



Akshay Garud

Bioengineering student at UIUC 2025

Akshay Garud is a bioengineering student with a minor in computer science at the University of Illinois at Urbana Champaign (UIUC), the flagship institution of the University of Illinois system, which was established in 1867. Akshay will obtain his Bachelor of Science degree in 2025.

Akshay's curriculum and various internships have developed and honed his skills in Atom,

R Programming, Java, Python, C++, Microsoft Excel, Onshape, Autocad, Autodesk Inventor, MATLAB Octave, Imagej, Node.js, 3D Printing, API Testing, Data Science, Data Structures, Data Visualization, Linear Algebra, Machine Learning, and Statistics.

Akshay Garud's Studies at UIUC

Akshay has a full plate at university. His studies include Linear Algebra for Biomedical Data Science, Molecular and Cellular Biology, Computational Math, Cellular Bioengineering, Tissue Engineering, Analog Signal Processing, Computational Tools for Biological Data, Probability and Statistics for Computer Science, Data Structures, Signal and Systems in Bioengineering, and Transport and Flow in Bioengineering.

Experience

Over the last three years, Akshay has held various internships, preparing for his future after university.

His Work with Gritton Lab

In September 2023, Akshay began working at Gritton Lab as a UIUC Undergraduate Research Assistant, where he learned to collaborate with others. He is working on a project that analyzes a mouse's neural response in an AI-generated maze. His responsibilities include collecting neurophysiological signals from depth electrodes implanted in mice during auditory sensory perception tasks; monitoring brain activity in mice using calcium imaging techniques integrated with AI for real-time analysis; utilizing optogenetics to identify neurons essential for sensory task performance in real-time; and measuring the effects of neuronal perturbations on inter-regional brain coupling, assessing their impact on learning, memory, and cognitive or social behavior in mice.

Internships

In the summer of 2024, Akshay also interned at TrussHealth, a revolutionary healthcare service that utilizes artificial intelligence (AI) to improve patient safety and quality of life through remote patient monitoring. During his two months with TrussHealth, Akshay gained proficiency in Node.js and React for developing dynamic web applications; conducted API testing for multiple dashboards and workflows, ensuring functionality and performance; designed and tested camera workflows, including building and integrating a StereoPi camera into a web application; developed labeling systems for wound tracking and streamlined project documentation processes; acquired insights into website design and web application testing through hands-on projects; and utilized Excel and Google Cloud Platform for data analysis, project management, and cloud integration tasks.

Akshay spent his sophomore summer interning at Base Pair Inc. as a researcher. Base Pair is a leader in point-and-click bioinformatics focused on unlocking the full potential of next-generation sequencing (NGS) technology. During his internship, Akshay gained expertise in genomic file formats and their applications in data analysis and developed an RNA-seq data processing pipeline using command-line tools and Atom. He also conducted downstream analysis and data visualization of mouse striatum samples using RStudio, leveraging tools such as Profiler, clusterProfiler, and ChIPseeker; he also performed differential expression analysis and acquired knowledge of patch sequencing techniques.

After high school, Akshay spent his summer interning for Zeda Inc., where he conducted R&D experiments to assess the effects of material composition, sterilization, and annealing on the tensile strength of polymer 3D prints. In addition, he analyzed experimental data and presented findings to company leadership during formal meetings; utilized 3D printing software, including CAD and slicing tools, for the design and execution of prints; developed mechanical engineering and troubleshooting skills by repairing and maintaining various 3D printers, including FDM, resin, and nylon printers; and managed inventory and ensured availability of product components for ongoing projects. Zeda is a global technology solutions company dedicated to transforming patient care through innovation by design and advanced manufacturing.

University Affiliations

Akshay is a member of the UIUC Biomedical Engineering Society (BMES) and the UIUC MedLaunch. During his freshman year, he was part of the UIUC's Illini Awaaz A Cappella Team, where he performed at several events and competitions.

His Love of Music

Akshay Garud's love of music began at an early age. He performed Hindustani classical music at school concerts for eight years and concerts held by various organizations. Akshay played clarinet for more than three years in the San Jose Youth Symphony.

Beyond music, he was a member of the Build Team, Team 670 for Homestead High School Robotics, where he worked on and influenced the design of a robot that performs tasks and competes at events. The team placed second in 2020 and 2018. Akshay was a member of the Homestead High School Cross Country team.

In addition, Akshay is an Eagle Scout and has a first-degree black belt in Taekwondo.

His hobbies also include a love of reading, going to the movies, hiking, and playing basketball.

Volunteer Work

Born in San Jose, California, from a young age, Akshay had taken his responsibility to help others to heart. He has volunteered for HomeFirst Services of Santa Clara County, serving meals at the shelter and launching multiple fundraising campaigns to provide winter clothing, books, and toiletries for adults and youth. HomeFirst is a nonprofit organization working to end homelessness.