ASHISH PAKA

+1 (480)-651-5047 | **ashishpaka1998@gmail.com** | **Portfolio Website** ↗ | **LinkedIn** ↗

PROFESSIONAL EXPERIENCE

1. **Robotics Research Engineer** | **LOGOS Robotics Lab** ↗ | **Arizona State University, Tempe, AZ**
   Jan 2025 – Present
   - Applying mechanical design and aerospace-grade fabrication intuition to the chassis and integration of A.L.B.E.R.C. that functions as a mobile research robot with stereo camera, LiDAR, Jetson and other sensors) under Prof. Nakul Gopalan
2. **Mechanical Engineer** | **Larsen & Toubro Technology Services (LTTS)** | **Bangalore, India**
   Sept 2020 – June 2023
   - Developed products and life cycle management for Carrier Transicold, Scania, Eaton Corporation, and Cooper Lighting using Creo Parametric, SOLIDWORKS, Inventor, CATIA v4/v5/v6, and Fusion 360. Performed Finite Element Analysis and CFD analysis in static or dynamic ANSYS (Structural, Thermal, Fluent, APDL) simulations
   - Led Carrier PrimeLine One weight-reduction via alternative materials and reduced wall thickness preserving structural/thermal performance. Redesigned Truck/Trailer refrigeration and perfomed design protection for Scania 18 wheeler trucks
   - Completed 8 client projects across 3 clients and promoted from Intern → GET → Associate Engineer → Engineer in 2 years
3. **Senior Structures & Composites Lead** | **thrustMIT** ↗ | **Manipal Institute of Technology, Manipal, India**
   Aug 2017 – Sept 2020
   - Led the Mechanical Structures subsystem of India's top student rocketry team. Responsible for the entire structural design and in-workshop composite manufacturing of two flight-proven sounding rockets.
   - Performed structural, vibration, fatigue, buckling, CFD (including fin flutter and thrust vectoring) and thermal simulations in ANSYS across F360, CATIA and SOLIDWORKS models. Manufactured entire rocket and airframe via aluminum, fibreglass and carbon-fibre hand layup with aerospace-grade resin.

PROJECTS

1. **A.L.B.E.R.C. (Autonomous Learning Bot to Explore, React and Collaborate)** | **LOGOS Lab, ASU** | **2026**
   - Designing a differential-drive chassis, sensor tower, phone-docked mobile robot on Autodesk F360. Analysed engineering static, vibration, thermal, CFD and dynamic loading simulations on Ansys before material selection. Made on Prusa 3D printer
2. **Indian Patent No. 506725 — "A System for Ejection"** ↗ | **Nov 2019**
   - Invented a pressurized-canister ejection system for sounding rockets with 99.97% reliability compared to traditional black-powder based ejection. Granted Indian Patent No. 506725 (Application No. 201941044944)
3. **Project Vyom (2018) & Project Arya (2019) — Sounding Rockets** | **thrustMIT, Spaceport America Cup, New Mexico**
   - Delivered structural design, composite layup, and airframe manufacturing for two flight-proven sounding rockets under ESRA, managed a 13-member sub-team for Project Arya and contributed to airbrake deployment, aluminum carbon fibre (metal fibre matrix composite bulkheads and fins. Received Spot Award for Design at the competition.
4. **Total Knee Arthoplasty Implant - Novel Materials Research** | **MIT Manipal** | **2019**
   - Designed and analysed Total Knee Arthoplasty prosthetics using non-conventional materials under Prof. Nitish Naik via FEA-driven strength-of-materials and mechanical-systems-design analyses,
5. **Steam-Turbine Research** | **BHEL Hyderabad** | **June 2018**
   - Contribution to the development of precision plain plug gauge for the manufacturing design of gas and steam turbines

PROFICIENCIES

1. **Areas of Expertise:** Product Design and Simulation Analysis, Aerospace Design, Composites, Material Science, Refrigeration Systems, FEA, GD&T and Stackup, DFMA, DFMEA, Adherance to International Design Standards, IP/Environmental Ratings
2. **Software Tools:** Creo Parametric 4.0, SOLIDWORKS, Inventor, Fusion 360, CATIA v4/v5/v6, Siemens NX, ANSYS Workbench (Structural, Thermal, Fluent, APDL), Hypermesh, OpenRocket, SimScale, AutoCAD, Windchill, Enovia, Creo Illustrate
3. **Certified Skills:** Autodesk Fusion 360 CAD/CAM/CAE, Digital Manufacturing and Design (SUNY), Material Science (UC Davis), DFMEA (LTTS Genesis), MATLAB (Vanderbilt), Certified Drone Pilot (sUAS, FAA Part 107)
4. **Additional Skills:** Material & Parts Selection, Life Cycle Management, 3D Printing and Rapid Prototyping, Fibreglass and Carbon-Fibre Hand Layup, Python, C/C++, MATLAB, Arduino, Linux, Git, Project Management, Strategy Formulation

EDUCATION

1. **M.S. in Robotics and Autonomous Systems** | **Arizona State University, Tempe** **GPA: 3.96/4.00**
   Aug 2023 – May 2025
   - Specialization in Mechanical and Aerospace Systems
   - **Relevant Coursework:** Linear Algebra, Modeling and Control of Robots, Expressive Robotics, AR-VR Systems
2. **B.Tech. in Mechanical Engineering** | **Manipal Institute of Technology, India**
   July 2016 – June 2020
   - Minor in Mechanical Design and Physics
   - **Relevant Coursework:** Engineering Mechanics; Thermodynamics; Fluid Mechanics; Heat and Mass Transfer; Machine Design; Strength of Materials; Manufacturing Processes; Dynamics of Machines; FEA; Computer-Aided Design; Material Science and Metallurgy, Fluid Drives and Circuits; IC Engines and Emissions; Fatigue and Fracture; Design for Manufacturing and Assembly (DFMA); Physics of Materials; Radiation Physics; Tribology; Design of Mechanical Systems.