Arjun Menezes

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EDUCATION

Wesleyan University, Middletown, CT*, Bachelor of Arts*, GPA: 3.94/4.0 May 2027
Double Major: Physics and Integrated Design, Engineering, Arts & Society (IDEAS)-Mechanical & Materials Engineering Concentration
Related Coursework: Electricity & Magnetism, Thermal Physics, Nonlinear Dynamics & Chaos, Metal Manufacturing
Spring 2027 Coursework: Introduction to MEMS Fabrication and Design, Classical Dynamics, Fluid Mechanics
Computer Skills: MATLAB, Python, R, OnShape, Solidworks, Fusion360, SimScale, Ultimaker Cura, PrusaSlicer, Preform, BambuStudio

RESEARCH EXPERIENCE

Research Assistant, **Wesleyan University**, Middletown, CT. January 2024 - Present

- Research Assistant and senior thesis writer with the Voth Group in the Fluid Dynamics and Soft Matter Lab.
- Designing, fabricating, and analyzing complex helical particle sedimentation in turbulent high Reynolds number and quiescent Stokes flow regimes. Experimentally measuring geometric characteristics and their effects on sedimentation dynamics.

College of Integrative Sciences Summer Research Fellow, **Wesleyan University**, Middletown, CT. June 2025-August 2025, June 2026-August 2026

- Created a high-accuracy particle tracking workflow capable of experimentally determining the full set of mobility tensors for a sedimenting complex particle, using center-of-mass offsets to resolve the rarely measured rotational mobility tensor. To our knowledge, this is the first measurement of the full set of relevant mobility tensors in sedimentation.
- Winner of the Maureen Snow Summer Poster Prize for efficiently communicating scientific research to a broad audience.

Publications:

Huseby, Elias, et al. *Bifurcations in Stokes Flow Sedimentation*. 2026, https://arxiv.org/abs/2604.03193.

- We introduce a unifying perspective for understanding the sedimentation characteristics of complex particles in low Reynolds number flows.
- In revision with the Journal of Fluid Mechanics.

Sanjuka, Samitha, et al. *Preferential Rotation of Chiral Particles in Turbulence is Driven by Orientation Dependent Handedness.*

- We demonstrate that, through precise 3D tracking of particles and fluid motion in turbulence, high-Reynolds-number effects of turbulence on particles do not suppress particle rotation induced by translation-rotation coupling.
- In preparation.

Menezes, Arjun, et al. *Determining Mobility Tensors of Complex Particles Using Sedimentation.*

- We demonstrate a method to measure the full set of mobility tensors for a particle in sedimentation, by precisely tracking forces, torques, orientations, and positions of particles with imposed center of mass offsets.
- In preparation.

ENGINEERING EXPERIENCE

Contributor, **D-Orbit Space, Inc.**, Remote January 2026 - April 2026

- Worked on D-Orbit's successful proposal to DIU for a debris removal demonstration mission.

President, **WesEngineering**, **Wesleyan University**, Middletown, CT. January 2026 - Present

- Co-Founder and President of Wesleyan's first engineering club. Securing and managing funds for multi-person engineering projects. The club has grown to about 60 members in its first semester.
- Project lead and lead mechanical engineer for the club's electric go-kart. Training students in CFD, DFMA, CAD, and FEA. Managing project progress and timeline, and ensuring pedagogical goals to develop Wesleyan's engineering capabilities are met.

Professional Cyclist, **Equipe Goa Invencivel, Goa State Team**, Goa, India January 2021 - March 2025

- Custom engineered and built an aerodynamic racing setup at 10% of the average cost. Designed and 3D printed custom aerodynamic racing equipment. Managed and altered equipment to optimize aerodynamics and mitigate drivetrain frictional losses.
- UCI licensed professional cyclist competing at the national level with a focus in the Time Trial. Top national rank of 15. 2020 & 2021 Goa State champion for Road Race & Time Trial. First Team rider for Equipe Goa Invencivel, a private racing team.

Makerspace Monitor, **Wesleyan University**, Middletown, CT. September 2023 - Present

- Studio Assistant for the IDEAS Lab: Course assistant for mechanical and electrical engineering and design courses. Supervisor of the makerspace, assisting student projects, maintaining and repairing 3D printers, Laser Cutters, and other makerspace machines.
- Manager of the large-format Delta 3D Printer. Building custom slicing profiles, performing all maintenance, and pursuing mass production FDM projects in PLA, PETG, and TPU.

Medical Model Design, **Wesleyan University and Middlesex Hospital**, Middletown, CT. January 2024 – May 2024

- 3D printing uterus and other biomechanical models with Middlesex Hospital to train obstetricians to install IUDs, x-ray dislocated joints, and perform analyses of body parts.

- Leveraging material properties and performing edits to 3D scans of real patients to ensure 3D printing success while ensuring biological accuracy in geometry and function.

CEO, NASA Passage, **Woodstock School,** Uttarakhand, India August 2021 - May 2023

- CEO of Woodstock's team competing in the National Space Society's Space Settlement design competition.
- Developed the team from four members who did not qualify for the competition to over two dozen actively competing members by teaching the required Physics, and managing project progress to design optimal space settlements to meet NSS RFP requirements.
- Head of structures at the Indian National Space Settlement Design Competition in the first year, and CEO of the 60-person company in the second year.

TEACHING EXPERIENCE

Course Instructor, **Wesleyan University**, Middletown, CT. August 2024 - Present

- Created and instructing "3D Printing: From Design to Product" a full-semester university course for full credit, covering primitive and parametric CAD, 3D Printer design, construction, and maintenance, and design for 3D printing manufacturing processes.
- Instructed 10 students for 3 hours a week in lab and lecture-focused coursework. Created practical homework and exam assignments to promote using 3D printing for practical and novel problem-solving approaches.
- Secured funding for 3D printers for every student to build and keep after the course, along with air filtration units.

3D Printing and Cycling Teacher/Coach, **Woodstock School**, Uttarakhand, India May 2023 - June 2025

- Taught 28 students from 11 to 16 years old. Content covered primitive and parametric CAD, 3D Printer design, construction, and maintenance, and design for additive manufacturing for 2 hours a day over a 2-week course in a boarding school setting.
- Instructed 26 students on best practices for road safety, strength training, race strategy, pacing methods, and technical skills.

Course Assistant, **Wesleyan University**, Middletown, CT. August 2024 - Present

- Course assistant for Nonlinear Dynamics and Chaos, Introduction to Mechanical Design and Engineering, General Physics I-Newtonian Mechanics, and General Physics II-Electricity and Magnetism.
- Conducted homework help sessions and assisted with student projects. Assisted in conducting group problem-solving sessions during scheduled class time.

EXTRACURRICULARS AND INTERESTS

Interests: Remote Controlled UASs, Aerodynamics, Product Development, Finite Element Analysis, Computational Fluid Dynamics