BHAVANKUMAR PADMANABAN

B.Tech. - Mechanical Engineering
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PROFESSIONAL SUMMARY

Motivated Mechanical Engineer with specialized training in piping design, and material selection. Proficient in AutoCAD, SolidWorks, SP3D, and E3D, with a strong understanding of ASME, API, and ISO standards. Knowledgeable in pipe sizing, routing, and support design, with excellent problem-solving skills and a keen interest in industrial applications.

KEY SKILLS

- SP3D
- SolidWorks
- E3D
- Pipe Sizing
- Design and selection of supplementary piping equipment
- Pipe codes & standards
- Pipe fabrication process
- Fluid dynamics
- FEED
- Python, C, Java, VBA
- Thermodynamics
- Structural analysis
- Weldments
- ISO Drafting
- Numerical Analysis
- Abaqus CAE
- Problem Solving
- Project Coordination
- ASME B31
- API
- MS Office

EDUCATION

Chennai Institute of Technology
B.Tech. - Mechanical Engineering (2021 - 2025) | CGPA: **8.75/10**

Infant Jesus Matriculation Higher Secondary School, Devakottai
12th Grade (2021) | TNBHSE | Percentage: **92/100**
10th Grade (2019) | TNBSE | Percentage: **93/100**

PROFESSIONAL EXPERIENCE

Nadi Airtechnics | Graduate Engineering Trainee | Nov 2024 - Present

- design and development of industrial fans.
- Automation of design flow using DriveWorks Express.
- Design & development of impellers for industrial applications (Fluid Dynamics, ANSYS).

INTERNSHIPS

Centre for Additive Manufacturing | Research Fellow | May 2024 - Nov 2024

- Computational modeling for destructive testing & heat flow analysis.
- Interpretation of non-destructive micro-level testing results, focusing on WAAM technology.
- Fracture behaviour and fracture mechanism study of WAAM fabricated and fdm fabricated specimens

Suguna Motors and Pumps | Production Engineer (Trainee) | Jun 2023 - Jul 2023

- Gained knowledge of machining processes & measuring instruments.
- Provided design modifications to solve high-hardness motor casing issues.

DSNJ Technical Works | Draughtsman (Trainee) | Apr 2022 - Apr 2022

- Designed and installed heat exchangers.
- Used SolidWorks weldments for piping layout.

PROJECTS

- **Extended Finite Element Analysis for Linear Elastic Fracture Mechanics**
  - Modeled crack propagation in multimaterial composites using XFEM & VCCT.
  - Implemented UMAT for viscoelastic material behavior.
- **Modeling and Analysis of Moving Heat Source (Goldak Double Ellipsoid Equation)**
  - Simulated TIG welding of titanium in Abaqus.
  - Developed a FORTRAN subroutine for Goldak heat source modeling.
- **Optimization of Thermal Barrier Coating in Exhaust Manifolds**
  - Designed modifications for improved thermal barrier coatings (TBCs).
  - Utilized AVOF techniques for enhanced performance.
- **Design and Development of impeller**
  - Designed and optimized an impeller using SolidWorks and numerical analysis tools to enhance aerodynamic efficiency and structural integrity.
  - Collaborated with manufacturing teams to refine fabrication processes, ensuring compliance with industry standards and operational requirements.

PUBLICATIONS: Research Profile

- **Comparison of Fracture Toughness on Innovative Material Fabricated by Additive Manufacturing**
  - Published in *Journal of Materials Engineering and Performance* (Springer, 2025).-American Society of Metals DOI:10.1007/s11665-025-10816-3
- **Characterization and Testing of Functionally Graded Material (SS 347/SS 316L) Fabricated Through WAAM-** in review
  - Reviewed in *Journal of Mechanical Engineering* (SAGE, 2024).
- **Microstructural features and correlation of stress intensity factor for stainless steel(SS304) fabricated through wire arc additive manufacturing-** in review
  - Reviewed in *Steel Research International* .
- **Innovative Material Fabricated via Additive Manufacturing: A Comparative Study on Fracture Toughness**
  - Published in an Iranian Journal of Science and Technology Transactions of Mechanical Engineering (Springer, 2025). DOI:10.1007/s40997-025-00849-3
- **Additively Fabricated Innovative Material: Experimental and Simulation Approach for Fracture Toughness Estimation**
  - Published in Mechanics of Advanced Materials and Structures (Taylor and Francis, 2025). DOI:10.1080/15376494.2025.2484432 (will be in online)

CERTIFICATIONS & TRAININGS:

- **Piping Design (SP3D, E3D)** - Kagira Solution (Ongoing, 2025)
- **Fundamentals of Piping** - Udemy (2025)
- **Industrial Robotics and Automation** - (Score: 53/100)
- **Foundry 4.0** - IIT Tripathi & Nelcast Ltd (2023)

ACHIEVEMENTS

- Top 8 finalist in IITM-Caterpillar IDP competition.
- IMTEX 2024 Forming Academia Runner-up.
- SAE Convection Tier 3 Welding Runner-up.
- IMTEX 2025 quiz runner

PERSONAL DETAILS

- **Date of Birth:** 05 Jun 2004
- **Marital Status:** Single
- **Languages Known:** English, Tamil, Hindi
- **Current Address:** Chennai, Tamil Nādu, India
- **Permanent Address:** 2C Ponnaiah Lane, Devakottai, Sivagangai, Tamil Nādu, India