

AKSHITA SAHNI

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1300 30th Street Apt.E4-32, Boulder, CO 80303 U.S.A

EDUCATION

- **University of Colorado Boulder, CO, USA** **Graduation Date: May 2021**
Master of Science in Mechanical Engineering [4.0/4.0]
- **Indian Institute of Technology, Kharagpur, India** **2014-2018**
Bachelor of Technology in Mechanical Engineering [8.36/10]
Micro-specialisation in Photonics

WORK EXPERIENCE

- **Graduate student assistant - Biofluidics research group(FLOW Lab)** **Aug. 2019-Present**
Paul M. Rady Department of Mechanical Engineering, University of Colorado Boulder
Supervisor: Debanjan Mukherjee
 - Study of LVAD induced hemodynamics: Currently working on computational modeling of blood flow through large human arteries post installation of left ventricular assist devices in the heart.
 - Anatomical 3D printing: 3D printed human arterial segments from real patient CT scan images using open source software packages- Simvascular and Meshmixer.
 - Pulsatile flow through aortic aneurysms of varying geometry: Coded a 2D Navier Stokes incompressible flow solver with physiologically realistic boundary conditions using FEniCS project on python.
 - One-dimensional Finite element Coding project: Developed a numerical poisson equation solver using Python and FEniCS library.
- **Junior Research Fellow - Energy Systems Lab. IIT Gandhinagar** **Dec. 2018-Jun. 2019**
Funded by Government of India, Department of Science and Technology(DST)
Supervisor: Atul Bhargav
 - Designed process and Engineering of an autothermal fuel reformer using Microsoft Visio
 - Upgraded a prototype for ethanol(fuel) reforming to be used for small autonomous power systems.
 - Coded an exhaust gas ratio calculator using Cantera library on Matlab.
- **Undergraduate Assistant in Experimental Fluid Dynamics Lab.** **Dec. 2015-Nov. 2017**
Department of Mechanical Engineering, IIT Kharagpur, India
Supervisor: Chirag Kalelkar
 - Conducted and filmed table-top experiments on fluid dynamics in slow motion using high speed camera, videos featured on Dr. Chirag Kalelkar's youtube Channel [Fluid Dynamics](#)
 - Performed an experimental study on stability of soap bubble solutions and developed a novel soap solution.

CONFERENCE PRESENTATIONS

- **6th Annual Rocky Mountain Fluid Mechanics Research Symposium-Boulder,CO** **Aug. 2020**
Assessing Hemodynamics in the Ascending Aorta due to Surgical Anastomosis and Flow Modulation of Left Ventricular Assist Device.

DESIGN PROJECTS

- **NASA's HeroX Space poop challenge** **Dec. 2016**
 - Devised(in theory) a system that collects human waste away from the body, for fully suited astronauts seeking solutions for fecal management systems to be used in the crew's entry suits over a duration of up to 144 hours.
- **Design idea competition** **Nov. 2016**
National initiative for Design Project(NID) MHRD Government of India
 - Won this inter-school competition for designing a Manual Paddy Harvester as an ergonomic, low cost, no fuel and energy sustainable solution to the Automatic diesel powered harvester.

EXTRACURRICULAR ACTIVITIES

- **Student representative, Graduate Committee** **Jan. 2020-May 2020**
Paul M. Rady Department of Mechanical Engineering, University of Colorado Boulder
 - Student member at the ME graduate committee, supporting special projects within the graduate program: Graduate student surveys, PhD and Master's Student recruitment.

- **Teach Engineering Club Leader** **Jan. 2020-Present**
Integrated teaching and learning program, University of Colorado Boulder
 - K-12 pre-college curriculum: Developed an online module: Introduction to CAD using Onshape
 - 'I have a dream foundation' volunteer: Teaching engineering behind the real world by means of hands-on exercises to under-privileged school children in Boulder County, with the aim of encouraging careers in STEM.
- **MIT-IIT Make in India Bootcamp** **Jun. 2017-Jul. 2017**
MIT-India program
 - As a team of 48 globally selected students, I learnt the mindset behind designing technological solutions for socio-economic challenges in India under the mentorship of Professors from MIT and Asia School of Business.
 - Coached high school students on robot programming and prototyping in **India's first TinkerFest through Atal Innovation Mission by Government of India**. The success of this festival led to the establishment of 2441 funded Tinkering labs across India, fostering innovation in STEM.

TECHNICAL SKILLS

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| • Medical Image Processing: Patient specific scans | • Programming Knowledge: Python, Matlab |
| • Finite element analysis: Python, FEniCS Project | • Technical drafting: SolidWorks, AutoCAD |
| • SimVascular: FE Modeling, meshing, simulation | • Machine shop: 3D Printing*, Laser cutting |
| • 3D mesh generation: Gmsh, TetGen, Meshmixer | • Computing and system design: LabView |
| • Post Processing/Visualisation: Paraview | • Bash/Unix Shell scripting |

PUBLICATION

The inveterate tinkerer 4. Experiments with soap bubbles and soap films by A. Sahni and C. Kalelkar, 22, 601, Resonance (2017) DOI 10.1007/s12045-017-0501-2