

# Phani Raja Bharath Balijepalli, PMP®

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## PROFESSIONAL SUMMARY

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Results-driven professional with 9+ years of experience spanning Project Management, Quality Assurance, and Engineering Design across Modeling and Simulation, Digital Twins, IoT, Telecom, Renewable Energy, Heavy Metal Fabrication, and Aerospace industries, and a master's in modeling and simulation with a proven track record of delivering complex projects on time while maintaining rigorous quality standards. Certified PMP with demonstrated success in cross-functional team leadership, process optimization, and stakeholder management.

## EDUCATION

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### Master's, Modeling and Simulation

Dec 2025

University of Central Florida | CGPA: 4.0

Orlando, Florida

*Relevant Coursework: Digital Twins, Research Methodology, Modeling and Simulation, Decision Analysis*

Bachelor's, Mechanical Engineering ([WES Verified](#))

May, 2013

Jawaharlal Nehru Technological University | CGPA: 3.4

Hyderabad, India

## EDUCATIONAL PROJECTS

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### AI-Assisted Datacenter Prompt Routing for Urban Heat Island (UHI) Mitigation

- Identified novel finding that naive energy-only routing creates localized thermal hotspots, creating Urban Heat Island (UHI); proposed distributed prompt load management as a solution.
- Developed an AI-assisted datacenter routing framework using MLR, ANN, and Bayesian-optimized surrogate models to predict energy consumption across global datacenter locations with  $R^2 \sim 0.99$ .
- Implemented four routing strategies (Random, Energy-Only, UHI-Aware, Multi-Objective) with Monte Carlo validation, demonstrating UHI-aware routing can be a sustainable alternative with minimal trade-offs.

Link: <https://github.com/Phani-Raja-Bharath/AI-assisted-Data-Center-prompt-routing.git>

### Bridge Traffic Simulation and Fatigue Monitoring Using a Hybrid Digital Twin Approach

- Abstract selected for IABMAS 2026 Conference, Orlando, Florida.
- Built a real-time bridge monitoring prototype applicable to any bridges using a Hybrid Digital Twin approach.
- Integrated live traffic data (FL511 in version 1 and existing camera infrastructure for version 2), to a modified **LWR simulation model**, and a **Random Forest predictor** to forecast structural fatigue under varying conditions.
- Utilized OpenCV to analyze traffic congestion and conducted Monte Carlo simulations to account for real-world uncertainty in an interactive Streamlit dashboard.
- Provided a sample framework for smarter, data-driven maintenance planning.

Link (Version 1): <https://github.com/Phani-Raja-Bharath/Bridge-Digital-Twin-using-OpenCV-LWR.git>

Link (Version 2): [https://github.com/Phani-Raja-Bharath/DigitalTwin\\_BridgeMaintenance\\_VueAnalysis.git](https://github.com/Phani-Raja-Bharath/DigitalTwin_BridgeMaintenance_VueAnalysis.git)

**Correlating fatigue and workforce reallocation in maintenance for increased operational tempo in**

## Aviation

- Built a simulation model to explore how maintainer fatigue affects helicopter readiness, combining real maintenance data with **CTGAN**-generated synthetic fatigue surveys.
- Applied **Linear regression and Random Forest** for improved predictions.
- Ran **Monte Carlo simulations** with Gaussian noise to reflect real-world uncertainty in fatigue levels and operational readiness.

Link: <https://github.com/Phani-Raja-Bharath/Helicopter-Fleet-Readiness-Workforce-Optimization-Model.git>

## WORK EXPERIENCE

<b>Graduate Teaching Assistant</b>	Aug, 2025 – Dec, 2025
<b>University of Central Florida</b>	Orlando, United States
<ul style="list-style-type: none"><li>• Teaching Assistant, IDS 5147 – Perspectives on Modeling &amp; Simulation (29 students)</li><li>• Assisted &amp; led hands-on demonstrations of Discrete Event, Continuous, and Agent-Based Simulation models with an application-driven focus</li><li>• Implemented and managed Canvas LMS coursework, supporting labs, assignments, and model walkthroughs</li><li>• Designed a Project Management Excel template, achieving 100% student adoption for experiential learning and project tracking</li></ul>	
<b>Manager</b>	Jan 2024 – Jul 2024
<b>HCL Technologies</b>	Bengaluru, India
<ul style="list-style-type: none"><li>• Led three strategic functions for a major US Telecom vendor: Reporting Analytics, Pre-Sales, and Resource Deployment</li><li>• Managed simultaneous transition of 50+ personnel from previous vendor with zero service disruption</li><li>• Achieved 100% evaluation pass rate for all transitioned resources during training review</li><li>• Established reporting frameworks and KPIs, improving client satisfaction and project visibility.</li></ul>	
<b>Project Manager</b>	Sep 2022 – Jan 2024
<b>StartupCrafters</b>	Hyderabad, India
<ul style="list-style-type: none"><li>• Developed IoT medical device MVP by coordinating Mechanical Design, Electronic Design, and App Development teams</li><li>• Resolved critical React-BLE integration challenge through technical collaboration facilitation</li><li>• Successfully demonstrated functional prototype to investors, securing stakeholder confidence</li></ul>	
<b>Senior Engineer</b>	Dec 2019 – Sep 2022
<b>ICOMM Tele Limited</b>	Hyderabad, India
<ul style="list-style-type: none"><li>• Primary quality contact ensuring 100% compliance with customer and regulatory requirements</li><li>• Managed QA/QC activities for Aluminum Shielded Enclosures, EMI/EMC products (MIL-STD-461, IEEE 299, MIL-STD-810F), and Oil &amp; Gas equipment (API Q1)</li><li>• Led NDT inspections and got certified welders as per ASME/AWS standards in coordination with external certifying agencies.</li><li>• Coordinated cross-departmental quality initiatives with zero non-conformances during customer audits.</li></ul>	
<b>Quality Associate</b>	Jun 2016 – Dec 2018
<b>Mytrah Energy India Pvt. Limited</b>	Hyderabad, India
<ul style="list-style-type: none"><li>• Executed complete APQP cycle for 300MW wind energy steel structures</li><li>• Increased material delivery rate by 50% from 25-30 tons to 45 tons per vendor per day</li><li>• Implemented gauge methodologies and comprehensive process review protocols</li><li>• Conducted inspections from first article through final product, ensuring design conformance.</li></ul>	
<b>Project Associate</b>	Apr 2015 – May 2016

**KV Solar Energy Pvt. Limited**

Hyderabad, India

- Designed solar module mounting structures using SOLIDWORKS and AutoCAD
- Conducted feasibility studies for solar installation projects

**Graduate Apprentice**

Mar 2014 – Mar 2015

**Satish Dhawan Space Centre - ISRO**

Hyderabad, India

- Designed Molds for composite propellant casting, foldable platforms using AutoCAD and SolidWorks

**CERTIFICATIONS**

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| • Digital Technologies and the Future of Manufacturing Specialization – Uni. of Michigan | Oct 2023 |
| • Project Management Professional (PMP) - Project Management Institute (PMI)             | Aug 2023 |
| • ASNT NDT Level II (VT, PT, MPT, UT, RT) - Alpha NDT                                    | Mar 2021 |
| • Lead Auditor ISO 9001:2015 - TUV Nord  | Mar 2019 |
| • Lean Six Sigma Green Belt - TUV SUD  | Mar 2017 |
| • AutoCAD – NSIC   | May 2011 |

**SKILLS**

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- **Software:** AnyLogic, AutoCAD, SolidWorks, Microsoft Project, Precision Tree, @Risk.
  - **Programming Language:** Python