Daniel Abadjiev

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Current Employment

Research Assistant at Medical Biodynamics Program, Brigham and Women's Hospital – 2019-2020

I worked on a MATLAB program to analyze phase advance in Blood Flow Velocity vs Blood Pressure for measuring cerebral autoregulation (summer 2019). I also managed EEG data and worked on an application for Holo-Hilbert Spectral Analysis of EEGs for developing biomarkers. I have continued this work as a part-time research assistant this summer and during this academic year. I have presented work on cerebral autoregulation and Holo-spectrum analysis of EEGs to the team.

High School Research Experience

Assistive Gardening Device – 2019

This three-person group project involved creating an assistive device that allowed a client with limited mobility to water a plant from a mobile device manually or automatically. The product successfully integrated hardware, an android app, a NodeMCU microcontroller, and Firebase, a cloud database. The Assistive Technology Regional Center in Worcester displayed this device.

Sonification Project – 2018-2019

Sonification is the process of generating sound to represent data to aid interpretation. I analyzed how integrating sonification into a lesson on joint and combined variation impacted student comprehension. This project involved human testing on seventh graders, which required IRB and school approval.

Education

Northeastern University – 2020-2024

Combined Math and Physics major at Northeastern University. Math Club, SPS, Slam Poetry, NU Stage Revue production.

Massachusetts Academy of Mathematics and Science (MAMS) – 2018-2020

MAMS is a two-year high school at Worcester Polytechnic Institute (WPI); specialized grade 11 coursework in math modeling, physics, engineering, research, technical writing, computer science, humanities, and advanced French; grade 12 coursework selected from the WPI undergraduate curriculum in Physics, Math and humanities courses; includes Multivariable Calculus, Vector and Tensor Calculus, Linear Algebra, Discrete Math, Differential Equations, Modern Physics, Astrophysics. GPA 4.0/4.0

Advanced Math and Science Academy Charter School (AMSACS) – 2013-2018

Advanced courses: AP Computer Science A, Precalculus, 3D Geometry, Algebra and Trigonometry, Geometry

Honors courses: Chemistry, French 3, English, US History 1, Biology, French 2, World History

GPA: 4.21/4.30 (Unweighted), 4.66/5.30 (Weighted, 10th grade), 4.58/5.30 (Weighted, 9th grade). Class Rank: 1 (both years)

High School Achievements

- *High School Mathematical Contest in Modeling (HiMCM), Meritorious Paper – 2018*
- *AIME Qualification – 2019*
- *AP Scholar with Honor, Perfect AP CS A score (80/80, top 0.277%) – 2018-2019*
- *Varsity WOCOMAL top 100 Individually, top 10 Team – 2018-2019; Varsity WOCOMAL #17 Individually, #1 Team – 2017-2018; Junior Varsity WOCOMAL #10 Individually, #1 Team, Varsity State Championship #1 Team – 2016-2017*
- *Project Paradigm Finalist – 2019*
- *National Honor Society – 2018-2020*

High School Activities and Community Service

- *High School Math Team – 2016-2020*
- *Western Mass ARML (regional math team) – 2018-2020*
- *PI Day Math Tournament Organizer – 2016-2020*

This is a math competition for middle school students.

Positions: Head Proctor 2019, Head Problem Writer 2020.

- *Assistive Technology Club (Team Leader) – 2019-2020*
- *Community Servings Volunteering – 2020*
- *Slam Poetry – 2018-2020*
- *WPI Sailing Team – 2019*
- *Piano Lessons – 2005-2020*
- *A Cappella – 2016-2018, 2020*
- *WPI Chorus, WPI Chamber Choir – 2018-2020, 2019-2020*

Skills and Languages

- *Java (proficient), Android Studio (familiar), Arduino IDE (basic), Visual Basic for Excel (basic), HTML and CSS (familiar)*
- *Mathematica (proficient), LaTeX (familiar), MATLAB (familiar)*
- *French (workably fluent), Bulgarian (fluent), English (native), German (basic, in 1st semester)*
- *Audacity (basic), Adobe Premiere (proficient)*