

# Sandesh Amgai

Problem Solver. Engineer. Researcher.

## Key skills

- **SolidWorks**(Advanced), **ANSYS** (Advanced), **ABAQUS**(Advanced), **LabViewVI**(Intermediate), **MS-Office**(Advanced).
- **MATLAB** and **Simulink**(Advanced), **Python**(Beginner), **C**(Intermediate), **Latex**(Intermediate).
- Problem Solving, Communication, Teamwork, Technical Writing, Leadership, Adaptability, Attention to Detail.

## Projects

- **Stiffener Pattern Analysis:** Research on evaluating linear buckling performance of a thin-walled plate for various stiffener patterns.
- **Surgical Drill End-Effector:** Lead a Team of six members in designing an end-effector with human hand compliance capable of operating a surgical drill.
- **Gear Box Design:** Lead a Team of five members to design a gear box, the design limited the final torque speed to 30ft/min while load of 7.5T for a input power of 15HP.
- **Weight Powered Vehicle Design:** Designed a working prototype of a vehicle solely powered by the falling weight of a 12oz. Coca-Cola can. The entire part of the vehicle were 3D printed in ABS Plastic.

## Interests

- Design Optimization
- Robotics
- Composites
- Manufacturing Technologies
- Computational Mechanics.

## Education

- 2021 – Present – BS to PhD **Aerospace Engineering** *University of Texas at Arlington*, Arlington, Texas, United States  
**Advisor:** Dr. Paul Davidson, LAMMA Lab  
**Research Focus:** Automated Fiber Placement (AFP)
- 2017 – 2021 B.S.M.E. **Mechanical Engineering with Minor in Nuclear Engineering** *University of Texas at Arlington*, Arlington, Texas, United States  
**GPA:** 3.841/4.0

## Experiences

- Aug. 2021 – Present – **Graduate Teaching Assistant** *Mechanical and Aerospace Engineering, UT Arlington*, Arlington, Texas
- Involved in creating educational materials for an introductory class focusing on problem solving in Mechanical and Aerospace Engineering.
  - Interaction with students to help them understand concepts related to the field of analytic geometry, vectors and dimensional analysis.
- May. 2021 – Present – **Graduate Researcher** *Laboratory of Advanced Materials, Manufacturing and Analysis (LAMMA)*, Arlington, Texas
- **Metal Composite Manufacturing** Designed a layered CAD model of a DogBone specimen to be manufactured at different temperatures for each layer to analyze change in overall properties of the metal.
  - **Mapping and Installation** of 6DOF KUKA Robotic System with built-in AFP End-Effector.
- Jan. 2018 – May 2021 – **Supplemental Instruction Leader/Mentor** *Academic Success Center- UT Arlington*, Arlington, Texas
- Started as a **Supplemental Instruction (SI) Leader** for freshman level Engineering course, focusing on developing engineering problem solving intuition by conducting regular study sessions and tracking progress of students throughout the semester. The final grade of students attending the session regularly were 1.5 times higher than others.
  - Promoted to the position of **Supplemental Instruction (SI) Mentor**, supervised six SI Leaders to assist and develop new marketing strategies for various undergraduate courses and tracked the progress of each SI Leader throughout the semester.
- May 2018 – Aug 2019 – **Research Intern** *University of Texas at Arlington Research Institute*, Fort Worth, Texas
- Performed laboratory experiments under minimal supervision to prototype self-healing gloves using Silicone mold. Extensive use of SolidWorks and ANSYS to design and analyze different parts required for experimentation.
  - Conducted laboratory tests and inspection of biomedical equipment to ensure its functionality and modify them to alter as per the requirement of the experiment and prototyping.
- May 2018 – Present – **Founder/Content Creator** *HomeworkSakiyo*, Kathmandu, Nepal
- Founded an online service to create educational contents and provide tutoring services for middle and high school students in Nepal. [HomeworkSakiyo-Website](#)

## Scholarships

2021 – 2026 **Doctoral Student Fellowship**