

Juni C. Kim

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Academics

Massachusetts Institute of Technology , Cambridge, MA	Sep 2024 – May 2028
Bachelor of Science in Electrical Engineering with Computing and Mathematics	
Stanford Online High School , Redwood City, CA	Aug 2020 – Jun 2024
High School Diploma	
University Level Courses: Real/Complex Analysis, Discrete Mathematics, Geometry of Numbers, Linear Algebra, Differential Equations, Multivariable Calculus, Light & Heat, Modern Physics	

Work Experience

Software Developer at MathDash (YCombinator W24), New York, NY	Apr 2024 – Present
Advised on strategic decisions around driving user growth, such as daily contests and practice problems, which helped drive a 50% increase in daily active users and a 300% increase in daily user submissions	
Leveraged React, Socket.IO, NodeJS, MongoDB to implement ARML-format contests, search functionality for contests and problems, magic link authentication, and live olympiad contest grading	
Used backend optimization techniques and code splitting to reduce page loading time by over 80%	
Integrated with third party APIs to connect users across other services and extend community to other social media platforms	

Programming Projects

TeXbld, Docker-based build tool for processing markup files with a fixed set of dependencies.	May 2022 – Present
search.MAATester.com, Instant search engine for math olympiads	Dec 2022 – Present
MAA Contest Tester, React/Firebase app to track practice math problems	Sep 2021 – Present
problemportal, Configurable application for math problem set distribution	Dec 2021
MkTeX, POSIX-sh tool for typesetting LaTeX documents with a fixed set of dependencies	May 2021 – May 2022
Additional projects listed at junic.kim/dev	

Research Experience

Research Scientist at Institute for Advanced Computational Science , Stony Brook University	Sep 2022 – Present
<i>Face-GPS: A Comprehensive Technique for Quantifying Facial Muscle Dynamics in Videos</i>	
Used OpenCV, Numpy, and Mediapipe to smooth displacement calculations while analyzing facial micro-movements (Digital Image Correlation Analysis), which can help us better understand emotions and medical conditions of patients.	
Implemented and tested an XGBoost classifier, using facial movement vectors, against state-of-the-art Frame Attention Networks.	
Published results in 2024 IEEE AIMHC, 2023 Medical Imaging Meets NeurIPS Workshop, and arXiv.	
Independent Researcher at Department of Computer and Information Science , University of Pennsylvania	May 2022 – Dec 2022
<i>Query Generators for Datasets of Interchangeable Recipe Steps</i>	
Contributed a library and seed dataset for creating recipe step replacements preserving grammatical and contextual cues.	
Used SpaCy, Scikit-Learn, and SentenceTransformers to break down, understand, and compare recipes with one another.	
Research Intern at Institute for Exposomic Research Labs , Icahn School of Medicine at Mount Sinai	May 2021 – Dec 2021
<i>Establishing a Computational Screening Framework to Identify Environmental Exposures Using Untargeted GC-HRMS</i>	
Analyzed data from Gas Chromatography and High Resolution Mass Spectrometry with R packages to identify individuals exposed to environmental pollutants.	
Applied program results to test correlations between exposures and primary biliary cholangitis and primary sclerosing Cholangitis.	
Published results in IAET 2nd International Conference on Soft Computing, Artificial Intelligence, Machine Learning, Smart Materials & Information Technology (SAMI)	

Honors & Awards

Mathematical Olympiad Program, <i>Blue Group Attendee</i>	Jun 2023
USA Mathematical Olympiad, <i>Silver Award, Rank 23rd</i>	Mar 2023
USA Junior Mathematical Olympiad, <i>Winner; Rank 22nd</i>	Mar 2022
USA Computing Olympiad, <i>Platinum Division</i>	Jan 2021

Technical Proficiencies

Source Control: Git, GitHub, GitLab, GitHub Actions	Databases: MongoDB, SQL, Firebase, Redis, Meilisearch
Environments: Linux, FreeBSD, Docker, Nginx	Data Science: pytorch, scikit-learn, numpy, scipy, jupyter, pandas
Languages: C++, Java, Python, JavaScript, TypeScript, R, POSIX sh, Perl, PHP	Frontend Frameworks: React, Vue, Svelte, Hugo, TailwindCSS
	Web Frameworks: Express.JS, Django