**Shekhar Thapa**

[**e-Portfolio**](https://thapashekhar.github.io)

Tifton, GA 37194 • shekhar.thapa@uga.edu • 229-472-4127 • <https://thapashekhar.github.io>

**SUMMARY OF QUALIFICATIONS**

* Experienced in designing over 15 mechanical systems and prototyping using hand tools, 3D printers, and workshop machines & equipment while prioritizing cost-effectiveness, manufacturability, and reliability.
* Proficient in 2D & 3D CAD software (AutoCAD, SolidWorks, and Autodesk Inventor) and competent with Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) software for mechanical stress, heat transfer and fluid dynamics simulations.
* Skilled in programming languages (R, Python, and MATLAB) and adept with Robotic Operating System (ROS), Computer Vision, Machine Learning Algorithms, and Data Science Tools
* Ability to work in teams with effective communication and leadership skills.

**EDUCATION**

**University of Georgia –** Athens, GA **Expected - December 2023**

*Master of Science in Mechanical Engineering,* Overall GPA: 4.00/4.00

Certificate: *Graduate Certificate in Agricultural Data Science*

**Tribhuvan University, Pulchowk Campus** – Kathmandu, Nepal **September 2017**

*Bachelor’s Degree in Mechanical Engineering*

**DESIGN AND FABRICATION EXPERIENCE**

***Graduate Research Assistant* May 2021 - Present**

University of Georgia – Tifton, GA

* Developed over eight mechanical systems, including a robotic cotton harvester end-effector, cotton conveying vacuum system, Pigweed pulling end-effector, plant height measuring tool, Alcohol sampling device, a steering mechanism and a variable height spraying attachment for a rover, among others, from conceptual design to prototyping and testing.
* Designed CAD models for mechanical parts and assemblies in Autodesk Inventor, performed structural simulations, and produced 2D drawings to assist a shop machine operator in fabricating components.
* Utilized additive manufacturing, specifically Fused Deposition Modeling (FDM), to produce rapid prototypes with both polymer and metal materials and conducted testing, analysis, and subsequent redesign of mechanical components.
* Trained and implemented Deep Neural Network Models (Yolov3 & Yolov4) for cotton detection during robotic harvesting.
* Presented research findings at conferences, including Beltwide Cotton, ASABE, and IIPA.

***Assistant Lecturer and Workshop Trainer* November 2018 - March 2021**

Himalaya College of Engineering – Lalitpur, Nepal

* Taught Engineering 2D and 3D drawing to 192 freshmen each academic year, guiding them in creating 3D models using SolidWorks and printing them using polymer filament 3D printers.
* Instructed 48 freshmen in each semester, imparting essential knowledge in Workshop Technology, and providing hands-on skills in Drilling and Lathe Machining, Bench Works, Gas and Arc Welding.
* Guided two final-year student teams in the fabrication on their final year projects.

**INTERN AND COURSE PROJECT EXPERIENCE**

**Seedling Skip Replanter** *(Sensor and Transducer)* & **Magnetic Levitator** *(Control System)* **August 2021 - April 2022**

* Selected the appropriate sensors, using a wheel encoder and ultrasound sensor for the seedling skip replanter to detect seedling skips, while employing a Hall effect sensor for the magnetic levitator to measure distance.
* Designed the circuit board for the sensors and microcontrollers and then implemented software PID control system.

**Intern, Toyota Motors –** Kathmandu**,** Nepal **November 2016 - December 2016**

* Learned about the layout of the Toyota Motors service center including inventory management and workflow.
* Processed approximately 10 job orders per day from customers, analyzing potential issues with their vehicles and discussing them with service engineers and service technicians.

**HONORS AND AWARDS**

**First Place**, M.S. Student Poster Competition, 2023 IIPA Conference, Athens, GA  **May 2023**

**First Place**, Student Hackathon: Crop Track Competition, 2023 IIPA Conference**,** Athens, GA **May 2023**