VARUN MALLADI

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EDUCATION

Dartmouth College, Hanover, NH — **June 2023**
Bachelor of Arts, Major in Mathematics; Minor in Computer Science — **GPA 3.74/4.0**
Honors/Awards: Jack Byrne Mathematics Scholar ($25,000)

"Math in Moscow," Independent University of Moscow (fully-funded remote study abroad) — **Fall 2021**
Coursework: Algebraic Geometry, Commutative/Homological Algebra, Representation Theory

Adlai E. Stevenson High School, Lincolnshire, IL — **May 2019**
Honors/Awards: Intel International Science Fair Finalist, National Merit Finalist — **GPA 4.0/4.0**

WORK EXPERIENCE

Dartmouth College, CS50 Learning Fellow — **Winter 2021**
- Facilitated daily lessons and exercises for ~10 students during every lecture.
- Provided intuition and corrected misunderstanding regarding relevant computing concepts.

AbbVie Inc., Summer Worker — **Summer 2019**
- Implemented the 5S system in formulation laboratories, improving organizational efficiency by 20%.
- Created a database to streamline entry and access to pharmaceutical ingredients in storage.

RELEVANT COURSES

CS50: Software Design and Implementation — **Summer 2021**
- Developed software in a group setting with C, Unix tools, and Git.
- Implemented "DLX" algorithm to solve Sudoku puzzles, yielding ~25x performance benefit over the standard method.

CS10: Problem Solving via Object-Oriented Programming — **Spring 2021**
- Used Java to develop data structures and algorithms, e.g. binary/red-black trees, Dijkstra's algorithm.
- Developed labs such as a collaborative drawing program using threads, a file compressor, and a live webcam filter.

LEADERSHIP & ACTIVITIES

Dartmouth Math Society, President — **Sept 2021-Present**
- Coordinated with professors and club leadership remotely to organize in-person club meetings and guest speakers.
- Piloted a weekly category theory reading group to introduce the subject to underclassmen.

Dartmouth Undergraduate Journal of Science — **Mar 2021-Present**
- Authored an individual article "A (co-)End Approach to Day Convolution" in the Spring/Summer 2021 issue.
- Working on an article regarding a categorical perspective on the representations of Lie groups.

YouTube Content Creator | *https://www.youtube.com/channel/UCvYCMicLA7TZNfYhOaSCOsw* — **Aug 2020-Present**
- Animated educational videos on higher mathematics utilizing a personalized version of the Python library "manim."
- Fostered an academic community of over 1K subscribers focusing on topics such as model category theory.

INDEPENDENT PROJECTS

Ntpy *(Rust "Rocket" framework, HTML, SQLite)* | https://github.com/treemcgee42/ntpy — **Aug 2021-Present**
- Designed a web application to create math-based wikis, including support for typesetting LaTeX as well as typical wiki features such as editing/adding pages from the website itself.
- Created a custom Markdown-to-HTML parser so users can edit pages naturally.

Diana Database *(Rust)* | https://github.com/treemcgee42/diana — **Jul 2021-Present**
- Implementing a SQLite clone to better understand how SQL and database programs work.
- Started with "safe" Rust but transitioned into responsibly using "unsafe" Rust for easier allocation of raw bytes.

SKILLS & INTERESTS

Programming Languages: Rust, Haskell, C, Java, Python
Computer Science: Compiler design, low-level optimizations, functional programming
Mathematics: (infinity,1)-category theory, univalent foundations of logic, stable homotopy groups of spheres
Additional Interests: Poetry, baseball, drawing