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Research

A Spectral Element Method for Meshes with Skinny Elements (2016–2018)

- Developed a new method for numerically solving PDEs that is efficient for high precision solutions (mentored by Dr. Alex Townsend)
- Won 2nd place nationally in the Regeneron (formerly Intel) Science Talent Search in 2017: `student.societyforscience.org/regeneron-sts-2017-0`
- Paper published in SIURO in 2018 (`siam.org/Portals/0/Publications/SIURO/Volume 11/S01705.pdf`)

Randomized Algorithms for Approximating a Connected Dominating Set in Wireless Sensor Networks (2014)

- Researched algorithms for finding small connected dominating sets of graphs
- Co–published paper with Dr. Akshaye Dhawan (Ursinus College)
- Published through IEEE: `ieeexplore.ieee.org/document/7411248/`

Education

MIT

- Majoring in 6-2 (EECS), expecting to graduate 2021

Perkiomen Valley High School

- Valedictorian of the class of 2017 and NHS member 2015–2017
- Took nine math, physics, and CS courses at Ursinus College

Experience

- Fluent in C++, Python, Julia, MATLAB, LaTeX
- Familiar with multithreading, Linux systems, and moderately sized projects.
- Experience reading and writing technical math and CS papers

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Employment

CSAIL Computational Fabrication Group Internship (2018)

- Programming an autonomous cart to move around with high precision.
- Using OpenCV for object tracking

VideoRay Internship (2017)

- Programed an Arduino to do motor control
- Tested underwater cameras and Ethernet connections

Summer job (2015–2017)

- Taught sailing to children and adults at the MDI Community Sailing Center
- Boat repair, customer service, and occasional IT work

Hobbies

- Built a quadcopter and programmed an Arduino to do stabilization
- Wrote a Python script to simulate the quadcopter and tune PID coefficients
- Helped teach a Splash class (at MIT) about PID control and an HSSP class on Arduinos

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References

Akshaye Dhawan: `adhawan@ursinus.edu`
Alex Townsend: `townsend@cornell.edu`