

Bradley J. McGhee

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EDUCATION

Georgia Institute of Technology <i>B.S. Mathematics, Minors in Quantum Technology and in Economics</i>	May 2027 Atlanta, GA
Coursework: Algorithms, Probability Theory, Combinatorics, Abstract Algebra, Quantum Mechanics, Graph Theory, Quantum Information, Number Theory, Game Theory, Analysis, Industrial Organization	
GPA: 3.75	

EXPERIENCE

Research Assistant, Quantum Computing/Compiler Design <i>Georgia Institute of Technology, Center for Research into Novel Computing Hierarchies</i>	August 2024 – December 2025 Atlanta, GA
• Worked with the quantum signal processing (QSP) and quantum singular value transform (QSVT) frameworks.	
• Created new syntax for QSP, enabling the creation of important algorithms in a high-level language.	
• Developed a compiler for the new syntax with Python and Qiskit, bringing these algorithms to researchers.	
• Presented a poster on generating QSP circuits from arbitrary functions at the 2025 CRNCH Summit.	
Research Intern, Elementary Particle Physics <i>Kennesaw State University, Theoretical Particle Physics Group</i>	June 2023 – December 2023 Kennesaw, GA
• Made quantitative predictions for a hadron collider experiment using a model of an undiscovered Z' particle.	
• Accounted for electromagnetic, strong, weak, and combined-electroweak contributions in the Fenyman calculus.	
• Developed a tool for physicists to compute reaction cross-sections for Z' production using C++ and LHAPDF.	
• Composed and presented a 40-page manuscript detailing my process and phenomenological results.	

PROJECTS

Deep Learning Network C	github.com/nptnl/babys-first
• Created a deep learning model from scratch with no libraries to classify images.	
• Implemented backpropagation, nonlinearization, and mini-batch gradient descent to train the model.	
• Used quantization to run the network using small (8-bit) datatypes for training speedups.	
Math Functions Library Rust	github.com/nptnl/basemath
• Created a math functions library in Rust with zero dependencies.	
• Used generic types to allow several datatypes in the same math functions.	
• Implemented exponentiation, trigonometric functions, and arbitrary polynomials of generic-typed coefficients.	
• Reached 6,000+ total downloads Rust's package distributor.	
General Fractal Generator Rust	github.com/nptnl/generic-fractals
• Created input and parameter space fractal generators for recursive functions on complex numbers.	
• Used multi-threading in Rust for parallel image generation, with a 5x speedup.	
• Created a custom image format to easily write and store plots 2x smaller than similar formats.	
• Generated plots based on arbitrary functions, producing both well-known and novel sights.	

HONORS & AWARDS

- President's Undergraduate Research Award (x2), a competitive Georgia Tech salary award for lab research.
- Eagle Scout Rank Award
- National Merit Scholarship Finalist

SKILLS & INTERESTS

Languages and Tools: Python, C, C++, Rust, Qiskit, HTML, CSS, Git, ZSH

Technical Skills: quantum computing, algorithms analysis, probability and statistics, combinatorics

Hobbies: Swimming, reading, jazz, pickleball, lifting, Brazilian jiu-jitsu