

# Michael Wolf-Sonkin

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## EDUCATION

### Columbia University

Master of Science, **Computer Science**

August 2021 – December 2022

Cumulative GPA: 3.93/4.0

### Stony Brook University

Bachelor of Science, **Computer Science**

August 2018 – May 2021

Bachelor of Science, **Applied Mathematics**

Cumulative GPA: 3.92/4.0

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## SKILLS

Technical: **C, C++, Python, OpenGL, GLSL, LabWindows/CVI, Git**

Courses: **Computer Graphics, Physically Based Animation, Computational Geometry, Competitive Programming**

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## WORK EXPERIENCE

### Air Force Research Laboratory | Dayton, OH

April 2023 – Present

*Software Development Contractor*

- Developed traffic simulation to train machine learning model to identify and monitor vehicles.
- Utilized procedural road generation to create realistic and diverse road networks.
- Designed vehicles capable of driving along roads and navigating through intersections while avoiding collisions.

### J.G. Smith Associates Inc. | Setauket, NY

Summer 2021

*Software Development Contractor*

- Developed LabWindows/CVI application to verify functionality of a test tool for DC-DC converters.
- Enabled engineers to simulate various tests in order to identify incorrect results.

### Applied Research Associates Inc. | Raleigh, NC

Summer 2020

*Software Development Intern*

- Refined the 3D model export pipeline to improve the viewing of tunnel facilities on a 3D representation of the earth.
- Split tunnel models into individual parts, allowing users to view specific sections of the tunnel system.

### BitWize Corp. | Melville, NY

June 2019 – February 2020

*Software Development Contractor*

- Created LabWindows/CVI program to verify behavior of fuzzy signals of deicing controller in extreme temperatures.
- Improved accuracy and efficiency of testing procedures by automating manual processes.

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## PERSONAL PROJECTS

### Virtual Rubik's Cube Solver – *Python*

- Utilized OpenGL for 3D graphics.
- Implemented Rubik's Cube solving algorithms, specifically CFOP.

### Drift Simulation – *C++*

- Implemented 3D Perlin noise in GLSL to randomly generate a fluid-like landscape that evolves over time.

### Ray Tracer – *C++*

- Capable of producing realistic images by tracing the path of light rays as they interact with objects in a scene.
- Implemented Phong shading, shadows, antialiasing, reflection, refraction, mesh rendering, texture mapping, and BVH.

### Flocking Simulation – *C++*

- Modeled the behavior of individual animals in a flock using three simple rules: cohesion, separation, and alignment.
- By following these rules, the simulation can exhibit complex and realistic flocking behavior.

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## EXTRACURRICULAR ACTIVITIES

### Competitive Programming – *Columbia University, Stony Brook University*

September 2019 – December 2022

- Collaborated with team in weekly practice contests which leverage algorithmic problem solving.
- ICPC Greater NY Regional, 2021 – 3rd Place.

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## ADDITIONAL

**Awards** – Columbia University and Stony Brook University Dean's List – All Semesters

**Interests** – Rock Climbing • Rubik's Cubes • Cycling