

Dong Gi Hur

Stanford Medical Student

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EDUCATION

Aug 2021 - Current

Stanford Medical School (Stanford, CA)
Scholarly concentration: Informatics & Data-Driven Medicine (IDDM) and Surgery
Project Title: Salvaging Cell-Free DNA From Sampling Contamination
Research Advisor: Ash Alizadeh, MD

Aug 2016 – May 2020

Harvard University (Cambridge, MA)
B.A. with Highest Honors in Neuroscience
Major: Neuroscience | Minor: Computer Science
Thesis Title: "Mapping mice's and ants' motor behaviors using computer vision and unsupervised learning"
Thesis Supervisor: Professor Venkatesh N. Murthy

TEACHING EXPERIENCE

Jan 2023 – Apr 2023

Teaching Assistant, Stanford School of Medicine

NBIO 206 – The Nervous System

Professor: Andrew D. Huberman

- Led weekly sections for medical students and undergraduates to teach general frameworks in neuroanatomy, neuropathology, and neuropharmacology
- Revamped lecture slides and study guides while working closely with faculty leads to update and enhance course offerings
- Assisted in neuroanatomy lab to show dissections and correlate anatomical structures with clinical presentation
- Developed board-style questions to enable medical students to apply clinical knowledge and formulate diagnostic workups and treatments

Aug 2020 – Dec 2020

Head Teaching Fellow, Harvard University

Life Science 100 - Experimental Research in the Life Sciences

Professor: Venkatesh N. Murthy

- Developed lecture materials, python programs, and guides for this lab-based computational ethology course
- Created python-based problem sets for undergraduates to gain more hands-on coding experience
- Held weekly sections and office hours to help students understand the lecture material for their problem set

Aug 2019 – Dec 2019

Teaching Assistant, Harvard University

Engineering Science 152 - Circuits, Devices, and Transduction

Professor: Gu-Yeon Wei

- Taught and overlooked Harvard's introductory lab-based course on analog electronics
- Held weekly office hours to help students with problem sets, circuit designs, and final project

RESEARCH/LAB EXPERIENCE

Jan 2023 – Current

Independent Researcher – Trauma Center Research

Stanford Health Care, Stanford Medical School (Stanford, CA)

- Advisors: Clifford C. Sheckter MD, David A. Spain MD, S. Morad Hameed MD MPH, Jeff Choi MD
- Spearheaded three research projects as the primary investigator
- Project #1: Investigated geographic and demographic disparities in access to US burn centers
- Project #2: Identified the association between US pediatric trauma center access, injury burden, and socioeconomic disadvantage
- Project #3: Analyzed national differences in trauma activation fees between for-profit and non-profit trauma centers
- Developed a Python package that computes ground and air travel time utilizing OpenStreetMap and Google Map
- Programmed in Python to conduct large national database analyses using machine learning clustering methods
- Resulted in two JAMA Surgery manuscript publications and one pending manuscript publication

- Jan 2023 – Current** Independent Researcher – Surgical Oncology Research
Stanford Health Care, Stanford Medical School (Stanford, CA)
- Advisors: Beatrice Sun MD, Byrne Lee MD
 - Executed three research projects as a primary data collector and secondary author
 - Project #1: Identified the predictive value of clinical complete response from MRI/PET/CT after chemoradiation for rectal cancer – 400+ chart review, statistical analysis
 - Project #2: Investigated the use of circulating tumor DNA in monitoring of soft tissue sarcoma treatment and recurrence – 20+ chart review, data extraction
 - Project #3: Analyzed trends in national database studies in Annals of Surgical Oncology – Annotated 500+ surgical oncology articles, data preprocessing and text parsing
 - Resulted in one Journal of Surgical Research manuscript publication, one Annals of Surgical Oncology manuscript publication, and one abstract submission to conference
- Jan 2022 – Mar 2023** Research Assistant
Stanford Medical School (Stanford, CA)
- PI: Ash Alizadeh (Professor of Medicine, Oncology, and Hematology, Stanford University)
 - Investigated potential methods for measuring cell-free and circulating tumor DNA contamination in liquid biopsy
 - Developed and refined a novel lab protocol aimed at filtering circulating tumor DNA and increasing the sensitivity of early cancer detection
 - Presented work in poster format at the Stanford Medical Student Research Symposium
 - Performed phlebotomy on healthy volunteers to get control blood samples
 - Programmed in Python and R for quantitative PCR analysis and figure generation
 - Project funded by Stanford MedScholar Research Scholarship
- Aug 2018 – May 2021** Research Assistant
Harvard University (Cambridge, MA)
- PI: Venkatesh Murthy (Professor of Molecular and Cellular Biology, Harvard University)
 - Senior Thesis: Mapping animal behavior using unsupervised machine learning (Ethometer)
 - Programmed a pipeline that utilizes computer vision, Morlet wavelet transformation, dimensional reduction, and clustering algorithms to categorize animal behaviors with minimal human bias
 - Trained a deep convolutional neural network to estimate ants' and mice's body postures through DeepLabCut
 - Recorded videos of carpenter ants and mice during their trail tracking and foraging behavior to observe heterogeneity of locomotion between castes and genetic variations respectively
- Aug 2018 – May 2020** Independent Researcher
Harvard Active Learning Lab (Cambridge, MA)
- Supervisor: Evan Smith (Harvard School of Engineering and Applied Sciences)
 - Developed electrical and mechanical systems as personal projects: Electrocardiogram
 - Electrocardiograms: built an ECG using notch filter, electrodes, and differential amplifier
- Dec 2016 – Aug 2018** Research Assistant
Massachusetts General Hospital, Harvard Medical School (Boston, MA)
- PI: Dr. Jorge Sepulcre (Associate Professor of Radiology, Harvard Medical School; Assistant in Neuroscience, Massachusetts General Hospital)
 - Programmed a software in MATLAB utilizing graph theory and used Gephi to find the plausible genetic pathways between Tau and beta-Amyloid in Alzheimer's patients
 - Awarded the Harvard College Research Program (HCRP) grant to conduct research on the genetic pathology leading to Alzheimer's Disease
- Aug 2012 – May 2016** Research Assistant
University of Texas at Arlington (Arlington, TX)
- PI: Young-Tae Kim (Associate Professor of Bioengineering, University of Texas at Arlington)
 - Researched the idiosyncratic elastic characteristics of metastasizing and non-metastasizing breast cancer cells
 - Extracted collagen from rats and prepared bone scaffold using Polydimethylsiloxane (PDMS) devices to make thin filaments of collagen, which were used to assemble bone scaffolds for bone lengthening and regeneration
 - Cultured MCF7 and MB231 cells on microfluidic devices using PDMS; stretched cells using optical tweezing; utilized digital holographic microscopy to create a phase map of cancer cells

LEADERSHIP/VOLUNTEER EXPERIENCE

- July 2022 – June 2023** **Coleader**
Stanford Surgery Interest Group (Palo Alto, CA)

- Organized several events aimed at increasing medical student interest and exposure to surgical specialties, including mixers, panels, and hands-on workshops
- Facilitated connections between faculty/residents and medical students to promote medical student research involvement
- Oversaw surgical skills workshops by preparing and setting up supplies, coordinating faculty members, and guiding medical students in knot-tying and suturing sessions
- Managed financial budget for surgery and surgical subspecialty interest groups

Aug 2021 – June 2024

Volunteer

Pacific and Arbor Free Clinic

- Provided transitional medical care for under-resourced and immigrant population at Pacific and Arbor Free Clinic
- Developed diagnostic and treatment plans tailored to limited clinic resources
- Presented patients to attendings, wrote clinic notes, and referred patients to specialty clinics
- Performed diagnostic tests: phlebotomy, EKG, and ultrasound
- Guided premedical and medical students in performing effective history/physical and forming diagnostic frameworks

Feb 2022 – Mar 2023

Volunteer

Palo Alto Opportunity Center (Palo Alto, CA)

- Cooked and served breakfast at the Palo Alto Opportunity Center, a transitional shelter for the homeless in the Palo Alto community

Aug 2021 – July 2022

Volunteer

Stanford Flu Crew

- Provided COVID and flu vaccines in the free clinics, among low-resource communities in the Bay Area, and around the Stanford campus

Feb 2018 – Dec 2020

Street Outreach Volunteer

Harvard Square Homeless Shelter (Cambridge, MA)

- Prepared breakfast for homeless youth and cleaned the shelter every Saturday morning
- Delivered meals, warm clothes, and supplies to homeless individuals out in Harvard square

Aug 2018 – May 2020

Co-director, Supervisor

Philips Brooks House Association: ExperiMentors (Cambridge, MA)

- Organized meeting with board members and volunteers to perform science experiments at Boston public school
- Created an inventory of over 10 chemistry, physics, and biology experimental kits for the volunteers to use for their school visits
- Led a team of 30 volunteers to teach science for over 150 kids from 7 different Boston public schools every year

Jan 2018 – May 2018

Science Day Coordinator/Supply Manager

Philips Brooks House Association: ExperiMentors (Cambridge, MA)

- Directed Science Day: an opportunity for over 200 kids from local Boston public schools to come to Harvard lab and observe science experiments from Harvard faculties and undergraduates

Aug 2017 – May 2020

Volunteer

Philips Brooks House Association: ExperiMentors (Cambridge, MA)

- Taught science and conducted experiments for kids in K-6 Boston public schools to help them develop a passion for science

WORK EXPERIENCE

Oct 2021 – Apr 2023

Audio Visual Technician

Stanford Technology and Digital Solutions (Stanford, CA)

- Set up Zoom lectures, troubleshoot video and audio issues, and ensured scheduled lectures ran smoothly
- Worked with Stanford Technology and Digital Solutions to troubleshoot technology problems

Dec 2018 – Jan 2020

Technical Developer/Consultant

BrainMind (Cambridge, MA)

- Curated a large database of neuroscience companies and performed statistical analysis to help investors properly allocate resources into neuroscience research projects

May 2017 – May 2018**Project Manager**

Harvard Student Agencies Dev (Cambridge, MA)

- Coordinated the Sandbox LetsGo project by allocating work to 4 engineers and collaborating with multiple clients
- Monitored code during code reviews to recommend better solutions and to maintain an optimized code base

Jan 2017 – May 2017**Developer**

Harvard Student Agencies Dev (Cambridge, MA)

- Developed mobile apps and websites using React, React Native, and Vanilla Javascript for clients
- Refactored code to optimize software performance and to maintain product scalability
- Collaborated with project managers and designers to create products that best meet the needs of the clients

PUBLICATIONS AND PAPERS

1. **Hur DG**, Ren AL, Yue TM, Spain DA, Choi J. . *Pediatric Trauma Center Access, Regional Injury Burden, and Socioeconomic Disadvantage*. *JAMA Surgery*. May 2024; 159(9):832–833. Cited in PubMed; PMID: 38748438.
2. Choi J, **Hur DG**, Tennakoon L, Spain D, Staudenmayer, K. *The burden of readmissions after rib fractures among older adults*. *Journal of Surgery*. *Journal of Surgery*. June 2024; 176(3):955-960. Cited in PubMed; PMID: 38880698.
3. Sun BJ, Li AY, **Hur DG**, Zhou M, Poultsides GA, Delitto DJ, Lee B. *Circulating Tumor DNA in the Monitoring of Soft Tissue Sarcoma Treatment and Recurrence*. *Annals of Surgical Oncology*. July 2024. Publication Status: Accepted/In-Press.
4. **Hur DG**, Yao J, Yue TM, Sheckter CC, Choi J. *Access to Burn Care in the US*. *JAMA Surgery*. February 2024; 159(4):463-465. Cited in PubMed; PMID: 38353985.
5. Liu C, Boncompagni AA, Perrone KH, Agarwal AA, **Hur DG**, Lopez I, Sheth V, Morris AM. *Predictive Value of Magnetic Resonance Complete Response After Neoadjuvant Therapy for Rectal Cancer*. *Journal of Surgical Research*. August 2024. Publication Status: Under Review

PRESENTATION

1. **Hur DG**, Ren AL, Yue TM, Spain DA, Choi J. . *Holman Day*. Poster presented: *Association Between US Pediatric Trauma Centers Access, Regional Injury Burden, and Socioeconomic Disadvantage in the US*. Palo Alto, CA, United States of America; 05/03/2024.
2. **Hur DG**, Boegholz J, Garofalo A, Sugio T, Olsen M, Alizadeh A. *Stanford Medical Student Research Symposium*. Poster presented: *Salvaging Cell Free DNA From Sampling Contamination*. Stanford, CA, United States of America; 04/27/2023.
3. **Hur DG**, Yao J, Yue TM, Sheckter CC, Choi J. *Stanford Medical Student Research Symposium*. Poster presented: *Access to Burn Care in the US*. Palo Alto, CA, United States of America; 04/27/2023.
4. Sun BJ, Li A, **Hur DG**, Daniel SK, Kirane AR, Poultsides G, Lee B. *Detection of circulating tumor DNA predicts recurrence in soft tissue sarcomas*. Oral presentation: *Society of Surgical Oncology International Conference on Surgical Cancer Care*; 03/23/2023. Boston, MA, United States of America.
5. Liu C, Boncompagni AA, Perrone K, Agarwal A, **Hur DG**, Lopez I, Sheth V, Morris AM. *Predictive Value of Clinical Complete Response after Chemoradiation for Rectal Cancer*. Oral presentation: *Holman Day*; 05/13/2022. Palo Alto, CA, United States of America
6. **Hur DG**, Mandal S, Grimaud J, Wu H, Murthy VN. *Mapping animal behavior using unsupervised machine learning*. Oral presentation: *Harvard University Neuroscience Senior Thesis Presentation*; 04/30/2020. Boston, MA, United States of America.
7. Mandal, S.*, **Hur DG***, Grimaud, J., Wu, H., Kapoor, V., Murthy, V.N. (2019) *How do ants find their food? Mapping food-searching and trail-following behavior using machine learning*. *Gordon Research Conference*, West Dover, VT. Poster Presentation.
8. Nham K. *, **Hur DG***, Kim Y. , & Mohanty S. . (2016). *Digital holographic microscopy for imaging biophysical changes in cells during migration*. *SPIE Research Conference*. Poster Presentation.

AWARDS AND DISTINCTION

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| May 2020 | Highest Honors in Neuroscience (Thesis: High Magna Cum Laude) |
| May 2018 | John Harvard Scholar |
| April 2016 | Ford Driving Dreams Scholarship |

GRANTS AND FELLOWSHIPS

May 2022	Stanford Medical Student Research and Scholarship
June 2019	Harvard College Research Program Grant
June 2018	Abramson Fellowship
June 2018	Harvard College Research Program Grant
June 2017	Harvard College Research Program Grant

MEMBERSHIPS

- Stanford Surgery Interest Group
- Stanford Physician Scientist Training Program (PSTP)