

Info

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Project Portfolio

andyk99.github.io/Portfolio/

Education

August 2024 - May 2026

Duke University: M.S.

**Materials Science and Engineering
& AI For Materials**

August 2021 - May 2024

Concordia University Irvine: B.S.

Major: **Biochemistry**

Minor: **Computer Science**

Expertise

- Python, Linux, CLI, Bash, Shell, R, C#
- 3D Printing (mSLA, FDM) & CAD
- Scientific Software Development
- Statistical Analysis and Tests
- Data Processing, Visualization
- DNA Sequence Analysis
- Protocol Design
- Leadership & Management
- Research Methods
- Eager Learner
- Interdisciplinary
- Critical Thinking

Ankit (Andy) Kapoor

Scientist & Engineer

Aspiring materials scientist and engineer, bioinformatics and software development enthusiast with proficiency in [Linux](#), [CLI](#), [Python](#), [computational tools](#), [data analysis](#), [laboratory methods](#), and [data visualization \(R\)](#). My collegiate background in biochemistry and computer science, and professional experience have taught me valuable skills to learn and apply interdisciplinary approaches to problems. I have demonstrated leadership in organizing events and managing project development, and have been recognized for academic excellence through prestigious awards. My research contributions span materials science and engineering, computer science, computational biology, molecular biology, and environmental studies.

Related Experience

September 2023 - July 2024

Southern California Coastal Water Research Project | Costa Mesa, CA

Bioinformatics Student Employee

- Conducted multiple sequence analyses using Linux-based QIIME 2 software for a publication on Environmental DNA studies; statistical analyses of results.
- Enhanced data visualization of sequence analyses with R to increase clarity.
- Automated querying and downloading custom sequence and taxonomic data on Linux servers by creating Python scripts with NCBI Entrez, significantly reducing manual data retrieval time.
- Improved sequence identification using rCRUX to create custom sequence reference libraries, resulting in efficient match rates during sequence alignments.
- Developed an HTML-based website to enhance study site data accessibility.

May 2023 - December 2023

Concordia University Irvine | Irvine, CA

Computer Science Laboratory Researcher

- Conducted research and development on the university's autonomous drone project.
- Enhanced drone functionality by designing and 3D printing custom support and mounting parts for components like the camera, flight controller, and antenna, resulting in improved component stability and performance.
- Improved control reliability by testing operating conditions software for manual control, allowing more reliable operation.

January 2023 - September 2023

Concordia University Irvine | CA

Molecular Biology Laboratory Manager

- Managed the molecular biology lab space and facilitated lab setups for classes, ensuring well-organized environment to support student learning.
- Advanced genetic research through site-directed mutagenesis studies, contributing to deeper understanding of ALS related gene functions and expression.
- Conducted growth assays, primer design, Sanger sequencing, Qubit fluorometer quantification, and various methods for accurate and reproducible results.
- Created bacterial stocks, stock plates, and media to provide consistent resources for ongoing experiments.
- Supported students with their thesis projects, providing guidance that contributed to the successful completion of their research.

Related Projects

- **Semiconductor Electronic Structure Simulation Software Development** [Graduate Research](#)
- **Crystal-Glass Metal Halide Semiconductor Characterization** [Graduate Research](#)
- **Machine Learning Implementation for Scientific Software** [Graduate Research](#)
- Molecular Biology of ALS: Modeling and Mutagenesis [Undergraduate Research](#)
- Autonomous Drone, **Computational Modeling**, Molecular Biology [Undergraduate Research](#)
- Visual Gaze Data Time Series [Autocorrelation Analysis](#) in R
- Biological [Data Analysis](#), [Statistical Tests and Interpretation](#) in R
- [Data Validation Checks](#) for Environmental DNA Experiments (Python)
- COVID Population and River Flow Sensor [Data Modeling and Visualization](#) (Python)
- Markov Chain Text Generation (Python)
- Sorting Algorithms ([Data Structures](#))
- Numerical Analysis [Convergence Algorithms](#) (Python)