

# Kevin Shan

+1(703)994-9716 | [kevin.j.shan@gmail.com](mailto:kevin.j.shan@gmail.com) | Great Falls, VA | [Personal Site](#) | [LinkedIn](#)

## EDUCATION

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### Thomas Jefferson High School for Science and Technology

*Advanced Studies Diploma, GPA: 4.629/4.0*

### Georgia Institute of Technology

*Bachelor of Science in Computer Science*

Alexandria, VA

*Aug. 2019 - June 2023*

Atlanta, GA

*Aug. 2023 - May 2026 (expected)*

## SELECTED AWARDS

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### Competitive Programming

2020 - Present

*All competitions done in C++, online, and in real-time.*

- **(250/5k) USACO (United States Computing Olympiad) Platinum Division:** Among the top ~250 pre-collegiate competitors in the U.S., with perfect scores in the bronze, silver, and gold divisions.
- **(200/30k) Meta Hacker Cup :** Placed top 500 among ~30k international competitors to advance to Round 3, and won a top-200 T-shirt in Round 3.
- **(1k/30k) Google Code Jam :** Placed top 1k among ~30k international competitors to advance to Round 3.
- **(41/20k) Google Kickstart Round F:** Placed 41st among ~20k international competitors.
- **(28/3k) Codeforces "Master" Rank:** Ranked the highest at 28th in the U.S. on Codeforces, with a rating of 2280. Top 1% of 100k+ international users on the platform.

## EXPERIENCE

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### Independent Research

May 2023 - Present

*University of Maryland*

*College Park, MD*

- Developed a novel real-time bidding strategy prioritizing the minimization of cost-per-click in ad campaigns.
- Investigated state of the art approaches to real-time bidding, involving spheres of machine learning, mathematical modeling, and auction theory.
- Processed large real-world advertisement auction data sets, such as the iPinYou data set, using Python.

### Programming Intern

June 2023 - Present

*HydroGeoLogic, Inc.*

*Reston, VA*

- Developed an algorithm for munition site boundary optimization, which finds approximately-optimal vertex-reduced polygons that fully enclose preexisting boundaries, using dynamic programming and computational geometry.
- Deployed the script using Python and ArcGIS, improving the cost of an ongoing project proposal by **30%**.
- Developed additional workflow tools using Google Places API, BeautifulSoup, and Python.

### Science and Engineering Apprenticeship Program (SEAP) Intern

June 2022 - Aug. 2022

*Carderock Naval Surface Warfare Center*

*Bethesda, MD*

- Used VSAERO to simulate and analyze changes in fluid dynamics when altering submarine structures.
- Used PowerShell to script the generation, testing, and collection of data for thousands of distinct submarine configurations.
- Mathematically modeled control surface lift using Python and TensorFlow.

## PROJECTS

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### Force-directed Graph Visualization

Aug. 2022 - June 2023

*JavaScript, CSS, HTML, Node.js*

- Developed an interactive force-directed graph visualization algorithm and web application using raw JavaScript and CSS/HTML.
- Created templates for certain visualization tasks, such as utilizing force-directed graphs for clustering analysis of the Iris data set.

### Personal Website

June 2023 - Present

*JavaScript, CSS, HTML, React, Git*

- Developed and deployed a personal website, at [kevinshan.dev](https://kevinshan.dev).
- Self-taught CSS/HTML and React components to create fluidly interactive front-end features.

### Coin Detection

Jan. 2022 - March 2022

*C++, OpenCV*

- Implemented a coin detection script from scratch using C++, which identifies coin outlines and values in images.
- Rewrote code using the OpenCV computer vision library.