# Anshul Singhvi

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## Education

Bachelor of Science in **Applied Physics** from Columbia University in May 2022.
Bachelor of Arts in **Physics** from Bard College at Simon's Rock in May 2022.
3.3 major GPA with 3x Dean's List. Attended a 3-2 dual degree program between Columbia and Bard.

## Projects

### JuliaPlots/Makie.jl | Major contributor

*May 2018 - Present, JuliaPlots (Github organization)*

- Wrote documentation (runtime and online), architected and improved testing and CI systems, allowing quicker and more interpretable CI cycles. Automated documentation building and deployment from the previous manual process.
- Implemented 2.5D vector rendering with the Cairo framework, allowing true publication-quality plots.
- Created extensions for geographic plotting in nonlinear spaces (GeoMakie) and TeX integration (MakieTeX).

## Experience

### xKDR Forum | Software Consultant

*Jan. 2023 - Mar. 2023, Mumbai, India*

- Designed, implemented, and fully documented a geospatial visualization package for statisticians and not-fully-technical users.
- Designed, implemented and optimized a Julia package for event studies, which outperforms its R equivalent by 10x.

### Julia Computing (Pumas-AI) | Software Consultant

*Aug. 2019 - Jun. 2020, Boston, MA*

- Designed and developed intuitive plotting functions for 40+ usecases in collaboration with pharmacometrics experts, regarding simulated clinical trial results for FDA submissions. Automating this process saved significant time during report submission.
- Built an automated reporting system for simulated clinical trials, speeding up model development and analysis cycles.

### Worldwide Software | Consultant

*Jul. 2021 - Jan. 2022, Mumbai, India*

- Spearheaded the transition from SVN to Git code tracking, saving costs and 20+ man-hours/year in maintenance.
- Conducted a cost and feasibility analysis for a transition from on-prem servers to AWS.

### Hastings Lab & Vassar Applied Optics Lab | Undergraduate Researcher

*Jan. 2018 - May. 2022, Great Barrington, MA*

- Team lead on modelling biological neuronal networks using systems of differential equations, in Python and Julia. Simulated the locomotion of a small worm with such a network. Publication in Phys. Rev. E expected soon. Presented at 3 conferences (APS March Meeting '20 and '22, and NYSSAPS '19).
- Collaborated with experimentalists in Vassar to analyze locomotion data from real worms in 3D, assessing and interpreting dynamical quantities using Numpy+Scipy. Co-author on 2 published papers on dynamics of *C. elegans* locomotion ([1], [2]).
- Designed, implemented, and analysed data from analog integrator circuits in order to characterize performance.

### NASA | Intern

*May 2020 - Jul. 2020, Ames Research Center*

- Created multiple interactive dashboards (written in Julia) to explore simulated paths for the 2024 VIPER lunar rover. These help mission planners understand what scientific goals are achievable on a given mission.

### Future Group *(Large all-India retail conglomerate)* | Intern

*May. 2019 - Aug. 2019, Mumbai, India*

- Contributed to planning rural warehouse placement by acquiring and visualizing town-level geospatial data for 50 districts. Coordinated with key stakeholders in the business division.
- Collaborated with Palantir consultants to automatically estimate purchase trends through supervised machine learning and understanding macro-scale purchase patterns on the seasonal level. These were used in an advertising campaign which reached 1M+ users.

## Skills + Hobbies

**Technical skills**: Python, C, Julia, Git, CI/CD, Jira, Linux, Shell, LaTeX, Ti*k*z, Qiskit, AWS Braket
**Relevant coursework**: Intro Quantum Computing, Quantum Computing Lab, Machine Learning, Scientific Computing, Systems Programming, Numerical Meth. PDEs, Financial Economics, Accounting, *Amazon AWS Certified Cloud Practitioner (in progress)*
**Hobbies**: SCUBA diver with Advanced Open Water certification, avid skier, global traveller. Open-source contributor on Github with activity in the field of scientific software and data visualization.