

Ahaana Goswamy

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Champaign, IL

EDUCATION

University of Illinois Urbana-Champaign (UIUC)

Expected May 2028

B.S., Materials Science & Engineering | GPA: 3.3 | Dean's List, Grainger College of Engineering (Spring 2026)

Relevant Coursework: Phases & Phase Relations (MSE 201), Data Science Exploration (STAT 207), Intro to Differential Equations (MATH 285); Thermodynamics of Materials (MSE 401), Thermal-Mechanical Behavior of Materials (MSE 406), Materials Laboratory I (MSE 307), Algorithms & Data Structures for Data Science (CS 277)

PUBLICATIONS

Goswamy, A. "Application of Fourier Transform in Analyzing Guitar Harmonics." IOSR Journal of Pharmacy and Biological Sciences, Vol. 18, Issue 5, 2023 (sole author).

- Designed and ran a controlled acoustic experiment (3 trials per condition) comparing natural vs. artificial guitar harmonics across hand and plectrum-plucking techniques.
- Generated frequency spectrograms in Audacity and applied Fourier Transform analysis in Python and MATLAB to quantify harmonic strength ratios relative to the fundamental frequency, identifying a spurious peak as a background-noise artifact via a blank-recording control.

EXPERIENCE

Undergraduate Research Assistant | Dr. Rucha Joshi's Lab, Plaksha University (Remote)

2026 – Present

- Co-authoring a manuscript in preparation for submission to Biopolymers (Wiley) on the effect of gelation route on silk fibroin sponge pore architecture, swelling, degradation, and drug-release behavior; credited with release-kinetics quantification.
- Fit Weibull release models in Python to pyranine and AgNP release-kinetics data across 8 replicates per formulation (self-agglomerated vs. ultrasonicated) at two wavelengths (405/460 nm), extracting shape parameters and $T_{50}/T_{63.2}$ release times to classify release mechanisms (Fickian, anomalous, or swelling-driven).

Assistant Tutor, CS 124: Introduction to Computer Science | UIUC

Fall 2026 – Present

- Help students debug Kotlin code and understand introductory programming problems, identifying misconceptions and guiding them toward solutions rather than providing direct answers, per course policy; communicate concepts to students with a range of prior experience during help-desk hours.

Data Engineering Intern | Celebal Technologies

Jun – Jul 2026

- Completed several Microsoft Azure fundamentals modules covering cloud-based data pipeline concepts, then shifted focus to build SQL querying skills through self-directed coursework (edX).

Research Intern | Vivek PharmaChem India Ltd.

Jun – Jul 2025

- Tested formulation samples via spectrometric analysis to verify composition and quality, supporting process accuracy across formulation trials.
- Maintained lab notebooks and followed safety protocols while handling reactive chemicals and preparing materials.

PROJECTS

ScholarMatch – Scholarship-Matching Android App | Personal Project (Kotlin)

2026

- Designed and built an Android app that profiles students and matches them to eligible scholarships based on GPA, major, citizenship, and other eligibility criteria, with filtering, saving, and application-tracking features.
- Built a functional MVP in 21 hours; recognized as a Nominee for Best Everyday Utility App, with reviewer feedback highlighting the matching engine's handling of eligibility edge cases.

PlastiBuild – Sustainable Materials Concept

2024

- Designed an insulation concept using recycled polymer bottles, evaluating material-reuse constraints for low-cost construction feasibility; recognized by the Government of Rajasthan for promoting sustainable building practices.

TECHNICAL SKILLS

Programming/Data: Python (NumPy, pandas, SciPy, Matplotlib), MATLAB, SQL, Kotlin

Methods & Analysis: Fourier/FFT-Based Spectral Analysis, Weibull Release-Kinetics Modeling, Statistical Analysis (Welch's t-test), Fiji (ImageJ)

Lab Techniques: Spectrometric Analysis, Lab Safety & Chemical Handling, Precision Measurement, Structured Lab Notebooking

Cloud: Microsoft Azure (introductory)

CERTIFICATION

Supervised Machine Learning (DeepLearning.AI / Coursera, 2025): regression, classification, evaluation metrics, optimization basics

ADDITIONAL EXPERIENCE

Barista/Cashier | University Housing – Corner Café, UIUC

Aug 2025 – May 2026

Provided customer service and cashier support in a fast-paced campus café during high-volume shifts.

Assistant Chemist, Northern Solvents (2023): Supported sample preparation and VOC/oil-content analytical testing workflows.