

Tae Kyu Kim

Pursing a high-impact career in Mathematics and Computer Science.

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ACADEMIC SUMMARY

Majoring in Computer Science at Stanford University

Sept 2021 - Present

- Multivariable Calculus (A+), Differential Equations (A+), Linear Algebra (A), Proof-based Linear Algebra, Data Structures, Computational Theory.
- Coursera: "Machine Learning" by Andrew Ng.

Monta Vista High School at Cupertino, CA

Aug 2017 - June 2021

- GPA: 4.0/4.0 (unweighted).
- AP courses (all 5s): CS A, Calculus BC, Statistics, Physics 1, 2, C Mechanics, C Electromagnetism.

STEM EXPERIENCES

PRIMES USA by the MIT Mathematics Department

Jan 2020 - Mar 2021

- Discovered patterns in generalized Carmichael numbers by generating large numerical datasets with SageMath, under the mentorship of MIT Ph.D. student Yongyi Chen.
- Presented "On Generalized Carmichael Numbers" at 2020 PRIMES conference. Available at <https://arxiv.org/abs/2103.04883>.

Research Group at Euler Circle

Oct 2019 - July 2020

- Investigated generalizations of special factoring algorithm for primes of specific forms, part of a research group mentored by Dr. Simon Rubinstein-Salzedo.
- Studied the structure of elliptic and hyperelliptic curves by reading prominent academic papers.

Advanced College-level Math at Euler Circle

Winter 2018 - Spring 2021

- Studied graduate-level topics in math under the guidance of Dr. Simon Rubinstein-Salzedo.
- Topics studied: Ergodic Theory, Analytic Number Theory, Cryptography, Infinite Series, Abstract Algebra, Ring Theory & Algebraic Geometry, Proofs from THE BOOK, Markov Chains, Complex Analysis
- Independently wrote an expository paper every quarter on related sub-areas of interest. My papers are listed at <https://taekyukim02.github.io/projects>.

Machine Learning Research

2017 - 2018

- Second-place category award and IBM award in the 2018 Synopsys Championship with ML project "Context-aware Paraphrase Suggestion System using Recurrent Neural Networks with Autoencoder and Quality Classifier."

AWARDS AND ACHIEVEMENTS

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|---|---|-------------------------|
| • International programming competition (with professionals) | : Facebook Hacker Cup: 2 nd Round Qualifier (top 1.5%) | '19, '20 |
| | : Google CodeJam: 2 nd Round Qualifier (top 3%) | '19, '20 |
| • Mathematical Modeling | : MathWorks Math Modeling Challenge (Honorable Mention) | '21 |
| • USA Computing Olympiad | : USACO Platinum (Top 400 of USA students) | '18- Present |
| • Math Competitions | : AIME Qualifier (Top 1% of AMC12/10) | '17, '18, '19, '20, '21 |
| | : National winners of National Math. & Sci. Comp. | '18, '19 |
| • U.S. National Physics Olympiad | : Top 50 Winner | '21 |
| | : Semifinalist (Top 300 of USA students) | '19, '20, '21 |
| • STEM-related Summer Camps | : Stanford Univ. Math Camp (SUMaC): 5% acc. rate | '20 |
| | : Ross Mathematics Program: 20% acc. rate | '18, '19 |

SKILLSET

- Proficient in C/C++ (STL), Java, Python (openpyxl, SageMath, NumPy, SciPy, Pandas, scikit-learn, Matplotlib), vim, Jupyter Notebook, Google Colab, Unix, GitHub, Excel.
- Extensive background in math, algorithms, data structures, and object-oriented programming.
- Strong communication skills, work ethic, and dedication to high-quality, well-documented code.

TEACHING EXPERIENCE

- President of CalTutors, a non-profit teaching competition math and CS to middle school students. '17- '21
- Private tutor for HS math, physics, and competitive programming. '21
- Junior counselor at Ross mathematics program: mentor for 5 younger students over 6 weeks. '19