

Allister James Sequeira

Portfolio: [allisterjsequeira.github.io](https://github.com/allisterjsequeira) | allisterjames.sequeira@colorado.edu
LinkedIn: [linkedin.com/in/allisterjsequeira](https://www.linkedin.com/in/allisterjsequeira) | 720-226-8723 | Boulder, CO

Seeking a Mechanical Design Engineering full time position starting in June 2025.

Education

Master of Science in Mechanical Engineering

University of Colorado Boulder, Boulder, CO

Aug 2023 – May 2025 (expected)

GPA: 3.88/4.0

Bachelor of Technology in Mechanical Engineering

Sardar Patel College of Engineering, Mumbai, India

Aug 2016 – Sept 2020

GPA: 9.04/10

Technical Skills

CAD and CAE Software: CATIA, SolidWorks (CSWP), ANSYS, Siemens NX, ABAQUS, Inventor, AutoCAD, Fusion 360

Coding and Other Tools: MATLAB, C++, Python, Arduino, COMPRESS, PV Elite, Navisworks, HTRI, Microsoft Office

Product Design Expertise: CAD, FEA, DFM, DFA, Prototyping, Engineering Drawings, GD&T, Technical Documentation

Experience

Burns and McDonnell | Static Equipment Mechanical Engineer | Mumbai

Jan 2021 – Jul 2023

- Designed refinery equipment including pressure vessels, process columns and heat exchangers, using software like COMPRESS, PV Elite and HTRI, ensuring compliance with ASME BPVC, API standards and industry practices.
- Managed 11 shell and tube heat exchanger packages, including heavy wall vessels rated up to 2000 psi and 750°F. Prepared technical specifications, evaluated bids, and reviewed vendor drawings to align with project and client requirements.
- Resolved existing support design and established adequacy of weld design, by challenging vendor's proposed modifications and guiding them to appropriate code provisions, eliminating major fieldwork and saving the client over \$20k.
- Drove seamless collaboration across clients, vendors, and interdisciplinary teams over 2 years, facilitating effective project delivery through Navisworks model reviews and expert consultancy.
- Delivered seminar on saddle design for horizontal vessels and trained new engineers on specialized design software.

FSAE SPCE Racing | Chassis Lead | Mumbai

Jan 2017 – Jan 2020

- Managed the chassis team of 4 engineers for 2 years, overseeing quality in design, analysis, fabrication, and testing.
- Utilized CATIA V5 for CAD, ANSYS for FEA, including crash simulation, and torsion analysis, and performed SMAW welding.
- Engineered a novel laser-cut jigsaw steel fixture for precise assembly and fabrication of the AISI 1018 tubular Roll Cage.
- Ensured cross-functional team coordination for accurate mounting and assembly of over 120 interfaced components.
- Documented a Technical Report and presented at the Design Event, achieving 4th place nationwide at Formula Bharat 2020.

Projects

Automated Vertical Bike Storage | CU Boulder

Aug 2023 – Apr 2024

- Designed an indoor bike stand capable of lifting a 60 lb bike to its vertical position in 6 seconds.
- Developed prototypes of a vertical storage saving 45% floor space, with assisted lifting reducing lift force by 80%.
- Created SolidWorks model with 3 injection-molded parts with DFM and DFA principles like self-locating features and top down assembly, improving insertion metrics by 39% and reducing secondary operations by 18%.
- Performed FEA for critical parts, and conducted complete economic, material and manufacturing analysis.
- Interviewed users, created concept maps, studied ergonomics, and developed prototypes based on user feedback.

Reverse Engineering a Hair Clipper | CU Boulder

Jan 2024 – Mar 2024

- Redesigned a hair clipper, reducing number of components by 33% and product cost by \$3.36 (7.5%) per unit.
- Incorporated DFA features like integral springs and snap fits, eliminating 6 parts and reducing assembly time by 45 seconds.
- Created CAD models and full GD&T drawings in SolidWorks, performed fatigue analysis, DFA and DFM analysis.

Torsional Stiffness Validation | SPCE Racing

Aug 2018 – Jan 2019

- Designed and fabricated a torsion Test Rig to validate the simulated torsional stiffness of the FSAE chassis.
- Used laser pointers to measure deflection on screen 10 ft away, increasing measurement accuracy by 9 times.
- Achieved an acceptable 19% absolute error in the ANSYS simulated value versus the physically measured value.

FSAE Aluminum Bulkhead | SPCE Racing

Jan 2019 – Aug 2019

- Designed an anodized aluminum 6061 Bulkhead for mounting critical powertrain and suspension assemblies.
- Performed Topology Optimization on ANSYS achieving optimal strength and minimized weight.
- CNC machined to improve accuracy of 80% rear assembly mountings and eliminated need for a welding fixture.

Autonomous 'Tank' Robot | CU Boulder

Aug 2023 – Dec 2023

- Designed an autonomous robot tasked with launching projectiles at an opponent and self-reloading.
- Developed C++ code for navigation (IR sensor), opponent detection (Pixy camera), and initiating shooting (servo & flywheel).