

Abhijit Chowdhary

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<https://abhijit-c.github.io/>

Education

- **New York University** New York, NY
B.A. Joint Mathematics and Computer Science (In Major GPA: 3.641) Sep. 2016 - Present
 - Relevant undergraduate courses: Algorithms, Numerical Computation, Computer System Organization, Operating Systems, Honors Analysis I/II, Honors Algebra I/II, Honors Linear Algebra, Honors Probability Theory, Topology.
 - Relevant graduate/PhD courses: Algebra, Fundamental Algorithms, Geometric Modeling, High Performance Computing, Numerical Methods I/II, Partial Differential Equations
- **University of Maryland** College Park, MD
Visiting Student (GPA: 3.925) Summer 2017, 2018
 - Coursework: Complex analysis, Number theory, Partial Differential Equations, Introduction to Artificial Intelligence.

Projects and Activities

- **First Robotics Team Member, Team 2849: Ursa Major** Columbia, MD
Hammond High School Sep. 2012 - Present
 - A robotics team; every new year they gather for a challenge created by FIRST Robotics to build a robot in six weeks.
 - I worked as a build-team / programming-team flex member and team captain during my student years, and now I help as a programming and design mentor during their season.
 - Has managed to consistently reach elimination and championship rounds at the regional level.
 - See their github here: <https://github.com/teamursamajor>
- **Tutor and TA at Courant** New York, NY
NYU Sep. 2017 - Present
 - I work at a Tutor and TA to Professor Siegel at NYU for his undergraduate basic algorithms and graduate fundamental algorithms course.
 - I host tutoring sessions for students to come in and answer questions, and I help to build course materials.
- **Algebraic Point Set Surfaces Implementation**
Geometric Modeling (Grad) Apr. 2018 - May. 2018
 - For a class final project, I implemented the theory in the paper *Algebraic Point Set Surfaces* by Gaël Guennebaud and Markus Gross from ETH Zurich.
 - The Paper presented an alternative method to take a point cloud to a triangularized mesh, and another method to estimate normals from a point cloud using algebraic fitting of a sphere.
 - This was mostly a challenge in comprehension of the paper and implementation, notably fighting with Eigen to try and construct and solve the systems in an efficient manner.
 - Heavy use of the libraries Eigen, libigl, and nanoflann. Written in C++.

• Parareal

High Performance Computing and Numerical Methods II (Grad)

Apr. 2019 - May 2019

- For a class final project, I decided to look into parallel techniques for solving ordinary differential equations, and something that caught my eye was the parallel-in-time algorithm, *Parareal*.
- For this project, I implemented and analyzed this algorithm, and further tested it's scaling properties on the HPC cluster Prince here at NYU.
- Heavy use of Eigen and OpenMP, it's a header only library. Written in C++
- You can see the project here: <https://github.com/abhijit-c/Parareal>

• ffpoly

Personal Project

Dec. 2018 - Present

- After learning some algebraic number theory in my graduate algebra course, I decided to code an implementation of elements of the polynomial field $\mathbb{F}_n[x]$.
- Still in the infancy stages of the project and learning some of the theory as I code.
- You can see the project here: <https://github.com/abhijit-c/ffpoly>

• Project Euler

Personal Hobby

2016 - Present

- Participant in the Project Euler mathematical programming challenges.
- Have solved 60 problems (Top 3.8% as of Jan 2019)

Skills

Programming and Markup Languages: C, C++, Java, Python, Matlab, Octave, Bash, L^AT_EX.

Languages: English, Latin, Broken Hindi

Operating Systems: Linux (Arch Linux laptop, Debian desktop)

Minor Mechanical Fabrication Skills

Interests

Academic: Numerical Methods and Algorithms, Algebraic Number Theory, Computational Group Theory, High Performance Computing.

ACM: Student member of ACM and in the EBoard of the ACM Chapter of NYU.

Computers: Have built and maintained my PC since 2012, and have modded my thinkpad X230 with various screen and hardware upgrades. Fulltime Linux enthusiast since 2012.