

# Juan F. Atehortúa

atehortuajf@gmail.com | (786) 593-4077 | jatehort@bowdoin.edu

## EDUCATION

### BOWDOIN COLLEGE

BA IN MATHEMATICS, COMPUTER SCIENCE

May 2024 | Brunswick, ME

Cum. GPA: 3.912 / 4.0

Math Major GPA: 4.0 / 4.0

CS Major GPA: 4.0/4.0

### RONALD REAGAN DORAL SENIOR HIGH

Grad. May 2020 | Doral, FL

Immigrated from Colombia in 11th grade. Chemistry Club Officer, Mu Alpha Theta tutor.

Graduated cum laude with 6 AP, 2 AS level, and 3 dual enrollment credits.

## LINKS

Github:// [atehortuajf](#)

LinkedIn:// [atehortuajf](#)

## COURSEWORK

### UNDERGRADUATE

Intro. to Analysis (Fall 2021)

Intro. to Group Theory (Fall 2021)

Intro. to Math Reasoning

Computational Geometry (Fall 2021)

Foundations of Computer Systems

Algorithms

Linear Algebra

Data Structures

Multivariate Calculus

Intro. to Microeconomics

### HIGH SCHOOL

AP Calculus BC

AP Computer Science A

AS level Chemistry

AP Macroeconomics

## SKILLS

### PROGRAMMING

Java • C • Python • Julia • C++ •

MATLAB • Jupyter Notebooks •  $\LaTeX$

### TUTORING

K-12 Math • Computer Science • HS

Chemistry • Spanish • Standardized

Testing (1510 SAT)

### MISCELLANEOUS

Problem solving • Abstract thinking •

Interpersonal communication •

Troubleshooting • Basic networking

## EXPERIENCE

### BOWDOIN COLLEGE | LEARNING ASSISTANT/GRADER

Aug. 2021 - Present | Brunswick, ME

- Provide academic support to students taking Algorithms (CSCI 2200).
- Grading of assignments for Intro. to Mathematical Reasoning (MATH 2020).

### VARSITY TUTORS | K-12 TUTOR

Jun 2021 - Present | Virtual

- Instant (virtual) tutoring in mathematics, computer science, and standardized testing.

### INDEPENDENT | K-12 TUTOR

Sep 2019 - Mar 2020 | Doral, FL

- Worked both privately and as community service with my high school tutoring.

## RESEARCH

### SUMMER GEOMETRY INSTITUTE @ MIT | RESEARCH FELLOW

July 2021 - Aug 2021 | Boston, MA

As a research fellow for the Summer Geometry Institute I had the pleasure to learn a lot of geometry processing techniques (differential geometry, optimization, numerical methods, etc.) which were applied to a myriad of interesting projects from professors and professionals which me and other fellows from around the globe worked on.

- Worked to extend, generalize, and improve an algorithm for the generation of higher-order triangle meshes that perfectly discretizes a curved 2D domain without geometric error. (Mentor: Prof. Campen - Osnabrück University, Peer: Foqia Shahid - Bryn Mawr College)
- Improved upon a plugin designed within the OpenFlipper framework to improve the quality of quadrilateral surface meshes in the plane. After SGI, we want to generalize the implementation for surfaces in 3D and hexahedral meshes. (Mentors: Prof. Bommers and Prof. Beaufort - University of Bern, Peer: Sidony O'Neal - Reed College)
- Reconstructed a 3D point cloud of the moon based on structure from motion from flickr images of the moon. From this, we used novel shape-fitting techniques (RANSAC) to fit an oblate spheroid to the point cloud. (Mentor: Prof. Snavely - Cornell University, Peers: Jonathan Mousley - Utah State University and Berna Kabadayi - Technical University of Munich)
- Implemented Schrödinger bridges over arbitrary triangle meshes for optimal transport between two density functions over the mesh. Introduced anisotropy to these bridges for increased control of the displacement while still conserving optimal transport. (Mentor: Prof. Solomon - MIT, Peers: Jonathan Mousley - Utah State University and Faria Huq - Bangladesh University of Engineering and Technology)

## AWARDS

2021	Maine	Colby College DataFest Honorable Mention
2020	National	Questbridge National Match Scholar
2020	National	AP Scholar with Distinction
2019	National	NHRP National Hispanic Scholar