machine Learning
Leadership: Vendor Management, interdisciplinary collaboration, and Technical Documentation (Latex)

WORK EXPERIENCE:

Dymenso (Mechanical Engineer) **September 2022 – January 2025**

- Designed and Revised CAD parts/assemblies of RF microwave devices with GD&T, Thermal and Mechanical FEA Analysis, and sub-micron precise Tolerance Analysis.
- Fabricated Prototypes with assigned job Travelers, CNC machining and programing, spot welding, installing braze and final assemblies, Acid Etching Baths, and Deionized Water Purification.
- Managed Quality Assurance with drawing revisions, helium high vacuum leak tests, and precision tolerance inspection, and RF network analysis for measuring and tuning RF device resonance.
- Contributed more through vendor procurement, managing external manufacturing, facilitating on-site technical discussions, presenting to cross-functional stakeholders, and prototype delivery.

University of Tulsa - TURC/CYTEX Research **May 2018 – August 2019**

- Researched cybersecurity vulnerabilities in embedded heavy vehicle communication (J1939 Protocol).
- Developed Python tools to parse, visualize, and present internal truck data logs.
- Rebuilt and troubleshooted Peterbilt truck wiring harness damaged by lightning with hands-on mechanical/electrical repair.

PROJECTS:

Accelerators and other RF microwave components **September 2022 – January 2025**

- Designed and fabricated precision RF Linear Accelerators, Electron Guns, RF Mirrors, RF photoinjectors, RF Loads, and cooling brazing/structural/ assemblies.
- Analyzed and inspected such systems with thermal/mechanical FEA, precise CMM programming and scanning, digital microscope imaging, Helium Leak Detection, and tunned/tested device performance.

2 Mw Wave LOAD (ITER prototype) **September 2022 – January 2025**

- Prototyped critical components for RF load to dissipate 2 Mw RF energy into heat for gyrotrons and ECH transmission systems. Components included braze assemblies, RF mirror housings, water cooling hardware/assemblies, and high vacuum interfaces (e.g. ConFlat Flanges/KF Flanges)
- Delivered the first prototype for the ITER Fusion Reactor, which was installed/tested at the Oak Ridge National Laboratory.

Silence of the Drones! (Graduate Capstone Project) **August 2021 – May 2022**

- Developed a MATLAB simulation tool for modelling acoustic propagation of UAV swarms by calculating and coding discrete element/ray models of vehicle dynamics and optimize kinematic parameters with Machine Learning for minimal noise.

Controls of Unmanned Aerial Vehicles (UC Berkeley Lab Project) **August 2021 - December 2021**

- Programed control algorithms and motion estimators in C++ to control attitude (axes of rotation), lateral and angular velocity, and navigation of a drone in a simulated Linux Environment.

EDUCATION:

University of California Berkeley (Berkeley, CA)
Masters of Engineering in Mechanical Engineering - Concentration Aerospace.

The University of Tulsa (Tulsa, OK)
Bachelor of Science in Mechanical Engineering (Cum Laude).