Phani Raja Bharath Balijepalli, PMP®

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PROFESSIONAL SUMMARY

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

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

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

- Identified novel finding that naive energy-only routing creates localized thermal hotspots, undermining Urban Heat Island mitigation (UHI) goals; 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

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

Graduate Teaching Assistant Aug, 2025 – Dec, 2025

University of Central Florida Orlando, United States

- Teaching Assistant, IDS 5147 – Perspectives on Modeling & Simulation (29 students)
- Led hands-on demonstrations of Discrete Event, Continuous, and Agent-Based Simulation models with an application-driven focus
- Implemented and managed Canvas LMS coursework, supporting labs, assignments, and model walkthroughs
- Designed a Project Management Excel template, achieving 100% student adoption for experiential learning and project tracking

Manager Jan 2024 – Jul 2024

HCL Technologies Bengaluru, India

- Led three strategic functions for a major US Telecom vendor: Reporting Analytics, Pre-Sales, and Resource Deployment
- Managed simultaneous transition of 50+ personnel from previous vendor with zero service disruption
- Achieved 100% evaluation pass rate for all transitioned resources during training review
- Established reporting frameworks and KPIs, improving client satisfaction and project visibility.

Project Manager *Sep* 2022 – Jan 2024

StartupCrafters Hyderabad, India

- Developed IoT medical device MVP by coordinating Mechanical Design, Electronic Design, and App Development teams
- Resolved critical React-BLE integration challenge through technical collaboration facilitation
- Successfully demonstrated functional prototype to investors, securing stakeholder confidence

Senior Engineer Dec 2019 – Sep 2022

ICOMM Tele Limited Hyderabad, India

- Primary quality contact ensuring 100% compliance with customer and regulatory requirements
- Managed QA/QC activities for Aluminum Shielded Enclosures, EMI/EMC products (MIL-STD-461, IEEE 299, MIL-STD-810F), and Oil & Gas equipment (API Q1)
- Led NDT inspections and got certified welders as per ASME/AWS standards in coordination with external certifying agencies.
- Coordinated cross-departmental quality initiatives with zero non-conformances during customer audits.

Quality Associate Jun 2016 – Dec 2018

Mytrah Energy India Pvt. Limited Hyderabad, India

- Executed complete APQP cycle for 300MW wind energy steel structures
- Increased material delivery rate by 50% from 25-30 tons to 45 tons per vendor per day
- Implemented gauge methodologies and comprehensive process review protocols
- Conducted inspections from first article through final product, ensuring design conformance.

Project Associate 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

- 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

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