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: Jo-Hsuan Wu

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
National Taiwan University (NTU) College of Medicine	MD	07/2012	06/2019	Medicine
Shiley Eye Institute, University of California San Diego	Postdoctoral Fellow	11/2020	05/2024	Glaucoma
Harkness Eye Institute, Columbia University Irving Medical Center (CUIMC)	Residency	06/2024	06/2028	Ophthalmology

A. Personal Statement

My training and research experience have helped me build an academic foundation in clinical ophthalmology, glaucoma diagnostic, and artificial intelligence (AI) and data science.

My interest in vision science was first fostered by early research exposure to visual-neural-psychology in high school. During medical education at National Taiwan University, I developed broad clinical skills and received multiple academic honors. Subsequently, as a glaucoma and ophthalmology informatics research fellow at Shiley Eye Institute and an AI research collaborator with Wilmer Eye Institute, my research focused on clinical glaucoma diagnostic through ocular imaging (e.g., OCT/OCTA biomarkers), big data-based analysis of disease and care pattern (including health disparities and social determinants of health), and application of machine learning in ophthalmic image analysis. Through these experiences, I became familiar with clinical research design and population-level data analysis and was tasked as the image review leader for the DIGS dataset. Currently, as a resident at Columbia University Irving Medical Center, I continue to integrate clinical training with research in neuro-ophthalmology, AI-application in ophthalmic care, resident training improvement, and glaucoma risk assessment.

I have authored over 90 peer-reviewed publications, including first-author studies in major ophthalmology journals, and presented in national and international conferences. My long-term goal is to become an independent physician-scientist who advances vision science, translates scientific findings into best clinical practice, and provide mentorship to future trainees. Specifically, I hope to leverage ocular imaging, AI, and population health data to improve ocular disease monitoring and reduce disparities in vision care.

B. Positions, Scientific Appointments and Honors

Research Experiences and Positions

2026 – Present Research volunteer, AI4VS lab, Harkness Eye Institute, CUIMC
2024 – Present Resident investigator, Neuro-ophthalmology division, Harkness Eye Institute, CUIMC
2024 – Present Resident investigator, Glaucoma division, Harkness Eye Institute, CUIMC
2024 – Present Research collaborator, Shiley Eye Institute, UC San Diego
2021 – 2025 Research collaborator, Wilmer Precision Ophthalmology Center of Excellence
2023 – 2024 DIGS dataset image review leader, Shiley Eye Institute, UC San Diego

2020 – 2024	Glaucoma research fellow, Shiley Eye Institute, UC San Diego
2022 – 2024	Ophthalmology informatics research fellow, UC San Diego
2022 – 2024	Research observer, UC San Diego Altman Clinical and Translational Research Institute
2021 – 2022	Research assistant, Department of Ophthalmology, NTU Hospital
2018 – 2019	Student researcher, Health Data Science Group, NTU Hospital
2018 – 2019	Student research volunteer, Institute of Genomic Medicine/Engineering, UC San Diego
2010 – 2012	Student researcher, Institute of Cellular and Orgasmic Biology, Academia Sinica,
2009 – 2011	Student researcher, Visual-neural-psychology Lab, NTU

Honors

2025	New York Academy of Medicine Resident Research – 2nd Place Poster Award
2023	ARVO 2023 - WEAVR Foundation Travel Grant for 1st-authored Abstract
2019	NTU Hospital/College of Medicine - Best Intern Award
2019	NTU Hospital/College of Medicine - Best Surgical Intern Award
2019	NTU Hospital/College of Medicine - Most-thanked Intern Award
2012-2019	NTU Academic Excellence Awards
2014-2016	Literary Awards of NTU College of Medicine - Poetry section and Prose section
2013-2014	NTU Philosophy Laureate Awards - Science section and Humanities section
2012	Asian Science Camp Poster Conference - Best Poster Award
2012	Scholarship for Asian Science Camp (Taiwanese delegation)

C. Contributions to Science

As mentioned in the personal statement, my main research focuses from medical school to post-doctoral fellowship included artificial intelligence in ophthalmology, advanced ocular imaging in glaucoma diagnostics, and health disparities in eyecare. These endeavors have led to scholarly publications in vision science journals and conference presentations. During residency, my research interests further expanded to include the diagnostic and care pattern of neuro-ophthalmology conditions and novel tools for glaucoma risk assessment and resident surgical education. In addition to research conduction, I have remained active as a peer reviewer for multiple medical and vision science journals.

For specific examples of the contributions through these activities, please see below sub-sections.

Selected List of 1st Author Publications in scientific journals

Link to Full Google Scholar Profile: https://scholar.google.com/citations?user=IPOstykAAAAJ&hl=zh-TW

- Glaucoma progression detection time using OCT and OCTA in African and European descent individuals. Am J Ophthalmol. 2026 Feb;282:11-19.
- OCT and OCTA in Glaucoma. In: Grzybowski, A., Barboni, P. (eds) OCT and Imaging in Central Nervous System Diseases. Springer, Cham. 2025. https://doi.org/10.1007/978-3-031-72156-4_20
- Accuracy of large language models in answering ophthalmology board-style questions: a meta-analysis and systematic review. Asia Pac J Ophthalmol (Phila). 2024 Sep-Oct;13(5):100106.
- Longitudinal OCTA vessel density loss in macula and optic nerve head in healthy, glaucoma suspect and established glaucoma eyes. British Journal of Ophthalmology 2025;109:490-496.
- Time to detectable glaucoma progression by optical coherence tomography and visual field in glaucoma patients of African descent. Am J Ophthalmol. 2025 Jan;269:195-204.
- Social factors associated with the risk of converting to glaucoma among glaucoma suspect patients: an All of Us study. Ophthalmol Glaucoma. 2024 Nov-Dec;7(6):551-562
- Application of artificial intelligence in glaucoma: an updated review. Taiwan Journal of Ophthalmology 14(3):p 340-351.
- Social determinants of health and health disparities in glaucoma – A narrative review. Clin Exp Ophthalmol. 2024 Apr;52(3):276-293.
- Time to glaucoma progression detection by optical coherence tomography in individuals of African and European descents. Am J Ophthalmol. 2024 Apr;260:60-69.
- Long-term variability of retinal nerve fibre layer thickness measurement in patients with glaucoma of African and European descents. Br J Ophthalmol. 2024 Jul 23;108(8):1094-1100.
- Social and healthcare utilization factors associated with ophthalmic visit non-adherence in glaucoma: an All of Us study. J Glaucoma. 2023 Dec 1;32(12):1029-1037.

- Clinical factors associated with long-term OCT variability in glaucoma. Am J Ophthalmol. 2023 Nov;255:98-106.
- Big data to guide glaucoma treatment. Taiwan Journal of Ophthalmology 14(3):p 333-339, Jul–Sep 2024.
- Longitudinal 10-2 visual field changes predict the risk of VA loss in mild-to-moderate glaucoma. J Glaucoma. 2023 Jul 1;32(7):549-555.
- Evaluation of the long-term variability of macular OCT/OCTA and visual field parameters. Br J Ophthalmol. 2024 Jan 29;108(2):211-216.
- Application of Deep Learning to Retinal-Image-Based Oculomics for Evaluation of Systemic Health: A Review. J Clin Med. 2022;12(1).
- Association of macular vessel density and ganglion cell complex thickness with central visual field progression in glaucoma. Br J Ophthalmol. 2023 Nov 22;107(12):1828-1833
- Association of macular OCT and OCTA parameters with visual acuity in glaucoma. Br J Ophthalmol. 2023 Nov;107(11):1652-1657.
- Performances of Machine Learning in Detecting Glaucoma Using Fundus and Retinal Optical Coherence Tomography Images: A Meta-Analysis. Am J Ophthalmol. 2022;237:1-12.
- Superior segmental optic nerve hypoplasia: A review. Surv Ophthalmol. 2022;67(5):1467-1475.
- Correlation of ganglion cell complex thinning with baseline deep and superficial macular vessel density in glaucoma. Br J Ophthalmol. 2022.
- Performance and Limitation of Machine Learning Algorithms for Diabetic Retinopathy Screening: Meta-analysis. J Med Internet Res. 2021;23(7):e23863.

Selected List of Conference Presentation as 1st Author

Annual meeting of the ARVO (2022-2026, oral/poster); Annual meeting of the AAO (2025, oral)
Annual meeting of the ASCRS (2025-2026, poster); Envision meetings of the NYSOS (2026, oral)
Vit-Buckle Society Annual meeting (2025, poster); OSN retina meeting (2024-2025, oral)
Women In Ophthalmology Summer Symposium (2025, poster); World Glaucoma Congress (2023, poster)

Selected List of Scientific Journals with Peer Reviewer Role

Vision science: Ophthalmology; American Journal of Ophthalmology; Investigative Ophthalmology & Vision Science; British Journal of Ophthalmology; Ophthalmology Glaucoma, Ophthalmology Retina; Translational Vision Science & Technology; Asia-Pacific Journal of Ophthalmology; Journal of Glaucoma.

Others: Annals of Internal Medicine; npj Digital Medicine; Frontiers in Medicine; Scientific Reports; Journal of Medical Internet Research; IEEE Journal of Biomedical and Health Informatics.

Editorial Role for Scientific Journal

June 2023 – Present Review editor for Frontiers in Medicine Ophthalmology section

D. Scholastic Performance

YEAR	COURSE TITLE	GRADE
2017	Clerkship in ophthalmology (NTU College of Medicine)	A+
2018	Clinical elective in ophthalmology (UCSD)	A+
2019	Internship in ophthalmology (NTU Hospital)	A+
2012-2019	7-year medical school curriculum	Avg GPA 4.23
2019	Internship year	Avg GPA 4.30

*Note: In the scholastic system of National Taiwan University, a grade of A+ corresponds to an average subject or rotation score of greater than 90 on a scale of 0-100, and a perfect semester GPA would be 4.30.