

# Divya Adil

PhD Candidate, Stanford University

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Biomechanics researcher experienced in data-driven constitutive modeling of soft tissues, finite element methods, modeling growth driven deformation and fluid-structure interactions (FSI). Looking for internships in healthcare design & bio-mechanical engineering.

## EDUCATION

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<b>Ph.D., Mechanical Engineering</b> <i>Stanford University</i> • Stanford, CA	2023 – Present
<b>M. Tech., Mechanical Engineering</b> <i>Indian Institute of Technology (IIT) Kanpur</i> • Uttar Pradesh, India	2022 – 2023
<b>B.Tech., Biological Sciences &amp; Bioengineering</b> <i>Indian Institute of Technology (IIT) Kanpur</i> • Uttar Pradesh, India	2018 – 2022

## ENGINEERING RESEARCH EXPERIENCE

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<b>Constitutive modeling and fluid-structure interactions in veins, grafts and arteries</b> <i>Cardiovascular Biomechanics Computation Lab, Stanford University</i> • PhD Advisor: Alison Marsden, Co-Advisor: Ellen Kuhl	2024 – Present
<ul style="list-style-type: none"><li>Developed constitutive artificial neural network using TensorFlow for hyperelastic constitutive model discovery for veins and coronary artery bypass grafts using inflation-biaxial testing data from a collaborative rabbit study.</li><li>Implemented a flexible framework for hyperelastic models in SimVascular (open-source cardiovascular modeling software) and quantified the effect of constitutive model choice and tissue prestress on patient specific FSI simulations.</li></ul>	
<b>Mechanical testing of real and artificial meat</b> <i>Living Matter Lab, Stanford University</i> • Advisor: Ellen Kuhl	2023
<ul style="list-style-type: none"><li>Investigated the differences in mechanical properties of real and artificial meat products using uniaxial tension and compression-shear testing (St. Pierre, S.R., Darwin, E.C., Adil, D. et al. <i>npj Sci Food</i>. 2024).</li></ul>	
<b>Modeling growth-driven deformation of ultra-soft tissues</b> <i>Computational mechanics group, IIT Kanpur</i> • M. Tech advisor: Sumit Basu	2022 – 2023
<ul style="list-style-type: none"><li>Extended growth-driven deformation framework for non-linear hyperelastic models to 3D. Implemented UMAT in ABAQUS to demonstrate 3D deformation in simple geometries for varying growth patterns.</li></ul>	

## BIOMEDICAL DESIGN EXPERIENCE

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<b>Design for adherence to medication in pediatric asthma patients</b> <i>Biodesign innovation class (ME 368A/B)</i>	2026
<ul style="list-style-type: none"><li>Constructed a need statement and brainstormed concepts based on primary stakeholder interviews with clinicians and parents, and secondary research from the literature.</li><li>Prototyped a gamified controller inhaler to address adherence to asthma-related reduce ED visits.</li></ul>	
<b>Co-design for healthcare and assistive technology (Hackathon)</b>	2025, 2026
<ul style="list-style-type: none"><li>Worked with a diverse team alongside a person with lower limb disability to co-design solutions for their problems in a rapid sprint. Selected as "most innovative" project. Mentored a team in the second iteration.</li></ul>	

## SKILLS

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<b>Programming:</b>	Matlab, C++, C, Python, Fortran, R
<b>Modeling:</b>	Finite element analysis, FSI, Cardiovascular modeling, Abaqus UMAT
<b>Experimental:</b>	Soft tissue uniaxial (tension, compression, shear) and biaxial mechanical testing

## RESEARCH TALKS AND POSTERS

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<b>Adil, D., Bazzi, M.S., Kuhl, E., Marsden, A.L.</b> . “Integrating material models discovered by constitutive artificial neural networks in cardiovascular simulations.” <i>USNCCM, Chicago</i> , 2025.
<b>Adil, D., Bazzi, M.S., Kuhl, E., Marsden, A.L.</b> . “Flexible framework to integrate new hyperelastic material models in cardiovascular fluid-structure interaction simulations.” <i>Summer school on biomechanics, Graz, AT</i> , 2025.

## TEACHING, LEADERSHIP & OUTREACH

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<b>Co-financial officer, Stanford Taekwondo Club</b> – Responsible for securing grant funding and budgeting.	2026 – Present
<b>Teaching Assistant</b> – Introduction to continuum mechanics (ME338), Stanford University	2026
<b>3rd grade math volunteer</b> – Costano elementary school, East palo alto, CA	2025 – 2026

**SeeME outreach program, Stanford University** – *Design classes and hold yearly STEM workshops for middle and high school students.* 2025 – Present

**Teaching Assistant** – *Heat transfer lab (ME341A), IIT Kanpur*

2023