Pranav **Konda**

■ Education

Undergraduate

2022 – 2026 **Columbia University**, *B.A. in Mathematics and Biophysics*, Rabi Scholar.
- Selected as an I. I. Rabi scholar, for commitment to and excellence in science and scientific research.
- Coursework includes modern algebra, topology, mechanics, relativity, and electricity and magnetism.

Other

2019 – 2022 **NC State University**, *Dual Enrollment*.
- Graduate level coursework in linear algebra, enumerative and algebraic combinatorics, polyhedral geometry, and numerical analysis.
- Additional coursework in complex variables, advanced calculus, and differential equations.

■ Projects

2021 **NASA SPEARS 3D Microscope**, *NASA Ames Research Center*, Mountain View, CA.
Intelligent Robotics Group. Programmed in C++. A rugged solid-state 3D microscope for granular level planetary mapping.
- Implemented 3D reconstruction algorithms on embedded hardware.
- Developed a machine learning pipeline to characterize data on its usability to automate the data collection using a support vector machine.

2020 **Computer Vision Aided Robotics**, *FIRST Robotics Competition*, Cary, NC.
An intelligent system to lock onto a target and shoot a cargo into it assisted by computer vision and a lagrange interpolator. Programmed in Java.
- Developed and tested a computer vision pipeline to get distance data from a target.
- Implemented automatic alignment to a target with a PID oscillator and a langrange interpolation method to determine initial cargo speeds.

2022 **Fast TeX**.
A lightweight transpiler for a custom LaTeX specification designed to have a much simpler syntax and support for easier custom macros, commands, and preferences in a simple configuration format. Written in C++.
- Designed a specification for FTeX (Fast TeX) with a much simpler syntax, designed to be used while taking notes in a lecture or talk environment.
- Implemented a transpiler in C++ from FTeX to LaTeX, with a filewatching system for continuous transpilation using the Latexmk compiler and internal OSX/Linux APIs.

2022 **OCR Based Japanese Language Tokenizer and Dictionary**.
Cross platform terminal application to tokenize Japanese-language sentences and fetch definitions of words from an image, irrespective of declension or other grammatical features in the original phrase.
- Implemented a tree parse an XML dictionary of the Japanese language to obtain an object interfaceable with Python.

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www.pranavkonda.com
1/2

- Constructed a pipeline to get image data using native OS function calls, parse the image for text, and tokenize the text using natural language processing.

2022 **CNCM Blitz!**.
Written with ReactJS, Firebase, and Chakra UI.

- Performant application for a jeopardy-like round in a math competition, syncing problems from an external database.
- Participants can view problems rendered in LaTeX, be scored, and track their progress through the grid.

2022 **Personal Website**.
Written with NextJS/ReactJS, TailwindCSS, Firebase, and Typescript.

- Located at `https://pranavkonda.com/`.

Skills

Programming	C++, Python, Java, Javascript, MATLAB
Software	LaTeX, Linux (Arch), Vi/Vim, Git
Languages	English, Telugu, Japanese, Spanish

Volunteer Experience

2018-2022 **Cyclic National Competitive Math Group**, *Chief Technical Officer*.
A nationwide nonprofit dedicating to spreading a love for competitive mathematics.

- Served as the chief technical officer for the nonprofit, directing technical projects such as online contest platforms, integrations, and a mini problem of the day ranked contest.
- Organized technology and logistics for the UNC x CNCM math contest, sponsored by the math department at the University of North Carolina, Chapel Hill.

2019-2022 **InspireNC**, *Chairman*.
A nonprofit organization in Cary, NC, dedicated to spreading STEM across the local community.

- Served as a general chairman and did day-to-day upkeep operations alongside managing programs and outreaches for local middle and high school students.

Awards

AIME	Multiple time American Invitational Mathematics Exam qualifier. High score of 9/15.
USABO	Multiple time USA Biology Olympiad National Semifinalist.

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2/2