William Deye

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Education

University of California, Los Angeles **Expected June 2027**

B.S. in Mathematics of Computation GPA: 3.8/4.0

Relevant Coursework: Differential Equations, Linear Algebra, Data Structures and Algorithms, Software Construction, Computer Organization, Mathematical Modeling, Probability and Statistics, Number Theory, Combinatorics

Activities: Upsilon Pi Epsilon, ACM Hack, Bruin Racing: Super Mileage Vehicle, Club Sports: Powerlifting

Gonzaga College High School

Grade: Salutatorian

Awards: 2nd/100+ Nationally in the General Aviation Manufacturers Association Design Challenge, MATHCOUNTS Community Coaching Scholarship National Finalist

Experience

National Institute of Standards and Technology **Gaithersburg, Maryland**

Guest Researcher September 2024 – Present

- Continuing mathematical research, using radial basis functions to approximate partial integrodifferential equations to model Biological Field Effect Transistors.
- Collaborating with researchers at NIST and developing custom optimization techniques and neural networks in MATLAB and C.

Summer Undergraduate Research Fellow June 2024 – September 2024

- Conducted math research under mentorship, modeled a biosensor that detects molecular binding with surface potential.
- Implemented a neural network to model differential equations using various analytical and numerical methods. Analyzed model convergence in MATLAB.
- Compiled data and showcased findings and custom analytical and numerical techniques.
- Improved convergence of model from first order to fifth order.

Projects

Multithreaded Mandelbrot Renderer | *C++, SDL2, Graphical User Interface*

- Designed a graphical Mandelbrot Set renderer using the SDL library that utilizes multiprocessing.
- Implemented a synchronized queue of functions with atomics and mutexes.
- Implemented arbitrary length precision for infinite zoom capabilities.

TUI Derivative Calculator | *Java, Textual User Interface*

- Created RPN calculator that calculates and simplifies derivatives of algebraic functions.
- Learned programming concepts such as abstract syntax trees and shunting yard algorithm.

UNIFIT (Fullstack Website) | *ReactJS, NodeJS, MongoDB, ExpressJS, Material UI*

- Developed a platform for university students to rent, buy, and sell clothes on college campuses
- Created forms for making accounts, posting items, and other similar tasks. Created the ability to edit posts, and created a homepage with parallax scrolling images. Implemented user account creation and deletion.
- Led website design and security. Protected website against URL injection attacks.

Volunteering Experience

Gonzaga-WJA Science Fair September 2021–February 2023

- Co-founded, coordinated, and participated in a science fair collaboration with Title-1 middle school where 24 students were paired with high school students.
- The collaboration has continued for 4 years and has served 100+ youth since its founding.

Skills

Programming Languages

- **Proficient:** C/C++, MATLAB, Java, Git
- **Familiar:** Python, JavaScript/React, Bash