

# Dariush Aligholizadeh

## Education

- Aug 2020 | **B.S. in Biochemistry & Molecular Biology, B.S. Computer Science/Machine Learning**  
May 2024 University of Maryland, Baltimore County, GPA: 3.908/4.00, Member: Honors College  
Baltimore, MD
- Sept 2016 | **High School Diploma**  
May 2020 Towson High School, GPA: 3.89/4.00, Rank: 14/326 (top 10%), SAT: 1450 (99<sup>th</sup> percentile)  
Towson, MD

## Research Experience

- May 2019 | **Undergraduate Researcher/Lab Manager**, Mentor: Dr. Mary Devadas  
Present Towson University  
*Inorganic Chemistry and Nanoscience Lab.*
  - First authoring paper on dendritic silver nanoplate synthesis
  - Second authoring paper on green synthesis of gold nanoplates and detection of nerve agents
  - Awarded the LSAMP Undergraduate Research Grant for the Summer 2021 session
  - Trained on and worked with UV-Vis Spectrophotometer, FT-IR, FT-Raman Spectrometer, Fluorescence Spectrophotometer, Scanning & Scanning/Transmission Electron Microscope, NMR, Flame AAS
- June 2021 | **Summer Research Intern**, Mentor: Dr. Alan Rein  
Aug 2021 National Institute of Health, National Cancer Institute  
*Retroviral Assembly Lab*
  - Trained in techniques for both general biological analyses, and specific viral analyses
  - Awarded the Cancer Research Training Award for the Summer 2021 session (2% acceptance)
  - Trained on Western Blot, Isothermal Titration Calorimetry, 2D NOESY NMR, Microscale Thermophoresis, switchSENSE
- May 2020 | **Computational Biologist**, Mentor: Dr. Rhoel Dinglasan  
Present Remote/Online  
*Infectious Diseases Lab*
  - Independently develop software and programs for specific lab
  - Developed database for quick Human ortholog lookup
  - Created chromatography graphing program, allows quick scanning/analysis of lateral flow assay strips
- Aug 2019 | **Research Assistant**, Mentor: Dr. Piotr Walczak  
Jul 2020 University of Maryland, Baltimore & Johns Hopkins School of Medicine.  
*Neuroradiology Lab.*
  - Worked on targeting of HIF1 protein and understanding its role in glioblastoma multiforme
  - Worked with ImageJ and other data analysis tools
  - Helped build convolutional neural network for cancer cell classification
  - Trained on and worked with CryoStat, compact MRI
- Oct 2020 | **Undergraduate Research Assistant**, Mentor: Dr. Govind Rao  
Feb 2021 University of Maryland, Baltimore-County  
*Center for Advanced Sensor Technology Lab (CAST).*
  - Researching ELISA technique for cheaper and more accurate antigen/biomarker detection

## Scientific Presentations/Outreach

NIH Summer Intern Conference, August 2021

- Presented on HIV-1  $\Psi$ -packaging signal research done with the NIH Retroviral Assembly Lab

LSAMP End-of-Summer Presentation, August 2021

- Presented on Anisotropic Synthesis research done with the Towson University Nanoscience Lab

ACS National Inorganic Chemistry Conference, April 2021

- Presented on Anisotropic Synthesis research done with the Towson University Nanoscience Lab

Baltimore County Public Schools Science Outreach, May 2021

- Was an outreach group leader for a virtual Nanoscience workshop designed for High School Students

UMBC Undergraduate Research & Creative Achievement Symposium, Jan 2021

- Presented on Anisotropic Synthesis research done with the Towson University Nanoscience Lab

Towson High School Science Outreach, Jan 2020 & Jan 2021

- Conducted outreach hosting the local High School in our Towson University lab and showing them our day-to-day tasks
- Demonstrated a chemical synthesis of Gold Nanoparticles and taught about the synthesis mechanism
- Helped interested teenagers see the applications of chemistry and become interested in research

Towson Undergraduate Research Conference, Sept 2020

- Presented on Nanoscience research done with the Towson University Nanoscience Lab

UMBC Undergraduate Research Symposium, Oct 2019

- Presented on Nanoscience research done with the Towson University Nanoscience Lab

## Work Experience

July 2021 | **UMBC Review Lead STEM Editor/Reviewer**

Present University of Maryland, Baltimore-County

- Interviewed and accepted for a position as executive editor for the college-wide research journal
- Communicate with Professors, Undergraduates, and review publications for inclusion in the 2022 version of the UMBC Review

June 2018 | **Head Math Instructor**

Nov 2019 Kumon Math & Reading Center, Cockeysville, MD

- Led other math instructors and demonstrated excellent mathematical knowledge and communication skills
- Graded and tutored children ages 5 – 12 in mathematical skills

## Scholarships & Grants

UMBC Merit Scholarship, Fall 2020 – Spring 2024

NIH Intramural Research Training Grant, Summer 2021

Louis-Stokes Alliance for Minority Participation Research Grant, Summer 2021

## Awards & Honors

NIH Cancer Research Training Award, Summer 2021

Royal Microscopy Society International SEM Imaging Contest Third Place (500+ entries), June 2021

UMBC Dean's List, Spring 2021

UMBC President's List, Fall 2020

USABO National Semifinalist (top 7% of 10,000 competitors), May 2020

Baltimore County Music Festival Perfect Score Received, Cello & Piano Duet, Feb 2020

AP Scholar w/ Distinction, 2019 & 2020

Regional Chemistry Olympics 2nd place winner, Feb 2018

Regional Physics Olympics 3rd place winner, May 2019, May 2020

Colophon Literary Art Magazine Published Art (Towson High), 2018 – 2020

## Leadership Experience

Jan 2021 | **Devadas Nanoscience Lab Manager**

Present Towson University

- Assist P.I. in laboratory management tasks
- Mentoring junior lab members and teaching them how to use lab equipment

Feb 2021 | **Devadas Nanoscience Lead Electron Microscope Operator**

Present Towson University

- Sole operator of the Electron Microscope from March 2021 to Sep 2021, imaging undergraduate students' samples and assisting in multiple projects
- Mentoring graduate students and teaching them how to use the electron microscope
- Photography won international prize

Sept 2019 | **Biology Club President**

May 2020 Towson High School

- Taught topics in Biology such as Immunology, Virology, and Anatomy & Physiology to members
- Competed in the National Biology Olympiad, 4/13 members passed the test (7% national pass rate)

Sept 2017 | **Programming Club President**

May 2020 Towson High School

- Taught topics ranging from JavaScript and C++ to competitive programming to members
- Competed in Lockheed Martin's annual CodeQuest competition in Bethesda, MD
- Grew members to 4 kyu level on codewars.org (70<sup>th</sup> percentile rating in competitive programming)

Sept 2018 | **Linguistics Club Vice-President**

May 2020 Towson High School

- Organized and competed in linguistics competitions, furthered interest and knowledge of linguistics
- Competed in the North American Computational Linguistics Open Competition, two passing members

## Volunteer Experience

2016 | **Key Club**

2018 Towson High School

- Completed various volunteering opportunities such as gymnasium cleaning, after-school tutoring, and blood drive preparation (80+ hours)

Sept 2017 | **Dumbarton Middle School Math Help**

May 2018 Towson High School

- Went after-school to tutor students in Mathematics at the local Middle School (40+ hours)

May 2018 | **Greater Baltimore Medical Center Volunteer**

Aug 2018 Towson, MD

- Helped patients undergoing chemotherapy and cancer treatment acclimate to a hospital environment

## Special Skills

### Programming Languages & Software

- Expert in Python, JavaScript, Advanced in C++/C and Java
- Have utilized popular libraries like OpenCV, Tensorflow, PyTorch, and frameworks like ReactJS/Node.js
- Experienced with both CellProfiler and ImageJ

### Lab Equipment (Trained On and Utilized)

- Scanning & Scanning/Transmission Electron Microscope, Plasma Cleaner, NMR, Fluorescence, UV-Vis, IR, HPLC, CryoStat, Compact MRI, Surgical Microscope

### Math/Science Knowledge

- Expert in Calculus and Biology, Advanced in Organic/Inorganic Chemistry and Linear Algebra

### Spoken Languages

- Fluency in Farsi and English, Intermediate in Spanish and Azeri

## Hobbies

- Sketching/Photography
- Playing piano and violin
- Programming and tinkering with electronics
- Hiking, swimming, and playing basketball