# Phani Raja Bharath Balijepalli, PMP®

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## PROFESSIONAL SUMMARY

An experienced professional with over 9 years in Project Management, Quality Assurance, and Design across Telecom, Product Development, Heavy metal fabrication, and Oil and Gas industries. Proven track record of on-time delivery and maintaining high-quality standards. Holds certifications in Project Management, Quality, and Design. I am currently pursuing a Master's in Modeling and Simulation to enhance my skills and self-development further.

## EDUCATION

**Master's, Modeling and Simulation** **Aug 2024 to Dec 2025 (expected)**
University of Central Florida | CGPA: **4.0** Orlando, Florida
*Relevant Coursework:*
*Sem III: Simulation Techniques, AI, Energy, and Sustainability, Directed Research (Digital Twin of Bridge)*
*Sem II: Digital Twins, Simulation Research Methods and Practicum, Mathematical Foundations for Modeling & Simulation, Humans for Modeling & Simulation.*
*Sem I: Perspectives of Modeling & Simulation, Cybersecurity: A Multidisciplinary Approach, Decision Analysis*

**Bachelor's, Mechanical Engineering** **May, 2013**
CMR Technical Campus | CGPA: **3.4** Hyderabad, India

## EDUCATIONAL PROJECTS

**Bridge Traffic Simulation and Fatigue Monitoring Using a Hybrid Digital Twin Approach**
University of Central Florida, 2025
(https://github.com/Phani-Raja-Bharath/BridgeMaintenanceUsingHybridDigitalTwin.git)

- Built a real-time bridge monitoring prototype for the Melbourne Causeway using a Hybrid Digital Twin approach. Integrated live traffic data, a modified **LWR simulation model**, and a **Random Forest predictor** to forecast structural fatigue under varying conditions. Utilized OpenCV to analyze traffic congestion from FL511 images and conducted Monte Carlo simulations to account for real-world uncertainty.
- Deployed the system as an interactive Streamlit dashboard to visualize traffic stress, track fatigue buildup, and guide preventive maintenance decisions.
- Achieved high predictive accuracy.
- Provided a sample framework for smarter, data-driven maintenance planning.

**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.
- Started with **linear regression**, but due to low accuracy ($R^2 = 0.0127$), transitioned to a **Random Forest model**, which significantly improved predictions ($R^2 = 0.9972$).
- Ran **Monte Carlo simulations** with Gaussian noise to reflect real-world uncertainty in fatigue levels and operational readiness.
- Findings revealed some unexpected trends, such as high workload stress correlating positively with readiness, prompting a deeper qualitative review.
- Visualized personnel and fleet availability through a custom Streamlit dashboard, helping identify key fatigue drivers and support more innovative maintenance planning.

**Simulation-Based Optimization of Agent Movement Through Complex Terrain**
University of Central Florida, 2024

- Built a simulation model to study how terrain factors like slope and elevation affect agent movement and route risk.
- Used Excel to create mathematical formulas that adjust speed and power based on terrain, and implemented these through a Finite State Machine.
- Ran **Monte Carlo simulations** using **@RISK** to capture uncertainty in performance and identify riskier paths.
- **Sensitivity analysis** showed elevation had the most significant impact on movement, helping prioritize safer, more efficient routes.

## WORK EXPERIENCE

**Graduate Teaching Assistant** Aug/ 2025 – Present
**University of Central Florida** Orlando, United States

- Graduate Teaching Assistant for IDS 5147 Perspectives on Modeling & Simulation of a class consisting of 29 students.
- Assisted the Professor in setting up the Learning Management System (Canvas) and content with inputs from the previous semester.
- Delivered demonstrations and conducted sessions of simulation case studies to the class.
- Achieved 100% adoption of a self-created Project Management Excel Template to introduce fundamental project management concepts and provide real-time project experiences for students.
- Acted as a point of contact for technical and non-technical queries in the course for the students.

**Manager** Jan/ 2024 – Jul/ 2024
**HCL Technologies** Bengaluru, India

- Led and managed three key functions in Project Management (Reporting Analysts, Pre-Sales Agents, and Project Resource Deployment Teams) for a US client, ensuring the timely delivery of project milestones that increased client satisfaction.
- Facilitated collaboration with an offshore client, overseeing knowledge transfer and training to ensure a seamless production handover, resulting in 100% of resources passing evaluation during the transition review and training.
- Played a pivotal role in developing over 10 reporting templates for management, providing insights on project status and resource performance metrics.

**Project Manager** *Sep*/ 2022 – Jan/ 2024
**StartupCrafters** Hyderabad, India

- Achieved success in managing cross-functional teams and developing the Minimum Viable Product (MVP) with external Mechanical Design, Electronic Design, and App development teams, resulting in a timely product demonstration and enhanced stakeholder engagement.
- Drafted a detailed document outlining enhancements to design, usability, servicing, and features, which guided the development team in improving product offerings.
- Successfully demonstrated the functionality of the devices to investors, leading to stakeholder confidence.

**Senior Engineer** Dec/ 2019 – Sep/ 2022
**ICOMM Tele Limited** Hyderabad, India

- Served as the primary contact for overall project quality, ensuring 100% compliance with customer and regulatory requirements throughout the product lifecycle for Shielded Effective enclosures and EMI/EMC, MIL standard compliant products, and Oil & Gas customers.
- Carried out real-time design validation of the final product and assembly, coordinating with relevant

departments to ensure adherence to quality standards and facilitate timely issue resolution.

- Developed Quality Control Plans based on customer, engineering, and regulatory requirements, implementing proactive measures to identify and address significant and repetitive issues through a Problem to Prevention process.

**Quality Associate** Jun/ 2016 – Dec/ 2018
**Mytrah Energy India Pvt. Limited** Hyderabad, India

- Reviewed designs and coordinated with internal and external teams to ensure manufacturability and quality of fabricated structures and new products, serving as the primary point of contact for all stakeholders for assigned projects.
- Conducted a complete cycle of inspections (APQP), from first article inspection to in-process and final product evaluations for 300MW steel structures, ensuring conformance to design and applicable standards/specifications.
- Presented investigative reports and Root Cause Analysis (RCA) findings to eliminate causes of poor quality, issuing CAPA reports and coordinating with departments to implement effective mitigation plans.
- Increased the rate of material delivery from 25-30 tons per vendor per day to 45 tons by implementing gauge methods and ensuring thorough process vetting and review.

**Project Associate** Apr/ 2015 – May/ 2016
**KV Solar Energy Pvt. Limited** Hyderabad, India

- Served as a Project Associate, sharing technical details and project aspects related to engineering structures and solar products with associates and vendors, ensuring alignment with industry trends and best practices.
- Worked on the design of module mounting structures using SOLIDWORKS and AutoCAD, enhancing product efficiency and compliance with engineering standards.

**Graduate Apprentice** Mar/ 2014 – Mar/ 2015
**Satish Dhawan Space Centre - ISRO** Hyderabad, India

- Gained hands-on experience during an apprenticeship in a Solid Propellant Plant, working on processing and ancillary activities related to the production of composite solid propellant.
- Participated in designing special-purpose molds for solid rocket motor finishing operations, drafting designs for ancillary storage buildings and processing facilities using SolidWorks and AutoCAD.

## CERTIFICATIONS

- Digital Technologies and the Future of Manufacturing Specialization Oct/ 2023
  Issued by: University of Michigan (Coursera)
- Project Management Professional (PMP) Aug/ 2023
  Issued by: Project Management Institute - PMI
- ASNT NDT Level II (VT, PT, MPT, UT, RT). Mar/ 2021
  Issued by: Alpha NDT
- Lead Auditor ISO 9001:2015 Mar/ 2019
  Issued by: TUV Nord
- Lean Six Sigma Green Belt Mar/ 2017
  Issued by: TUV SUD

## SKILLS

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