BIOGRAPHICAL SKETCH

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NAME: David Hsu

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: Heed Fellowship

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
Stanford University	BS	09/2014	06/2018	Biology
University of Pennsylvania	MD	08/2019	05/2023	Medicine
UCLA		06/2023		Ophthalmology

A. Personal Statement

I am an aspiring glaucoma specialist driven to utilize big data analytics to answer clinically meaningful questions for my patients. My long-term goal is to build a career as an academic ophthalmologist who integrates clinical glaucoma care, research, and data-driven methods to improve risk stratification and treatment decision-making. I am particularly interested in using large EMR datasets to identify modifiable risk factors, characterize real-world disease trajectories, and generate evidence that can be translated into practical guidance for clinicians and patients.

My current research uses large EMR datasets to address clinically relevant questions across multiple ophthalmic subspecialties, with an emphasis on longitudinal outcomes, risk stratification, and modifiable factors that may inform patient care. In glaucoma, I am evaluating the relationship between melatonin use, glaucoma incidence, glaucoma severity, and intraocular pressure among patients with sleep-wake disorders. Using SOURCE Collaboration data with longitudinal medication, diagnosis, and IOP measurements, this study will apply time-to-event survival models and cross-sectional analyses to assess whether melatonin exposure is associated with glaucoma development or IOP modulation (Victoria Tseng, MD PhD; Anne Coleman, MD PhD). I am also pursuing a collaborative project between the glaucoma and cataract/refractive surgery services to evaluate the longitudinal effects of femtosecond-laser-assisted cataract surgery (FLACS) in patients with glaucoma. This study aims to assess whether FLACS is associated with changes in glaucoma progression, medication burden, or intraocular pressures, with the broader goal of informing surgical decision-making for patients with coexisting cataracts and glaucoma (Reza Alizadeh, MD MS; Shawn Lin, MD). In retina, I am assessing systemic and medication-related risk factors associated with myopic degeneration and myopic choroidal neovascularization. Although pathologic myopia has been more extensively studied in Asia, its risk factors remain relatively understudied in diverse U.S. populations. By leveraging UCLA's heterogeneous patient population, this project aims to identify risk factors that are more applicable to the American population and to generate clinically relevant guidance for risk-factor modification, similar to established approaches in age-related macular degeneration (Kirk Hou, MD PhD; Adrian Au, MD PhD).

These projects reflect my broader commitment to using real-world clinical data to address questions that arise directly from patient care. As glaucoma is a chronic disease that requires lifelong monitoring and individualized risk assessment, I believe there is a critical opportunity to apply large-scale analytics to better identify patients at higher risk of progression and select the appropriate intervention at the right time to meaningfully alter their clinical course. Through continued training and development of my research skills, I envision myself as a clinician-scientist who advances glaucoma care by translating complex clinical datasets into actionable insights to improve outcomes for each patient I care for.

B. Positions, Scientific Appointments and Honors

2025 – Present	UCLA Stein Eye Institute Resident Consult Task Force
2023	Perelman School of Medicine Dr. O.H. Perry Pepper Prize
2022 – 2023	Perelman School of Medicine Course Curriculum Representative
2022	Perelman School of Medicine General Anatomy Chief Teaching Assistant
2022	University of Pennsylvania Women's Varsity Tennis Volunteer Assistant Coach
2019 – 2021	Perelman School of Medicine Student Community Clinics Leadership Group Co-Chair
2019 – 2021	Perelman School of Medicine Admissions Committee Interviewer
2020	Penn Medicine Institute for Translational Medicine and Therapeutics Summer Fellow
2018	Stanford University, Department of Biology Honors
2015	Intercollegiate Tennis Association Scholar Athlete

C. Contributions to Science

1. My earlier research training in cardiology and translational medicine provided the foundation that I now bring to ophthalmology. At Stanford, I worked on projects involving genome-wide association studies, arrhythmia risk, ventricular remodeling, and large-scale biobank-based cardiovascular analyses. For athlete screenings, we highlighted the pitfalls that arise with traditional QT interval correction methods for identifying patients with long QTs and proposed new QT interval thresholds for further cardiovascular investigation during athletic screenings based off heart rate. In addition, we demonstrated the importance of echocardiography for screening and the shortcomings of traditional equations for estimating left ventricular hypertrophy with standard 12 lead ECGs.

A. Hedman K, Patti A, Moneghetti KJ, **Hsu D**, Christle JW, Ashley E, Hadley D, Haddad F, Froelicher V (2020). Impact of the distance from the chest wall to the heart on surface ECG voltage in athletes. *BMJ Open Sport & Exercise Medicine*, *6*(1), e000696.
B. Hedman K, Moneghetti KJ, **Hsu D**, Christle JW, Patti A, Ashley E, Hadley D, Haddad F, Froelicher V (2020). Limitations of electrocardiography for detecting left ventricular hypertrophy or concentric remodeling in athletes. *The American Journal of Medicine*, *133*(1), 123–132.e8.
C. Hadley D, **Hsu D**, Pickham D, Drezner JA, Froelicher VF (2017). QT corrections for long QT risk assessment: Implications for the preparticipation examination. *Clinical Journal of Sport Medicine: Official Journal of the Canadian Academy of Sport Medicine*.
D. Pickham D, **Hsu D**, Soofi M, Goldberg JM, Saini D, Hadley D, Perez M, Froelicher VF (2016). Optimizing QT interval measurement for the preparticipation screening of young athletes. *Medicine and Science in Sports and Exercise*, *48*(9), 1745–1750.

2. I have contributed to studies using multi-center and population-level clinical datasets to better characterize disease prevalence, risk factors, and clinically meaningful phenotypes. In ophthalmology, we evaluated the prevalence of novel Sjögren's antibodies in a population directly derived from dry eye clinics, highlighting the need for more non-invasive approaches for screening of Sjögren's disease, especially for ophthalmologists. In cardiology, we were able to validate allometric coefficients for lean body mass scaling for left ventricular remodeling and generate a novel index for left ventricular concentricity, allowing for more accurate phenotypic categorization of left ventricular remodeling profiles.

A. **Hsu D**, Yu Y, Akpek EK, Guo L, Liu T, Massaro-Giordano M, Abboud S, Fogt F, Bhutani D, Iacobucci E, Pendyala J, Vivino FB, Baer AN, Ying GS, Bunya VY (2025). Prevalence of novel Sjögren's antibodies in a multi-center cohort of dry eye patients. *The Ocular Surface*.
B. Haddad F, Gomes B, Kutznetsova T, Cauwenberghs N, **Hsu D**, Kobayashi Y, Ingelsson E, Oxborough D, George K, Salerno M, Ashley EA, Hedman K (2022). The allometry of ventricular remodeling based on lean body mass, a UK BioBank Study. *European Journal of Applied Physiology*.

3. During my medical training, I have been fortunate to learn from strong clinical faculty and contribute to the ophthalmic literature with case reports including rare cases of secondary MEWDS, suprachoroidal triamcinolone for Irvine-Gass Syndrome, cataracts associated with MIS-A, and a black sunburst lesion in sickle cell trait. I have also contributed to the retina literature through a review of chorioretinal folds and a chapter of *Ryan's Retina* on multimodal retinal imaging, including fluorescein angiography, ICGA, and ultra-widefield imaging.

A. Tailor PD, Bousquet E, Gundlach BS, **Hsu D**, Bataille N, Sarraf D (Accepted). Fluorescein and Indocyanine Angiography and Ultrawidefield Applications. *Ryan's Retina* (8th edition).
B. **Hsu D**, Feo AF, Tsui I, Sarraf D (2026). Secondary or Epiphenomenon Multiple Evanescent White Dot Syndrome (EpiMEWDS) in a Patient with Central Serous Chorioretinopathy. *Retinal Cases and Brief Reports*.
C. Cheng JY, **Hsu D**, Feo A, Liu V, Mafi M, Sarraf D (2025). Chorioretinal folds: A review and update of new and old etiologies. *Survey of Ophthalmology*.
D. Hanson J, **Hsu D**, Pillar S, Tsui E, Tsui I (2024). Resolution of Postoperative Cystoid Macular Edema with a Suprachoroidal Triamcinolone Acetonide Injectable Suspension. *Ocular Immunology and Inflammation*, 1–4.
E. Gundlach B, Lee SY, **Hsu D**, Sarraf D (2025). Fundus Autofluorescence of Black Sunburst Lesion in a Sickle Cell Trait Patient. *Canadian Journal of Ophthalmology* 60.5 (2025): e787-e791.
F. Kim DH, **Hsu D**, Li Y, Sulewski ME (2022). Cataracts in setting of multisystem inflammation after COVID-19 vaccination. *American Journal of Ophthalmology Case Reports*, 101654.

D. Scholastic Performance

YEAR	COURSE TITLE	GRADE