

# Chirag Byanjankar, E.I.T.

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## EDUCATION

**MS in Mechanical and Energy Engineering** University of North Texas 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 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

- Fine-tuned SAM encoder pre-trained weights to segment defects in in-situ additive manufacturing developed under DEVCOM ARL funded program.
- 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 Micro-gravity Vortex Phase Separator-Based Spacecraft Cabin Air Humidity Control Subsystem for CO2 Removal System," 53rd 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