

DAPHNE HAN

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EDUCATION

CARNEGIE MELLON UNIVERSITY, Pittsburgh, PA

Bachelor of Science, Computational Biology; Design for Learning minor; Pre-Med Track

Expected 2025

- Activities: Student Government Director of Organizations, Computational Biology Society Executive Board Member
- Courses: Honors Biochemistry, Quantitative Genetics, Modern Biology, Cell Biology, Organic Chemistry 1&2, Probability and Statistical Inference, Intro to Computer Systems, Principles of Imperative Computation, Intro to ML, Computational Modeling of Biological Systems, Computational Genomics, Great Ideas in Theoretical Computer Science
- Awards and Honors: Helen and Henry J. Posner Presidential Scholarship, Grace Hopper Conference Scholarship 2022

PROJECTS

EXPLORATION OF FRAGMENTOMICS FOR MONITORING PROGRESSION IN NEUROFIBROMATOSIS PATIENTS

MD Anderson Cancer Center Department of Epidemiology – Dr. Paul Scheet

May 2023 – Present

- Funded by CPRIT CURE 2023
- Analyzing properties of cell-free DNA fragments from blood plasma in a surveillance population of Neurofibromatosis (NF1) patients. The goal is to identify properties (such as size and location) that serve as an indicator of early cancer/risk detection as tumors become malignant.
- Presented at 2023 CPRIT Innovations Conference

HAT: HEAD-WORN ASSISTIVE TELEOPERATION OF MOBILE MANIPULATORS

Carnegie Mellon University Robotics Institute – Dr. Zackory Erickson

March 2022 – November 2022

- **2nd Author published in 2023 IEEE ICRA**
- <https://ieeexplore.ieee.org/document/10160431>
- Using Python and ROS to design a headband device for quadriplegic individuals to control a robot (Stretch RE1) that can assist them with everyday tasks. Robot can be controlled in 4 different modes using head motion. Head device uses voice detection to switch between the modes.
- Currently in works for patent
- <https://sites.google.com/view/hat-teleop/home>

COMPARATIVE ANALYSIS OF HAPLOTYPE ASSEMBLY ALGORITHMS

Texas State University Mathematics Department – Dr. Shuying Sun

June 2020 – December 2022

- **2nd Author published in BMC Genomic Data June 2023**
- <https://bmcbiomedcentral.com/articles/10.1186/s12863-023-01134-5>
- Analyzed several haplotype assembly algorithms such as MixSIH, WhatsHap, SDhaP, etc. using Unix, R, and Perl
- Presented work at 2020 Texas State University Math Graduate Student Expo, 2020 ICSA Applied Statistics Symposium, and 2022 Texas State University Health Scholars Conference

KINGWOOD MATH CAMP

Founder, Director

February 2020 – May 2021

- Founded free one-week math camp for over 50 middle school students aimed at improving mathematical literacy, increasing math interest, and teaching math communication through art and oral presentations.
- Invited to speak at Google and Beyond Education Board Meeting at Humble ISD

WORK EXPERIENCE

15-112 FUNDAMENTALS OF PROGRAMMING & CS TEACHING ASSISTANT (TA)

Carnegie Mellon University School of Computer Science

January 2023 - Present

- Working as TA for one of the largest introductory CS courses at CMU (Python) covering OOP, lists, strings, recursion, graphics and animation, etc.
- Lead recitations 2x a week and hold weekly office hours; grade quizzes and exams; address student questions on Piazza
- Mentor group of 10 students for a final project at the end of the semester

07-131 GREAT PRACTICAL IDEAS IN CS TEACHING ASSISTANT (TA)

Carnegie Mellon University School of Computer Science

June 2022- December 2022

- TA for the first-year SCS course that introduces students to useful tools and technologies used during their education such as LaTeX, Shell, Bash, Git, etc.
- Leading & creating all lecture contents, skill-building workshops, etc.

CAMP COUNSELOR, LEAD RESEARCH COORDINATOR

Mathworks HSMC

June 2021- August 2021

- Led a group of 4 high school students in the first-year program through number theory classes and guided them to build a strong foundation in proof-writing in a variety of topics covered such as logic, set theory, proof methods (induction, well-ordering principle), modular arithmetic and bases, Euclidean algorithm, relations, equivalence classes, etc.
- Provided feedback to over 20 research projects and papers, LaTeX tutorials, and set up 1-on-1 meetings with research groups to teach presentation skills. Served as head communicator between program supervisors and students.

VOLUNTEER EXPERIENCE

UPMC Presbyterian/Shadyside

January 2022- Present

- 50+ hours
- Currently working in patient experience team working specifically with cancer patients.
- Worked as unit rounder in the oncology and cardiovascular pavilion units.

ADDITIONAL SKILLS

- Experience using Unix, LaTeX, Python, C, Git, ROS, Java, C++, OpenCV, C, Arduino, Unity, C#, JavaScript, and Excel
- Experience working with patients, students, mathematics education, science communication, public speaking
- Fluent in Mandarin and English. Limited working proficiency in Spanish.