BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Henry W Zhou

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

POSITION TITLE: Ophthalmology Resident

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
University of Pennsylvania	BA	08/2014	05/2018	Biochemistry
University of Pennsylvania	MS	08/2016	05/2018	Chemistry
Columbia University	MD	08/2018	05/2022	Medicine
Harvard University/Mass Eye and Ear	Residency	06/2022	Present	Ophthalmology

A. Personal Statement

My academic training and research experience have provided me with a strong foundation across multiple disciplines including molecular biology, biochemistry, neurobiology, genetics, and translational research. Though I am the first physician in my family, my parents (both high school teachers) instilled in me a love of learning and a belief that early and continuous investment in knowledge pays dividends across a career. That ethos has guided every stage of my training and has shaped my path toward becoming a physician-scientist in academic ophthalmology.

As an undergraduate at the University of Pennsylvania, I studied biochemistry and was selected for the Vagelos Scholars Program in Molecular Life Sciences, through which I concurrently earned a Master's degree in Chemistry. Throughout all four years of college, I conducted bench research in cell and neurobiology, gaining expertise in confocal microscopy, Western blotting, *Drosophila* genetic husbandry, and immunohistochemistry. I defended my Master's thesis weeks before college graduation. Though the program was among the most challenging experiences of my education (I took graduate-level genetics courses as a sophomore) it was also the most formative, and it has informed the direction of my career ever since.

At Columbia University’s College of Physicians and Surgeons, I was awarded an NIH T-35 grant to study novel biomarkers of epilepsy using data from stereotactic EEG under the mentorship of Dr. Catherine Schevon. This project required me to rapidly learn both MatLab programming and EEG waveform analysis. Though my clinical interests eventually deviated from neurology, this experience was foundational for developing basic computational skills for clinical research and as proof-of-concept for my ability to quickly learn new methodologies. Once I discovered ophthalmology, I fell deep into the academic aspects of the field. My interest in neurobiology translated naturally into an interest in inherited retinal disease, and work with Dr. Steven Tsang resulted in a textbook chapter on clinical endpoints for Luxturna. I found additional mentorship from Dr. Michael Kazim, whose guidance led to several publications on thyroid eye disease and, through one of his oculoplastics fellows, ultimately led me to Mass Eye and Ear for residency training.

At Mass Eye and Ear, I have been fortunate to work with a range of research mentors spanning bench and clinical research. With Dr. Leo Kim, my primary mentor in basic research, I have earned two grants, the internal Gragoudas-Folkman Award and the national VitreoRetinal Surgery Foundation (VRSF) Research Award, to investigate the use of circular RNA therapeutics for the treatment of diabetic retinopathy and proliferative vitreoretinopathy. We also co-authored a review on emerging gene therapies in age-related macular degeneration for Resident's Course 2025. In clinical research, I have pushed several first-author projects to completion with Dr. Patel and Dr. Miller, and I am particularly proud of my intimate involvement in each of these studies from conception through design, data collection, and manuscript preparation. I have also published case reports with various faculty, a textbook chapter with Dr. Young, and have ongoing work with Drs. Bleicher, Eliott, Pineda, and Mukai. I have now been selected as the Director of Resident Education at Harvard Medical School and Director of the Eye Trauma Service at Mass Eye and Ear for the 2026–2027 academic year, a position offered to top residents in each graduating class.

As I transition into my new role, I will continue to build on my work in Dr. Kim's laboratory investigating RNA-based approaches to vitreoretinal disease. My long-term research goals are twofold. First, I aim to study molecular mechanisms relevant to vitreoretinal disease and to translate those findings into novel therapeutics. Second, I am committed to the development and rigorous assessment of novel surgical techniques for the advancement of vitreoretinal surgery.

B. Positions, Scientific Appointments and Honors

Positions and Scientific Appointments

2026 – Present	Instructor in Ophthalmology, Harvard Medical School
2019	Research assistant, Columbia College of Physicians and Surgeons
2014 – 2018	Undergraduate research assistant, University of Pennsylvania

Honors

2026	Director of Resident Education, Harvard Medical School
2024	Research Award, VitreoRetinal Surgery Foundation
2024	Gragoudas-Folkman Award, Harvard Medical School
2023	Chandler Conference Chair, Harvard Medical School
2023	Award for Clinical Excellence, Mass General Brigham
2019	NIH T-35 grant, Columbia College of Physicians and Surgeons
2018	Magna Cum Laude and Honors in Biochemistry, University of Pennsylvania
2017	Y-Prize award for best biomedical startup, University of Pennsylvania
2015	Scholarship, Penn Undergraduate Research Mentorship Fellowship, University of Pennsylvania
2014 – 2018	Scholarship, Vagelos Scholars Program in Molecular Life Sciences, University of Pennsylvania

C. Contributions to Science

1. Undergraduate Career: My early career contributions as an undergraduate research assistant began in the lab of Nancy Bonini at Penn, where I worked on models of neurodegeneration in *Drosophila* models. Over two years, I developed skills in Drosophila genetics and husbandry, cell culture, confocal microscopy, and Western blotting. I was able to conduct experiments independently and process my data to provide deliverable results for the team, which eventually resulted in a publication. I took many of these skills with me to my next lab, the Bashaw Lab at Penn, where I worked for the last two years of my undergraduate studies. There, I developed my own independent project studying Tap, a neurogenin homolog in fruit flies, and its role as a novel mediator of neuronal growth and guidance.

a. Mcgurk L, Rifai OM, Scherbakova O, Perlegos AE, Byrns CN, Carranza FR, Zhou HW, Kim HJ, Zhu Y, Bonini NM. Toxicity of pathogenic ataxin-2 in Drosophila shows dependence on a pure CAG repeat sequence. Hum Mol Genet 2021;30(19):1797-810.

2. Graduate Career: In medical school at Columbia University, my pre-existing interest in genetics and neurobiology led me to meet with Dr. Steven Tsang, an expert in inherited retinal disorders. I published a textbook chapter on the Luxturna clinical trial endpoint for multi-luminance mobility testing. Following this

experience, I became more involved in the Ophthalmology department. I published case reports with Dr. Michael Kazim in the oculoplastics department, before starting to work on my own projects in thyroid eye disease

a. **Zhou HW**. Multi-Luminance Mobility Testing Endpoint. Author, textbook chapter, Retinitis Pigmentosa, Methods Mol Bio 2023;2560:175-179.

b. **Zhou HW**, Tran AQ, North VS, Zagzag D, Sen C, Kazim M. GNA11 Mutation in an Orbital and Intracranial Melanocytoma with Nevus of Ota. Ophthalmic Plast Reconstr Surg 2021;38(2):e47-9.

c. Tran AQ, **Zhou HW**, Nanda T, Godfrey KJ, Tooley AA, North VS, Kazim M. Evolution of Asymmetric Proptosis During the Active Phase of Thyroid Eye Disease. Orbit 2022;July 8:1-5.

d. North VS, **Zhou HW**, Tran AQ, Godfrey KJ, Kazim M. Association of Patient Age and the Thyroid Eye Disease-Clinical Activity Score. Ophthalmic Plast Reconstr Surg 2023;39(6S):S46-50.

3. Postdoctoral/Residency Career: At Mass Eye and Ear, my research with Leo Kim's lab is not yet ready for publication. More work is required to develop the use of circular RNA technology, a first-of-its-kind technology that is being actively developed for human therapeutics. My role in the team has been performing key experiments in cell culture to move the project forward, as well as analyzing data generated from other lab members' experiments. My other interest has been in studying vitreoretinal clinical outcomes, including a recent project with Dr. John Miller investigating outcomes in secondary IOLs. Two additional projects, with Dr. Nimesh Patel, were focused on the utility of follow ups for commotio retinae and on outcomes of sustained release intravitreal steroid implants. I was responsible for conception, data collection, analysis, and writing for these first-author projects. My scholarly work at this time also included non-peer reviewed writing such as a review paper on gene therapy with Dr. Kim and a textbook chapter on fungal endophthalmitis with Dr. Lucy Young.

a. **Zhou HW***, Ploumi I*, Nodecker KN, Barake K, Gong D, Davila JR, Dahrouj M, Patel NA, Miller JB. Outcomes and Complications of Secondary Intraocular Lens Implantation: Insights from a Vitreoretinal Surgery Cohort. Ophthalmic Surg Lasers Imaging Retina, in press.

b. **Zhou HW**, Hoyek S, Savant SV, Shuldiner SR, Armstrong GW, Miller JB, Patel NA. Utility Assessment of Follow Up Evaluation for Commotio Retinae. J Vitreoretin Dis. Online ahead of print. https://doi.org/10.1177/24741264241281156

c. **Zhou HW**, Tandias R, Lu ES, Hoyek S, Lin MM, Miller JB, Sola-Del Valle DA, Patel NA. Intravitreal Sustained Release Steroid Implants Are Safe and Effective in Patients With Glaucoma Drainage Devices. RETINA 2025;45(5):877-882.

d. **Zhou HW,** Young LH. Fungal Endophthalmitis. Author, textbook chapter, Fungal Eye Infections: Epidemiology, Diagnosis, and Treatment. In press.

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/14kfYwEreooUop/bibliography/public/

D. Scholastic Performance
n/a

YEAR	COURSE TITLE	GRADE