

EXPERIENCE **OPT Industries, Inc.**, Medford, MA

Software Engineer, September 2023 - January 2025

Software Engineering Intern, May 2023 - September 2023

- Built and maintained scalable APIs and backend systems for geometry-driven design tools in an Agile environment, focusing on reliability and performance throughout the full product lifecycle.
- Improved graphics and simulation engine speed by 90% through algorithmic optimizations, efficient data structures, and AWS distributed computing, boosting overall system performance.
- Designed, debugged, and deployed high-performance algorithms for 3D meshing and slicing workflows, solving complex geometric problems.
- Diagnosed and resolved bugs across a complex tech stack including TypeScript, ThreeJS, and GraphQL components; collaborated with cross-functional teams and internal stakeholders.
- Contributed to CI/CD pipelines using GitHub Actions; documented and versioned internal mathematical software libraries for team-wide use.
- Communicated technical solutions and engineering trade-offs to both technical leads and non-technical managers through clear documentation and presentations.

Tufts University, Medford, MACo-Instructor, *Algorithms*, Fall 2022Teaching Assistant, *Algorithms*, *Computational Geometry*, September 2019 - May 2023

- Guided students through implementation of geometric pathfinding algorithms; collaborated with robotics teams on real-world deployment.
- Designed interactive algorithm visualizations and led lab sections to reinforce advanced computing concepts and mathematical foundations.

Simply Social, Inc., Timisoara, Romania

Software engineer, January 2012 - June 2013

- Developed backend tools and ranking systems using graph algorithms to optimize social media reach for client campaigns.

SKILLS Programming languages and tools:

- Python, C++, TypeScript, GraphQL, MySQL, JavaScript, HTML, PHP, CSS
- NumPy, SciPy, Numba, SymPy, OpenGL, NodeJS, ThreeJS, NextJS, AWS (EC2, ECS, ECR, Batch, S3), Docker, Kubernetes, Kafka, Redis, Git

Engineering practices:

- CI/CD, debugging, testing, API design, documentation, Agile/Scrum, stakeholder communication, monorepo architecture

Theoretical knowledge:

- Computational geometry, graph theory, algorithm design, parallel and distributed computing

EDUCATION **Tufts University**, Medford, MAMaster of Science, Computer Science — *Advisor: Dr. Diane Souvaine***Universitatea de Vest**, Timisoara, Romania

Master of Science, Computer Science

Haverford College, Haverford, PA

Bachelor of Science, Computer Science

PAPERS Hugo Akitaya, Erik Demaine, Andrei Gonczi, et al. *Characterizing Universal Reconfigurability of Modular Pivoting Robots*, SoCG 2021Jonathan Conroy, Hugo Akitaya, Andrei Gonczi, et al. *Robot Development and Path Planning for Indoor Ultraviolet Light Disinfection*, ICRA 2021Hugo Akitaya, Andrei Gonczi, Diane Souvaine, et al. *Reconfiguration of Polygonal Subdivisions via Recombination*, ESA 2023**LANGUAGES** English, Romanian, Hungarian - fluent or native; Spanish - elementary