Armaan Verma

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EDUCATION

The University of Texas at Austin, Austin, TX May 2027
B.S., Biomedical Engineering concentration in Biomechanical Engineering and Mechanical Engineering
GPA: 3.7 **Relevant Coursework:** *Chemistry 1 (+lab), Calculus 1, Intro to Biomedical Design (+lab)*

EXPERIENCE

The University of Texas at Austin, Austin, TX October 2024 - Present
Undergraduate Researcher

- Spearheaded the development of novel pulsatile-release hydrogels for mRNA vaccine delivery, aimed at minimizing the need for repeat doses, under the guidance and supervision of graduate students in the Peppas Lab.
- Conducted in-depth analysis of hydrogel crosslinking patterns to optimize vaccine dispersal rates, contributing to advancements in long-term immunization strategies.
- Presently co-authoring a meta-analysis of polymerization techniques on polyvinyl alcohol and other substrates.

The University of Texas at Austin, Austin, TX August 2024 - Present
Undergraduate Researcher

- Presented a two-phase research proposal on artificial keratohyalin granules and their potential in epidermal drug delivery, integrating retinoids and azelaic acid for therapeutic application.
- Leading a potential collaboration with Dr. Cosgriff-Hernandez and Dr. Laura Suggs to transition the research into experimental phases, currently attempting organization of initial funding rounds to support ongoing development.

PROJECTS

3D Modeling of BMW Z4 August 2024 - Present
3D Modeling, Fine Element Analysis

- Developed a 1:1 replica using surface-level modeling in conjunction with parametric dimensions and solid modeling on Solidworks.
- Determined common stress points using static finite element analysis on ANSYS, and conducted thermal studies.
- Performed CFD testing on the vehicle to determine points of turbulence using OpenFOAM.

EXTRACURRICULARS

Texas Engineering and World Health August 2024 - Present
Member

- Worked collaboratively with a team of 6 members to develop a vein-finding device.
- Spearheaded the use of near-infrared spectroscopy to determine hemoglobin content to find veins, then presents a signal to indicate vein presence. Designed with Arduino, SolidWorks, and C++ integration.

Biomedical Engineering Society August 2024 - Present
Member

- Presented and designed a PVA packet containing three polymer blends to increase soil aeration, minimize soil erosion, and maximize nutrient uptake in order to reduce malnutrition rates globally.
- Modeled, stress-tested, and 3D printed a bridge using Fusion, ANSYS, and Bambu Lab within weight and size constraints.
- Gained hands-on experience with laser cutting software, different types of laser-cutters such as PLA Printers, direct metal laser sintering, resin-based printing, and machining equipment.

SKILLS

Technical & Analytical Tools: *Excel, SQL, Python, PowerBI, Google Analytics, Google Search Console, Google Trends, SEO, MATLAB, R, C++, Java, CSS, Javascript*
Design and Engineering: *FEA (static), ImageJ, Solidworks, Fusion, Bambu3D, Raise3D*
Certifications: *Apple Search Ads, Google Gen-AI, Google LLM, Google Responsible AI, Kaggle Intro to Programming*