

Daniel Monroe

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EDUCATION

University of California, San Diego <i>3.96 Major GPA</i>	Sep. 2021 – June 2024 (expected) <i>La Jolla, CA</i>
University of Maryland <i>Dual enrollment student</i>	Sep. 2019 – June 2020 <i>College Park, MD</i>
Montgomery Blair High School <i>STEM Magnet Program, 3.98 GPA, 4.8 weighted</i>	Sep. 2017 – June 2020 <i>Silver Spring, MD</i>
Takoma Park Middle School <i>STEM Magnet Program, 4.0 GPA</i>	Sep. 2014 – June 2017 <i>Silver Spring, MD</i>

AWARDS

Montgomery County All-County Band	2017 – 2019
Maryland All-State Band	March 2019 – 2020
Maryland Solo and Ensemble Festival Superior Rating	2019 – 2020
Gaithersburg Young Artist Competition Honorable Mention	January 2020
National Merit Scholar Semifinalist	2020
Montgomery Co. Science Fair Award for Outstanding Achievement in Mathematics	2016

PROJECTS

VDWNUMBERS Distributed Computing Project Manager	March 2015 – July 2016
<ul style="list-style-type: none">• Led 500 volunteers from 53 countries who contributed two teraflops of computing power• Wrote code to compute new lower bounds for van der Waerden numbers• Moderated discussion forums and managed server upkeep• Ten new lower bounds and substantial new intuition• Paper accepted for publication in the refereed Journal of Combinatorial Mathematics and Combinatorial Computing (JCMCC)	

Lc0 Transformer Architecture Volunteer Designer	December 2021– Present
<ul style="list-style-type: none">• Updated training architecture for the lc0 chess engine, widely regarded as the second best available after Stockfish.• Designed and implemented custom module called fullgen which dynamically generates attention weights through a novel positional encoding while unifying softmax and linear style attention.	

SUMMER ACTIVITIES

Ross Mathematics Program	2019
<ul style="list-style-type: none">• Selected for highly competitive summer research program• Worked on difficult problem sets in number theory with professors and students• Attended graduate and undergraduate level lectures on fixed point theorems,	

COURSEWORK

University of California, San Diego Coursework: Graduate Real Analysis, Complex Analysis, and Algebra; Principles of AI
University of Maryland Coursework: Ramsey Theory (offered at graduate level), Secret Sharing Protocols (independent study)
Montgomery Blair High School Coursework: Single and Multivariate Analysis, Mathematical Physics, Differential Equations, Algorithms and Data Structures
AP Courses and Test Scores: English Language (5), Calculus (5), NSL (5)

TECHNICAL SKILLS

Languages: Java, Python, C++, MatLab/Octave

Developer Tools: Git, Visual Studio, IntelliJ, PyCharm

Operating Systems: Linux, Windows

Libraries: NumPy, TensorFlow, Pytorch, Pandas, Scikit-learn, Matplotlib

SUPPLEMENTAL SKILLS AND HOBBIES

Instruments: Clarinet (8 years), Piano (5 years)

Clubs: Math Club (Grades 6-11), Physics Club (Grades 9-11)

Sports: Tennis (5 years), Karate (6 years, first degree black belt)

Other hobbies: Juggling, weight lifting