Sumedh Joshi, PMP®
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EDUCATION

Columbia University ***New York, NY***
MS in Mechanical Engineering (GPA - 3.51/4) Sept 2022 – Dec 2023
Coursework: Sustainable Manufacturing, Carbon Sequestration, Advanced Heat Transfer, Energy Sources and Conversion, Mechanical Behavior of Materials, Space Vehicle Dynamics, Nanotechnology, Data Science for Mechanical Systems.
Key Achievements and Activities: Nucleate NY Activator 2024 Finalist Cohort, Altair Engineering Inc. Campus Ambassador.

Dr. Vishwanath Karad MIT World Peace University ***Pune, India***
B. Tech, Mechanical Engineering (GPA – 8.9/10) July 2017 – July 2021
Coursework: FEM, Mechanical System Design, Computational Fluid Dynamics, Product Lifecycle Management.
Key Achievements: Published seven research articles in Scopus and SCI-Indexed Journals from 2020-2024 in Machine Design, CFD, and IoT domains, and won 2 Best Presentation Awards at reputed research conferences.

EXPERIENCE

KBR, Inc. ***Houston, TX***
Associate Technical Professional - Sustainable Technology Solutions Jan 2024 - Current

- Managing the design, procurement, fabrication, and logistics of seven Fluid Catalytic Cracking (FCC) equipment supply projects in Europe and the US, involving a global engineering and procurement team, with a combined value of $ 3 M.
- Supporting project managers with tracking, analyzing, and executing project management and design validation activities for five proprietary technology projects for FCC Equipment and Supercritical Extractors, with a value of $ 30 M.
- Spearheading KBR's entry into the Modular Data Center (MDC) industry by engaging with key stakeholders and technology partners to develop an in-house MDC Integration technology with Power, Cooling, and IT infrastructure.
- Conducted technical, economic, and geographical feasibility studies for a 25 MW Data Center in Houston, TX. Analyzed the ERCOT grid, water & land availability, network infrastructure, and major risks to examine the project viability.
- Undertook an in-depth technical and financial study to recommend a potential partnership target company for Pressure Swing Adsorption (PSA) technology to the management, resulting in a successful multi-year licensing contract, cementing KBR's entry into the PSA equipment space, supporting the Ammonia and Hydrogen industries.
- Engaged in multiple studies involving market study and target company valuation exercises using DCF and Transaction Comps models to support strategic M&A decisions in the Ammonia, Urea, Industrial Catalyst, and Hydrogen industries.
- Conducted intensive market research and analysis in the proprietary equipment domain concerning KBR's key technology portfolio (Oil & Gas Refining, Ammonia Converters, Plastic Recycling, and Industrial Catalysts) to help position offerings and entry into new markets, resulting in contract renewals and new licensing deals worth $20 M.

Altair Engineering Inc. ***Troy, MI (Hybrid)***
CAE Validation Intern May 2023 - Sept 2023

- Developed software quality assurance automation tests for Altair HyperWorks and HyperMesh functionalities, such as CAD Model Analysis and HyperMesh Postprocessing FE Results using Tool Command Language (TCL) and Python.
- Automated numerous manual validation scripts for critical HyperWorks features in Optistruct and Nastran solvers using Python, saving 200+ engineering hours and significant computational resources per release.

RESEARCH AND ACADEMIC PROJECTS

Development and Analysis of a CCUS Facility for the Heidelberg Cement Plant ***Columbia University, NY***
Tools: Microsoft Excel, Python, MATLAB Sept 2023 - Dec 2023

- Analyzed the impacts of retrofitting a hypothetical Post Combustion Point Source Carbon Capture Technology at the Heidelberg Cement Plant at Mitchell, IN, using the MEA (Monoethanolamine) solvent for carbon capture with 90% efficiency and Geological Saline Aquifer Storage to reduce Carbon Emissions and Ecological Impact.
- Conducted a thorough techno-economic review with indicator assessment and sensitivity analysis to quantify the economics of retrofitting the CCUS facility, as well as an environmental impact study and life-cycle analysis to justify the ecological benefits. Achieved a massive Carbon Emission reduction of 2.2 Mt CO2/year.

Study of Urban Heat Island Effect over New Delhi and Surrounding Area ***Columbia University, NY***
Tools: Python, MATLAB, WunderGround Weather Station Records Feb 2023 – May 2023

- Quantified the relationship between LST (Land Surface Temperature), vegetation, and precipitation over New Delhi and the surrounding area using Python and MATLAB by performing a regression analysis using satellite-derived Normalized Difference Vegetation Index (NDVI) and precipitation data from local weather stations to confirm the heat island effect.
- Devised a heat transfer model based on humidity, hourly precipitation, vapor pressure, and sensible heat to find the dependence of LST on precipitation for the monsoon season, with 88% accuracy during 2010-2020.

SKILLS, CERTIFICATIONS, AND ACTIVITIES

- Software, Tools, and Programming Languages: SolidWorks, Siemens NX, Altair HyperWorks, ANSYS (APDL, ACP, Fluent and CFX), PROTEUS, AutoCAD, Siemens FEMAP, MATLAB Simulink, FemFat, Altair Hypermesh, ARAMIS Pro, MasterCAM, Microsoft Excel, Tableau, Microsoft Project, ImageJ, Sustainable Minds LCA tool, C, Python, R, TCL.
- Certifications and Courses: PMP®, CFA Investment Foundations Certificate, Wall Street Prep Financial and Valuation Modeling, Digital Manufacturing, Financial Markets, Six Sigma Principles.
- Activities: World Economic Forum Global Shapers Houston Hub Member, Energize Tomorrow Platform.