Mitchell T Dennis | Curriculum Vitae
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EDUCATION

University of Kentucky

B.S. Honors in Physics — Graduation: May 2020
B.S. Honors in Computer Science — GPA: 3.91/4.0
B.S. Honors in Mathematics (Mathematical Sciences)

AWARDS

Trunzo Scholarship	05/2019
Henry Clay Internship Award, Kentucky Society of Washington	05/2019
Summer Research Fellowship, University of Kentucky	05/2018
Chellgren Fellowship, University of Kentucky	08/2017 – 05/2018
Patterson Scholarship, University of Kentucky	08/2016 – 05/2020
National Merit Scholarship, National Merit Scholarship Corporation	08/2016 – 05/2020
Dean's List, University of Kentucky	08/2016 – Present
Physics Department Research Award, University of Kentucky	05/2017

CODING LANGUAGES AND SOFTWARE TOOLS

C/C++	4 years
Python	4 years
MATLAB	4 years
Mathematica	2 years
SQL Database Language	1 year
Autodesk Inventor/Fusion/Eagle	4 years
Cura and other Slicing Software	4 years

RELATED EXPERIENCE

NASA Headquarters, Office of the Chief Scientist

Internship: Supervised by Dr. James Green, Chief Scientist — 05/2019 – 08/2019

- Used natural language analysis software QUID to analyze patterns and relationships in the submissions for the Astro2020 Decadal Survey
- Presented findings and conclusions to the Co-chairs of the Astro2020 committee at the National Academies of the Sciences, Engineering and Medicine and members of the upcoming Planetary Decadal Survey
- Performed background research to be used in upcoming literary publications

NASA Jet Propulsion Lab

NASA Solar System Ambassador Program — 01/2018 – Present

- Volunteered with NASA's Solar System Ambassador Program visiting Morton Middle School in Lexington, Kentucky to share NASA science and discoveries with 600+ students to inspire the next generation of young scientists.

Department of Physics and Astronomy, University of Kentucky

Research: NAB Collaboration Dr. Christopher Crawford (PI) — 08/2016 – 08/2018

- Developed two models of a Data Analysis Server utilizing parallel processing methods including P-Threading and the Message Passing Interface programming complier
- Optimized binary data compression algorithms for the Nab collaboration resulting in a 70% reduction in data size

- This project was funded by a grant from the U.S. Department of Energy

Research: Dr. Renbin Yan (PI) 05/2019 – Present

- Used 3D modeling software Autodesk Inventor to prototype hardware mounts for the AMASE Development project to design a new low-cost spectroscopic telescope built from commercially available components

Physics Petting Zoo Project: Supervised by Dr. Joseph Straley 10/2019 – Present

- Modelled and built new designs for new outreach projects, repaired damage to existing outreach materials, and gave outreach presentations.

College of Engineering, University of Kentucky

Teaching Assistant 08/2018 – 12/2018

- Designed two different spring semester projects for the First-Year Engineering Program:
    - The first was a projectile launcher that could automatically identify stationary targets and calculate range and trajectory before launching a ping pong ball
    - The second was a remotely operated crane that responded to visual cues via webcam. The crane picked up objects and placed them in a predetermined container

Laboratory Technician 08/2017 – Present

- Trained 600+ students in the use and maintenance of FDM and SLA 3D printers and their slicing software including Cura and PreForm.
- Trained 250+ students to use 3D modelling software including Autodesk Inventor, Autodesk Fusion and Onshape and their application in 3D printing and CNC milling
- Trained 450+ students to use the Adobe suite to create images suitable for use on a Universal Laser System engraver

Peer Tutor 08/2016 – 05/2017

- Tutored 40 students in Mathematics, Physics, and Chemistry (College Algebra, Calculus I and II, General Physics I and II, General Chemistry I and II)

Research: Dr. Hana Khamfroush 01/2017 – 05/2017

- Used the MATPOWER library in MATLAB and network theory to determine which transformers in a power network are most likely to cause cascading failures

Office of Residence Life, University of Kentucky

Resident Advisor 08/2017 – Present

- Communicated and collaborated with a staff of 17 students to create a positive academic environment to ensure students success
- Managed a wing of 42 residents and coordinated with 2 other Resident Advisors and their 84 residents to foster community engagement and inclusivity within our Residence Hall
- Coordinated with on-campus partners and the Residence Hall Association to plan community events for the Residence Hall serving 740 students

Presentations

- Dennis, Mitchell (2019, April). *Data Analysis Server for the Nab Experiment.* Poster session at the 2019 National Conference for Undergraduate Research at Kennesaw State University.

- Dennis, Mitchell (2018, April). *Data Compression for the Nab Experiment.* Poster session at the 2018 National Conference for Undergraduate Research at the University of Central Oklahoma.

Curiosity Matters Planning Committee, University of Kentucky Libraries
Student Representative 08/2017 – Present

- Served on the Curiosity Matters planning committee helping coordinate an event with multiple sponsors, 30 unique booths, and 200 attendees.

MEMBERSHIPS

Society of Physics Students
President 04/2017 – Present

- Coordinated a food drive to donate 20 Thanksgiving meals to underserved families in the Lexington Community
- Organized a fundraising effort to raise $5,000 and bring internationally recognized journalist Terry Anderson to the University of Kentucky campus for a Transformational Leadership Seminar
- Coordinated with on-campus partners and the Residence Hall Association to plan community events for the Residence Hall serving 740 students and North Campus as a whole serving
- Currently serving as co-chair for the Local Arrangements and Hotels Committee for the first annual National Leadership Conference to be held in Lexington, KY in June

Society of Physics Students
Member 11/2016 – Present

- Worked on a Tiny Titan Supercomputer project at the University of Kentucky built using 8 Raspberry Pi's to create a parallel computing system usable by undergraduates on projects including:
    - Estimation of the value of Pi using multiple different methods comparing efficiency
    - Running fluid dynamics software using various formats with parallel computing
- This project was funded by a grant from the Society of Physics Students

Tau Beta Pi
Member 08/2017 – Present

- Designed awards and placards presented to distinguished Tau Beta Pi faculty for their continued service to the University