

Dylan Lyon

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U-Michigan Graduate Student with a strong background in programming, mathematics, engineering, and physics. Applying for positions starting in Fall 2022.

Education

Burnett Honors College @ University of Central Florida

Class of 2022

– Aerospace Engineering Major, Math Minor

GPA 3.795

Skills & Relevant Coursework

Programming

2015-pres.

- Fluent in Java, Python, Assembly, C/C++, Octave/MATLAB; Experienced in SQL
- Completed Computer Science I, Discrete Logic & Proofs, Modeling Methods

Mathematics and Control Theory

2012-pres.

- 8 years of competitive mathematics experience
- Fluent in LaTeX, MATLAB w/ Controls Package, MathCAD
- Completed Partial Differential Equations, Controls

Aerospace Engineering

2018-pres.

- Graduate-Level Math Modeling, Fluid Mechanics, Heat Transfer, Dynamics
- Doctoral-Level Finite Element Analysis, Turbines for Sustainable Power Generation
- Experienced with Solidworks Flow Simulation, ANSYS, Siemens StarCCM+

Experience

Thesis: *'A Finite Difference Model For Induced Hypothermia During Shock'*

2019-2021

<https://stars.library.ucf.edu/honorstheses/955/>

Completed an undergraduate thesis on a finite difference model for thermoregulation under two extreme states of blood loss and hypothermia. Induced hypothermia in the brain is being researched as a way to prolong a circulatory shock patient's oxygen saturation by reducing their metabolic activity. This model serves as a low-node, quick-to-compute alternative to body-wide FEM modeling when the only region of interest is the brain. The FDM model can be applied to simulate methods of cooling for induced hypothermia and was validated against a cooling helmet and a saline injection. The operation has applicability in military and urban ambulance use, though future modifications are extending the model's domain to infants and amputees.

Skills:

- 60+ pages of professional writing
- Modeling of highly non-linear heat transfer equations
- Application of aerospace education outside of the field
- Documented, project-scale programming

Project Lead: *NASA MINDS 1st Place Senior Grand Champion Design*

2021-pres.

<https://tinyurl.com/UCFSenseAid>

Team of 7 working on innovative design in space systems. Prototyped a 3D printer capable of printing functional engineering materials beyond thermoplastics. Two semester project tackling novel printing methods, microgravity conditions, multi-ink prints, and planning a path to Artemis Program incorporation.

Skills:

- Large-project planning and execution
- Research and development in an underexplored field
- Solidworks modeling and manufacturing for novel parts
- Technical writing and presentation for large audiences (1st Place - Senior Research Poster)

Job: *Lab Instructor* _____ **2019-2022**

Current lab instructor for Modeling Methods in Mechanical and Aerospace Engineering. I lecture on the theory, implementation, and practical usage of computing algorithms to UCF's class of engineering undergraduates. Each weekly lab involves a 20+ minute lecture, a live-coding portion, and room for bug-fixing students' code. The lab instructors also host 75 minute exam reviews with live example problems. The lab covers topics such as root finders, matrix solvers, and numerical solvers for differential equations.

Skills:

- Wealth of experience in Octave, MATLAB, and MathCAD programming
- Deep theory and application knowledge of numerical methods
- Public speaking in an educational role

Job: *Varsity member of UCF's Programming Team* _____ **2018-2020**

Competing member of UCF's competitive programming team, an organization that competes in regional, national, and global tournaments. Weekly Saturday practices include 2 hours of lecture followed by a 5-hour team practice tournament and a brief solution review. Contest questions cover high-level problems in graph theory, numerical geometry, and algorithms like FFT or data structures like segment trees. Also hosted and wrote problems for UCF's own high school tournament and summer academy. The stipend awarded to me covered many of my expenses at UCF.

Skills:

- Time-sensitive programming in small teams of 3
- Dearth of knowledge on high-level computing algorithms and structs
- Ability to learn from lectures and recognition of applicability
- Capable of lecturing on new algorithms to laypeople and programmers alike

Project: *LCMM Design-Dimension Solid Simulation*, a Julia program for generative geometry _____ **Pres.**

Project: *Optimization of Cable-Stayed Skyscrapers*, an iteratively generated FEM simulation in Octave _____ **2022**

Research: *LIDAR Hexcopter Project Lead at UCF's Control Systems Lab* _____ **2018-2019**

Project: *Simulated Annealing*, an iterative solution for the Traveling Salesman Problem _____ **2019**

Project: *Automatic boat*, programmed the microcontroller for a GPS-based guidance system _____ **2019**

Project: *Barnes-Hut Gravity Simulator*, an $O[n \log(n)]$ segtree-based emulator for n-body physics _____ **2017-2019**

Awards

1st Prize Senior Team, NASA MINDS Design Contest _____ **2022**

UCF Honors In The Major - Aerospace _____ **2021**

170 Verbal & 170 Quant on the GRE _____ **2021**

Allyn M. Stearman Research Scholarship _____ **2022**

National Merit Scholar Finalist _____ **2018**

Tau Beta Pi Inductee _____ **2021**

1st Prize UCF Integration Bee _____ **2019**

1st Prize JV Mercer Spring Programming Competition _____ **2019**

7th Prize UCF Programming Team Tryouts _____ **2019**

References Available Upon Request
