

Lawrence C. Abu-Hammour

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Education

Dartmouth College – Hanover, NH

GPA: 3.2/4.0

Bachelor of Arts: Engineering Sciences

Class of 2019

Bachelor of Engineering: Electromechanical Engineering

Class of 2020

Coursework: Introduction to Climate Science and Climate Change, Differential Equations, Kinematics and Dynamics, Electricity and Magnetism, Linear Algebra and Its Applications, Introduction to Scientific Computing, Introduction to Engineering, Discrete and Probabilistic Systems, Digital Electronics, Introduction to Mathematical Oncology, Computational Methods in Mathematical Biology, Topics in Applied Mathematics, Solid Mechanics, Lumped Systems, Practical Electrical Vehicle Engineering, Control Theory, General Chemistry (Fall 2018)

IEEE (Institute of Electrical and Electronics Engineers) Member

2018- Present

ASME (American Society of Mechanical Engineers) Member

2018- Present

Technical Skills

- **Programming Languages (Skill Levels):** MATLAB (Expert), C Programming Language (Competent), VHDL (Competent), Python (Some), Linux (Expert), HTML (Competent), CSS (Competent), LaTeX (Expert), SQL (Some), R (Competent)
- SolidWorks (CAD Software), Granta's CESEduPack, GD&T, ANSYS, AutoCAD, Revit, CorelDraw, LogiSim, Vivado
- Microsoft Office, Mathematics; Google Suite; Windows Movie Maker, Adobe Premiere Pro CS6; Audacity; Salesforce

Work Experience

Integrated Mathematical Oncology at Moffitt Cancer Center: Research Intern

Jan 2018- March 2018

- Built hundreds of mathematical models surrounding tumor growth, cancer treatment, cellular automata, drug delivery, chemotherapy, radiation therapy, immunotherapy, double bind therapy, and virotherapy using primarily MATLAB scripting
- Completed an independent research project about optimizing uniform drug delivery and high drug saturation in tumor cells found in Pancreatic Adenocarcinoma (PADC) under the mentorship of Moffitt research scientists, Dr. Kasia Rejniak and Dr. Aleksandra Karolak.

Machine Shop at Thayer School of Engineering at Dartmouth College: Shop Teaching Assistant

Sept 2015- Sept 2018

- Certified to run and maintain various mechanical machines including Laser Cutters, 3D Printers, Vertical and Horizontal Bandsaws, Sanders, Manual Mills, DI WireBender, Thermoforms, Solidworks software, and Manual Lathes.
- Teach Thayer and Dartmouth student to run and use various machines in the shop.
- Assisted in projects for courses such as Introduction to Engineering, Solid Mechanics, Introduction to Thermodynamics, Machine Engineering, Product Design, Structural Analysis, Engineering Design Methodology and Project Initiation and Completion, Digital Electronics, and Studio Art courses.

Dartmouth Emerging Engineers: Teaching Assistant

Aug 2017 - Present

- Assisted approximately 10 prospective engineering majors and current engineering majors a week in engineering pre-requisites including college level mathematics, programming, physics, and chemistry.

Wilder Physics Department at Dartmouth: Undergrad Research Assistant for Professor [James W. LaBelle](#)

June 2017- Present

- Performed data science research on hundreds of visual data sets using MATLAB scripting on medium-frequency burst atmospheric waves under the [NASA Space Grant](#).

Project Experience

Introduction to Engineering: The Morton 401A

Sept 2016-Nov 2016

- Engineered and prototyped a relay-powered smoke-clearing device that activates using a household smoke detector. Device's purpose is to efficiently filtrate and ventilate smoke particles to allow emergency evacuation and significantly reduce significant property damage which, in turn, reduces human displacement and financial burden following a tragedy involving fire.
- Worked in collaboration with the Hanover Fire Department, Thayer School of Engineering, and Dartmouth College

Solid Mechanics: Lenticular Truss Bridge

June 2017- Aug 2017

- Utilized Solidworks (CAD Modeling and Simulation) and basic ANSYS to design a bridge with lenticular-shaped trusses and run various simulations of applied loads on the face of the bridge to predict the point of failure
- Engineered physical model of bridge and tested model on Instron Mechanical Tensile testing machine and it withstood 6.33 kN of applied force until the point of failure

Digital Electronics: Digital Reverberation in Audio Processing

June 2017- Aug 2017

- Designed and tested a VHDL-based digital system using a Basys3 FPGA board for electrical audio components and musical instruments such as electric guitars to produce a reverb sound effect in final audio output

Discrete and Probabilistic Systems: Systems Reliability Engineering

Sept 2017- Nov 2017

- Solved and constructed theoretical electrical, mechanical, and thermal systems to determine the probability of total system failure or failure-by-component using methods of reliability engineering and probabilistic methods.

Practical Electric Vehicle Engineering: Electric Go-Kart Optimization

Mar 2018- June 2018

- Engineered and Designed a theoretical Electric Go-Kart to run according to various safety and performance conditions including gradeability, thermal management, maximum flat-level performance velocity, fault scenarios, and tab geometry.

Other Activities and Skills

- **Languages:** Arabic (Modern Standard, Jordanian, Moroccan), Conversational Spanish, Elementary Tagalog, and Elementary Japanese
- Society of Hispanic Professional Engineers, Dartmouth Fencing Club, Alpha Theta Gender-Inclusive Greek House, Gender-Inclusive Greek Council, Summer Sing Dynasty