Chirag Byanjankar, E.I.T.

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EDUCATION

MS in Mechanical and Energy Engineering University of North Texas (CGPA: 4) 08/2022 — 12/2024
Thesis: "Vortex Phase Separator-based spacecraft cabin air humidity control subsystem prototype for CO2 removal using regenerable ionic liquid desiccant."
Advisor: Prof. H. Bostanci

BS in Mechanical and Energy Engineering Kathmandu University (CGPA: 3.23) 08/2016 — 12/2020

EXPERIENCE

Graduate Research Assistant 05/2024 – 06/2024
Thermal Management Lab, University of North Texas *Denton, TX*
- Extended testing runs using experimental matrix to quantify the potential of assembled Vapor Phase Separator.

Graduate Teaching Assistant 09/2023 – 05/2024
Department of Mechanical Engineering, University of North Texas *Denton, TX*
- Set up lab manuals and equipment for experimental thermal sciences and refrigeration & air conditioning.
- Organized lectures for class of 60+ student on equest software for system selection and construction of building load calculation, encouraging creative thinking in design workflows with emphasis on problem solving.
- Mentored undergraduate team participating in U.S. Department of Energy Solar Decathlon to design a new HVAC system using energyplus, analyzing designs for educational buildings.

Graduate Research Assistant 05/2023 – 08/2023
AI Lab, University of North Texas *Denton, TX*
- Modified SAM encoder to segment defects in in-situ additive manufacturing developed under DEVCOM ARL funded program with maximum DICE score of 0.86.
- Optimized design programming applying advanced design principles for topology design using minimax decision-making algorithm code.
- Reviewed and synthesized research articles on incorporating YOLO object detection with SAM adapters.

Graduate Research Assistant 09/2022 – 04/2023
Thermal Management Lab, University of North Texas *Denton, TX*
- Designed under NASA X-Hab 2023 challenge funded a prototype Vapor Phase Separator (VPS) for spacecraft air humidity removal system for performance evaluation to be used in deep space transit with >90% air humidity removal capability.
- Developed data acquisition software on Labview that can measure pressure, temperature, and relative humidity.

Mechanical Engineer 10/2020 – 06/2022
Microtech m&e Pvt. Ltd. *Kathmandu, Nepal*
- Directed a multi-disciplinary team in the design and implementation of an HVAC system for a commercial facility, ensuring compliance with NFPA standards and achieving a 15% improvement in energy efficiency
- Reviewed technical submittals for content and accuracy, ensuring adherence to project specifications and client expectations, establishing strong client relationships.
- Led and completed a construction project from inception to completion within a 12-month period.

PUBLICATIONS

Byanjankar, C.*, Bostanci, H., Kurwitz, C., Belancik, G., "Design, Development, and Initial Testing of Microgravity Vortex Phase Separator-Based Spacecraft Cabin Air Humidity Control Subsystem for CO2 Removal System," 53nd International Conference on Environmental Systems (ICES 2024), Louisville, Kentucky, July 21-25, 2024. https://hdl.handle.net/2346/99015

Byanjankar, C.*, Sarvadi, A.*, Bostanci, H., Kurwitz, C., Belancik, G., "Preliminary Investigation of Vortex Phase Separator-Based Spacecraft Cabin Air Dehumidification Subsystem for CO2 Removal," 52nd International Conference on Environmental Systems (ICES 2023), Calgary, Canada, July 16-20, 2023. https://hdl.handle.net/2346/94771

AWARDS & CERTIFICATES

Tuition Benefit Program Recipient ($5740 funding) 09/2023 — 05/2024

Six Sigma: Green Belt 09/2024