



Robert Chang, MD

Professor of Ophthalmology

 Curriculum Vitae available Online

CLINICAL OFFICE (PRIMARY)

- **Stanford Byers Eye Institute**

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Palo Alto, CA 94303

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ACADEMIC CONTACT INFORMATION

- **Alternate Contact**

Christy Roberts - Administrative Associate

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Bio

BIO

Since joining Stanford University in 2009, Dr. Robert Chang has emerged as a trailblazer in cataract and minimally invasive glaucoma surgery (MIGS). He leads a data science team focused on building Stanford's Glaucoma Registry and Biorepository and testing the implementation of new technology such as large language models for personalized patient education. His cutting-edge work includes the pursuit of novel glaucoma biomarkers in the aqueous humor as well as the reliability of home virtual reality visual fields and home eye pressure monitoring.

Dr. Chang is renowned for his expertise in both traditional and MIGS (i.e. Hydrus, iStent infinite, OMNI, KDB, Alloflo, iTrack, ECP, Xen, MP3, iDose), along with presbyopia-correcting refractive and complex cataract surgery. He serves as the Co-Director of the Stanford Glaucoma Fellowship and holds the position of Medical Director of Employer-Based Optometry. Additionally, he is an alum of the Stanford Biodesign Faculty Fellowship and Stanford Medicine Leadership Academy which helped him pioneer a week-long design thinking international bootcamp for aspiring innovators in digital health entrepreneurship. He has also served on committees for the American Glaucoma Society, the American Society of Cataract and Refractive Surgery (digital), and the American Academy of Ophthalmology (program) among others.

Among his notable contributions is the invention of the first universal smartphone adapter designed for capturing images of the eye, licensed out of Stanford. He also previously co-founded a seed-funded digital health startup incubated out of Stanford that brought a smart air pollution wearable from concept to product launch. His latest entrepreneurial endeavor involves a durable medical equipment (DME) for eyecare.

With over 90 peer-reviewed publications, hundreds of lectures delivered globally, and multiple patents to his name, Dr. Chang enjoys combining clinical work, academic scholarship, and medical education. He was a founding member and former vice president of the Asia Pacific Tele-Ophthalmology Society which ushered in the age of artificial intelligence in healthcare. Notably, Dr. Chang was the first medical advisor for Verana Health, a leading real-world electronic record data curation company.

When not immersed in ophthalmology, Dr. Chang cherishes time with his family in the Bay Area, where he was raised. Currently, he loves playing tennis, golf, and pickleball, exploring new technologies as well as new countries, and discovering restaurants, having reviewed over 6,000 on Yelp.

CLINICAL FOCUS

- Glaucoma and cataract surgery
- Minimally Invasive Surgical Procedures
- Mobile Health
- Optical Coherence Tomography
- Myopia
- Vision Screening
- eye
- ECP
- hydrus
- design thinking
- Entrepreneurship
- Glaucoma Specialist

ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Ophthalmology
- Member, Bio-X

ADMINISTRATIVE APPOINTMENTS

- Medical Director, Stanford Employer Based Optometry, (2016- present)
- Glaucoma Fellowship Co-Director, Stanford Ophthalmology, (2009- present)

HONORS AND AWARDS

- Heed Fellow, Heed Foundation (2007)
- America Glaucoma Society MAPS grant, AGS (2011)
- Bio-X Undergraduate Summer Research Program Grant, Stanford (2013)
- Winner Best Pivot, Stanford Startxmed Innovation Challenge (2013)
- Stanford Center Peking University Faculty Fellowship Program Award, SCPKU (2014)
- Stanford Society of Physician Scholars (SSPS) Grant, SSPS (2014)
- Stanford Spectrum Medtech Innovation Grant, Spectrum (2014)
- Circular 2D Polarized LCD TV on Improvement of Eye Fatigue and Eye Movement Control, TCL Research America Grant (2014-2015)
- First Place, Philips Healthsuite Hackathon (2015)
- Stanford Center Peking University Graduate Seminar Program, SCPKU (2015)
- Digital Health Bootcamp, SCPKU (2016)
- Medical Innovation Curriculum, Stanford UAR (2016)
- Robert Howard Next Step Award, Lunar (2016)
- Stanford Spectrum Medtech Innovation Grant, Spectrum (2016)
- Center for Innovation in Global Health Grant, CIGH Stanford (2017)
- Machine Learning Grant, Santen (2017)

- Biorepository Grant, Genentech (2021)
- 3D Heads Up Display Visualization Grant, Alcon (2022)
- Swept Source OCT Imaging Grant, Intalight (2023)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Fellow, AAO American Academy of Ophthalmology (2009 - present)
- Member, AGS American Glaucoma Society (2009 - present)
- Fellow, CIGH Center for Innovation in Global Health (2015 - present)
- Vice President, APTOS Asia Pacific Tele-Ophthalmology Society (2016 - 2021)
- Member and Co-Chair mHealth, PHS Population Health Sciences (2015 - 2016)

PROFESSIONAL EDUCATION

- Medical Education: University of Missouri Kansas City School of Medicine (2002) MO
- Internship: McGaw Medical Center of Northwestern University (2004) IL
- Fellowship: Bascom Palmer Eye Institute (2009) FL
- Residency: Washington University Ophthalmology Residency (2007) MO
- Board Certification: Ophthalmology, American Board of Ophthalmology (2008)

PATENTS

- Robert Chang. "United States Patent 62/138,271 Modular Smartphone Adapters for Mobile Ophthalmoscopy", Leland Stanford Junior University, Mar 25, 2015
- Robert Chang. "United States Patent 14/893,951 Modular Lens Adapters for Mobile Anterior and Posterior Segment Ophthalmoscopy", Leland Stanford Junior University, May 30, 2014

LINKS

- LinkedIn: <http://www.linkedin.com/in/ankimo>
- Teaching Digital Health Innovation: <http://www.dhealthclass.com>
- HK Medtech Hackathon 2018: http://www.dreamcatchers.hku.hk/?page_id=57107
- I am a Biodesign Faculty Fellow: <http://biodesign.stanford.edu/programs/fellowships/faculty-fellowship.html>
- My Site: <https://robchangmd.com>

Research & Scholarship

RESEARCH INTERESTS

- Data Sciences
- Technology and Education

CURRENT RESEARCH AND SCHOLARLY INTERESTS

I am a clinician-scientist focusing on patient care, physician innovation and biodesign educator, and digital health technology.

Selected Interests:

- 1) Young High Myopes with Minimally Progressive Field Defects
- 2) Visual Field and Optical Coherence Tomography Specificity for Progression in Glaucoma
- 3) Patient Satisfaction in Ophthalmology
- 4) Automated Visual Field Screening for Glaucoma Using Portable Headsets

- 5) Automated Image Analysis and Natural Language Processing, Federated Learning
- 6) Smartphone-Based Tele-Ophthalmology Screening For Eye Disease

Teaching

STANFORD ADVISEES

Med Scholar Project Advisor

Andrew Berneshawi

Publications

PUBLICATIONS

- **Innovating global regulatory frameworks for generative AI in medical devices is an urgent priority.** *NPJ digital medicine*
Ong, J. C., Ning, Y., Liu, M., Ma, Y., Zhao, L., Singh, K., Chang, R. T., Vogel, S., Lim, J. C., Tan, I. S., Freyer, O., Gilbert, S., Bitterman, et al
2026
- **Unseen Insights: An AI-Powered Exploration of Secure Patient Messages in Ophthalmology.** *medRxiv : the preprint server for health sciences*
Kim, J. Y., Fazal, Z. Z., Wang, S. Y., Chang, R. T., Linos, E., Sepah, Y. J.
2026
- **Leveraging Large Language Models with Sequential Prompting to Extract Eye Examination Findings from Free-Text Ophthalmology Notes.** *Ophthalmology science*
Ruan, F. Y., Lam, J. W., Esmailkhanian, H., Chang, R. T., Wang, S. Y.
2026; 6 (1): 100944
- **Real-World Characteristics and Safety Outcomes of 10,000 Eyes Treated with Intracanalicular Dexamethasone Insert: An IRIS® Registry Analysis 2019-2021.** *Journal of cataract and refractive surgery*
Vantipalli, S., Mbagwu, M., Chang, R. T., Li, S., Akasheh, D., Cheung, M. W., Gurses-Ozden, R., Goldstein, M. H.
2025
- **International partnership for governing generative artificial intelligence models in medicine.** *Nature medicine*
Ong, J. C., Ning, Y., Collins, G. S., Bitterman, D. S., Beecy, A. N., Chang, R. T., Denniston, A. K., Freyer, O., Gilbert, S., de Hond, A., Leeuwenberg, A. M., Zhao, L., Lim, et al
2025
- **Aqueous Humor Neurofilament Light Chain Level as a Candidate Biomarker for Glaucoma Disease Staging**
Indjeian, V., Schofield, C., Chang, D., Silva, R., Chang, M., Wiley, H., Chang, R.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
- **Evaluating RetFound: A Foundation Model for Glaucoma Detection Using Macular OCT Images**
Tran, J., Ravindranath, R., Chang, R. T., Wang, S. Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
- **Swept-Source Optical Coherence Tomography Angiography (OCTA) Microvascular Dropout (MvD) as a Potential Differentiator Between Perimetric Glaucoma and Degenerative Myopia**
Lam, J., Han, J., Mannil, S., Xiao, X., Yaisiri, P., Lee, C., Chang, R. T.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
- **Impact on intraocular pressure after switching to Latanoprostene Bunod in patients with glaucoma in real-world clinical practice**
Nair, A., Leydig, K., Hatfield, M., Chang, R. T., Brevetti, T. L., Okeke, C.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2025
- **Multimodal Artificial Intelligence Models Predicting Glaucoma Progression Using Electronic Health Records and Retinal Nerve Fiber Layer Scans.** *Translational vision science & technology*
Koorwinder, A., Zhang, Y., Ravindranath, R., Chang, R. T., Bernstein, I. A., Wang, S. Y.
2025; 14 (3): 27

- **Independent Evaluation of RETFound Foundation Model's Performance on Optic Nerve Analysis Using Fundus Photography.** *Ophthalmology science*
Chen, M. S., Ravindranath, R., Chang, R., Zhou, Y., Keane, P. A., Wang, S. Y.
2025; 5 (3): 100720
- **Independent Evaluation of RETFound Foundation Model's Performance on Optic Nerve Analysis Using Fundus Photography.** *Ophthalmology Science*
Chen, M. S., Ravindranath, R., Chang, R., Zhou, Y., Keane, P. A., Wang, S. Y.
2025; 5 (3)
- **Standalone Canaloplasty and Trabeculotomy Using the OMNI Surgical System in Eyes with Primary Open-Angle Glaucoma: A 36-Month Analysis from the American Academy of Ophthalmology IRIS® Registry (Intelligent Research in Sight): Standalone Outcomes of Canaloplasty and Trabeculotomy.** *American journal of ophthalmology*
Radcliffe, N. M., Harris, J., Garcia, K., Zwick, E., Chang, R. T., Mbagwu, M.
2024
- **Clinical spectrum and possible pathogenesis of progressive outer retinal necrosis.** *The British journal of ophthalmology*
Ding, X., Chang, R. T., Zhang, X., Liu, L., Yang, Y., Lu, L., Lin, X.
2024
- **Glaucoma Home Self-Testing Using VR Visual Fields and Rebound Tonometry Versus In-Clinic Perimetry and Goldmann Applanation Tonometry: A Pilot Study.** *Translational vision science & technology*
Berneshawi, A. R., Shue, A., Chang, R. T.
2024; 13 (8): 7
- **Understanding Natural Language: Potential Application of Large Language Models to Ophthalmology.** *Asia-Pacific journal of ophthalmology (Philadelphia, Pa.)*
Yang, Z., Wang, D., Zhou, F., Song, D., Zhang, Y., Jiang, J., Kong, K., Liu, X., Qiao, Y., Chang, R. T., Han, Y., Li, F., Tham, et al
2024: 100085
- **Comparing a Head-Mounted Smartphone Visual Field Analyzer to Standard Automated Perimetry in Glaucoma: A Prospective Study.** *Journal of glaucoma*
Wang, S. K., Tran, E. M., Yan, W., Kosaraju, R., Sun, Y., Chang, R. T.
2024
- **Repeatability of a Virtual Reality Headset Perimeter in Glaucoma and Ocular Hypertensive Patients.** *Translational vision science & technology*
Nascimento E Silva, R., Kim, J. A., Li, Y., Chen, C., Chaudhry, A. F., Berneshawi, A. R., Zhang, M., Villarreal, A., Liu, J., Shue, A., Chang, D. S., Chang, R. T.
2024; 13 (6): 14
- **Multimodal Artificial Intelligence Models Predicting Glaucoma Progression to Surgery Using Electronic Health Records and Retinal Nerve Fiber Layer Scans**
Koorwinder, A., Zhang, Y., Ravindranath, R., Chang, R., Bernstein, I., Wang, S. Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2024
- **Using Electronic Health Record Data to Determine the Safety of Aqueous Humor Liquid Biopsies for Molecular Analyses.** *Ophthalmology science*
Wolf, J., Chemudupati, T., Kumar, A., Franco, J. A., Montague, A. A., Lin, C. C., Lee, W. S., Fisher, A. C., Goldberg, J. L., Mruthyunjaya, P., Chang, R. T., Mahajan, V. B.
2024; 4 (5): 100517
- **Developing a privacy-preserving deep learning model for glaucoma detection: a multicentre study with federated learning.** *The British journal of ophthalmology*
Ran, A. R., Wang, X., Chan, P. P., Wong, M. O., Yuen, H., Lam, N. M., Chan, N. C., Yip, W. W., Young, A. L., Yung, H. W., Chang, R. T., Mannil, S. S., Tham, et al
2023
- **Liquid-biopsy proteomics combined with AI identifies cellular drivers of eye aging and disease in vivo.** *Cell*
Wolf, J., Rasmussen, D. K., Sun, Y. J., Vu, J. T., Wang, E., Espinosa, C., Bigini, F., Chang, R. T., Montague, A. A., Tang, P. H., Mruthyunjaya, P., Aghaepour, N., Dufour, et al
2023

- **Biobanking of Human Aqueous and Vitreous Liquid Biopsies for Molecular Analyses.** *Journal of visualized experiments : JoVE*
Wolf, J., Chemudupati, T., Kumar, A., Rasmussen, D. K., Wai, K. M., Chang, R. T., Montague, A. A., Tang, P. H., Bassuk, A. G., Dufour, A., Mruthunjaya, P., Mahajan, V. B.
2023
- **Real-world agreement of same-visit Tono-Pen vs Goldmann applanation intraocular pressure measurements using electronic health records.** *Heliyon*
Gui, H., Zhang, Y., Chang, R. T., Wang, S. Y.
2023; 9 (8): e18703
- **Comparison of Ophthalmologist and Large Language Model Chatbot Responses to Online Patient Eye Care Questions.** *JAMA network open*
Bernstein, I. A., Zhang, Y. V., Govil, D., Majid, I., Chang, R. T., Sun, Y., Shue, A., Chou, J. C., Schehlein, E., Christopher, K. L., Groth, S. L., Ludwig, C., Wang, et al
2023; 6 (8): e2330320
- **Patterns and determinants of incident cataract surgery in China from 2011 to 2015 using a nationally representative longitudinal database.** *BMJ open*
Jan, C., Xin, J., Dong, Y., Butt, T., Chang, R., Keay, L., He, M., Friedman, D., Congdon, N.
2023; 13 (6): e069702
- **Real-World Agreement of Same-Visit Tono-Pen Versus Goldmann Applanation Intraocular Pressure Measurements Using Electronic Health Records at an Academic Medical Center**
Zhang, Y., Gui, H., Chang, R., Wang, S. Y.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2023
- **Glaucoma and Myopia: Diagnostic Challenges.** *Biomolecules*
Sun, M. T., Tran, M., Singh, K., Chang, R., Wang, H., Sun, Y.
2023; 13 (3)
- **Using deep learning models to detect ophthalmic diseases: A comparative study.** *Frontiers in medicine*
Li, Z., Guo, X., Zhang, J., Liu, X., Chang, R., He, M.
2023; 10: 1115032
- **Corrigendum to Phase 1b Randomized Controlled Study of Short Course Topical Recombinant Human Nerve Growth Factor (rhNGF) for Neuroenhancement in Glaucoma: Safety, Tolerability, and Efficacy Measure Outcomes.** *Am J Ophthalmol* 2022;234:223-234. *American journal of ophthalmology*
Beykin, G., Stell, L., Halim, M. S., Nunez, M., Popova, L., Nguyen, B. T., Groth, S. L., Dennis, A., Li, Z., Atkins, M., Khavari, T., Wang, S. Y., Chang, et al
2022
- **Three-Dimensional Multi-Task Deep Learning Model to Detect Glaucomatous Optic Neuropathy and Myopic Features From Optical Coherence Tomography Scans: A Retrospective Multi-Centre Study.** *Frontiers in medicine*
Ran, A. R., Wang, X., Chan, P. P., Chan, N. C., Yip, W., Young, A. L., Wong, M. O., Yung, H. W., Chang, R. T., Mannil, S. S., Tham, Y. C., Cheng, C. Y., Chen, et al
2022; 9: 860574
- **Structural and Metabolic Imaging after Short-term Use of the Balance Goggles System in Glaucoma Patients: A Pilot Study.** *Journal of glaucoma*
Sun, M. T., Beykin, G., Lee, W. S., Sun, Y., Chang, R., Nunez, M., Li, K. Z., Knasel, C., Rich, C., Goldberg, J. L.
2022
- **Repeatability and correlation of a virtual reality perimeter with standard automated perimetry in glaucoma patients**
Chaudhry, A., Berneshawi, A., Liu, J., Shue, A., Chang, D., Kim, J., Chang, R. T.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2022
- **Feasibility of Glaucoma Home Self Testing Using a Virtual Reality Visual Field Test Combined with Home Tonometry**
Berneshawi, A., Shue, A., Chang, R.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2022
- **Correlated Changes in Retinal Thickness and Visuomotor Function in Asymptomatic Hydroxychloroquine Toxicity Patients**
Leung, L., Hwang, B., Berneshawi, A., Goel, R., Tyson, T., Chang, R. T., Stone, L. S.

ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2022

- **Federated Deep Learning for Classifying Glaucomatous Optic Neuropathy from Optical Coherence Tomography Volumetric Scans: A Privacy-preserving Multi-national Study**
Ran, A., Wang, X., Chan, P. P., Chan, N. C., Wong, O., Yung, H., Chang, R. T., Mannil, S. S., Tham, Y., Cheng, C., Heng, P., Tham, C. C., Cheung, et al
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2022
- **Management of Key Ocular Adverse Events in Patients Implanted with the Port Delivery System with Ranibizumab.** *Ophthalmology. Retina*
Awh, C. C., Barteselli, G., Makadia, S., Chang, R. T., Stewart, J. M., Wieland, M. R., Brassard, R., Callaway, N. F., Gune, S., Heatherton, P., Malhotra, V., Willis, J. R., Pieramici, et al
2022
- **Deep Learning for Glaucoma Detection and Identification of Novel Diagnostic Areas in Diverse Real-World Datasets.** *Translational vision science & technology*
Noury, E., Mannil, S. S., Chang, R. T., Ran, A. R., Cheung, C. Y., Thapa, S. S., Rao, H. L., Dasari, S., Riyazuddin, M., Chang, D., Nagaraj, S., Tham, C. C., Zadeh, et al
2022; 11 (5): 11
- **Conjunctiva and Tenon's Capsule Handling in the Port Delivery System with Ranibizumab Implant Insertion Procedure: Surgical Pearls** *OPHTHALMIC SURGERY LASERS & IMAGING RETINA*
Graff, J. M., Sheth, V. S., Chang, R. T., Menezes, A. R., Barteselli, G., Malhotra, V. K.
2022; 53 (5): 266-273
- **Implant Insertion Procedure of the Port Delivery System With Ranibizumab: Overview and Clinical Pearls** *OPHTHALMIC SURGERY LASERS & IMAGING RETINA*
Pieramici, D. J., Wieland, M. R., Stewart, J. M., Chang, R. T., Gune, S. A., Malhotra, V. K., Barteselli, G., Awh, C. C.
2022; 53 (5): 249-+
- **Patient Personality and Illness Perceptions in Relation to Follow-Up Appointment Adherence in Neuro-Ophthalmology.** *Journal of neuro-ophthalmology : the official journal of the North American Neuro-Ophthalmology Society*
Aziz, R., Bindiganavale, M. P., Chang, R. T., Moss, H. E.
2022
- **American Glaucoma Society Position Paper: Information Sharing Using Established Standards is Essential to the Future of Glaucoma Care.** *Ophthalmology. Glaucoma*
Rothman, A. L., Chang, R., Kolomeyer, N. N., Turalba, A., Stein, J. D., Boland, M. V.
1800
- **Daytime napping is associated with retinal microcirculation: a large population-based study in China.** *Sleep*
Liu, X., Wang, G., Wang, X., Wang, Y., Min, Y., Zhang, J., Chang, R. T., Zhao, X., He, W., Moshfeghi, D. M., Lu, Y., Hsing, A. W., Yao, et al
2021
- **A Multitask Deep-Learning System to Classify Diabetic Macular Edema for Different Optical Coherence Tomography Devices: A Multicenter Analysis.** *Diabetes care*
Tang, F., Wang, X., Ran, A., Chan, C. K., Ho, M., Yip, W., Young, A. L., Lok, J., Szeto, S., Chan, J., Yip, F., Wong, R., Tang, et al
2021
- **A Multi-Task Deep-Learning System to Classify Diabetic Macular Edema for Different Optical Coherence Tomography Devices: A Multi-Center Analysis**
Cheung, C., Tang, F., Ran, A., Tan, G., Ting, D. S. W., Chen, H., Ma, H., Tang, S., Leng, T., Kakavand, S., Mannil, S. S., Chang, R., Liew, et al
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021
- **Detecting progression in the center of the visual field**
Durbin, M. K., Callan, T., Yu, S., Chang, R., Aung, T., Conner, I. P., Lee, G. C.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021
- **Intervisit specificity of a combined retinal-ganglion cell index in glaucoma**
Richter, D., Callan, T., Yu, S., Durbin, M. K., Conner, I. P., Chang, R., Aung, T., Lee, G. C.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021

- **Interpreting Deep Learning Studies in Glaucoma: Unresolved Challenges.** *Asia-Pacific journal of ophthalmology (Philadelphia, Pa.)*
Lee, E. B., Wang, S. Y., Chang, R. T.
2021; 10 (3): 261-267
- **Phase 1b randomized controlled study of short course topical recombinant human nerve growth factor (rhNGF) for neuroenhancement in glaucoma: safety, tolerability and efficacy measure outcomes.** *American journal of ophthalmology*
Gala, B., Laurel, S., Sohail, H. M., Mariana, N., Lilia, P., Bac T, N., Sylvia L, G., Amy, D., Zhongqiu, L., Melissa, A., Tom, K., Sophia Y, W., Robert, et al
2021
- **Automatic Identification of Referral-Warranted Diabetic Retinopathy Using Deep Learning on Mobile Phone Images.** *Translational vision science & technology*
Ludwig, C. A., Perera, C., Myung, D., Greven, M. A., Smith, S. J., Chang, R. T., Leng, T.
2020; 9 (2): 60
- **Intervisit repeatability of a combined retinal ganglion cell index in glaucoma**
Durbin, M. K., Lee, G., Yu, S., Conner, I. P., Chang, R. T., Aung, T., Callan, T.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2020
- **An Open-Label Phase Ib Study to Evaluate Retinal Imaging After Short-term Use of the Balance Goggles System (BGS) in Patients with Glaucoma**
Li, Z., Knasel, C., Nunez, M., Beykin, G., Goldstein, A., Fisher, A. C., Singh, K., Sun, Y., Chang, R. T., Lee, W., Goldberg, J.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2020
- **Comparison of Virtual Reality (PalmScan VF2000) Visual Fields Analyzer with Humphrey Visual Field in Glaucoma Patients**
Tran, E., Wan, L., Yan, W., Sun, Y., Chang, R.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2020
- **Assessing Illness Perception Factors Associated with Educational Needs in Neuro-Ophthalmology**
Aziz, R., Chang, R. T., Moss, H. E.
LIPPINCOTT WILLIAMS & WILKINS.2020
- **A 3D Deep Learning System for Detecting Referable Glaucoma Using Full OCT Macular Cube Scans.** *Translational vision science & technology*
Russakoff, D. B., Mannil, S. S., Oakley, J. D., Ran, A. R., Cheung, C. Y., Dasari, S., Riyazzuddin, M., Nagaraj, S., Rao, H. L., Chang, D., Chang, R. T.
2020; 9 (2): 12
- **A 3D Deep Learning System for Detecting Referable Glaucoma Using Full OCT Macular Cube Scans** *TRANSLATIONAL VISION SCIENCE & TECHNOLOGY*
Russakoff, D. B., Mannil, S. S., Oakley, J. D., Ran, A., Cheung, C. Y., Dasari, S., Riyazzuddin, M., Nagaraj, S., Rao, H. L., Chang, D., Chang, R. T.
2020; 9 (2)
- **The Stanford Acuity Test: A Precise Vision Test Using Bayesian Techniques and a Discovery in Human Visual Response**
Piech, C., Malik, A., Scott, L. M., Chang, R. T., Lin, C., Assoc Advancement Artificial Intelligence
ASSOC ADVANCEMENT ARTIFICIAL INTELLIGENCE.2020: 471-479
- **Towards multi-center glaucoma OCT image screening with semi-supervised joint structure and function multi-task learning.** *Medical image analysis*
Wang, X. n., Chen, H. n., Ran, A. R., Luo, L. n., Chan, P. P., Tham, C. C., Chang, R. T., Mannil, S. S., Cheung, C. Y., Heng, P. A.
2020; 63: 101695
- **Comparison of 1-Year Effectiveness of Trabecular Microbypass Stent implantation (iStent) in Conjunction With Phacoemulsification Among Mild, Moderate, and Severe Primary Open-angle Glaucoma Patients.** *Journal of glaucoma*
Chansangpetch, S. n., Ittarat, M. n., Yang, S. n., Fisher, A. C., Singh, K. n., Lin, S. C., Chang, R. T.
2020
- **Comparison of Using One Trabecular Microbypass Stent versus Two during Cataract Surgery at Two Sites: One-Year Follow-Up.** *BioMed research international*
Yang, S., Ittarat, M., Tran, E., Ferrell, P., Wang, G., Fisher, A. C., Li, Z., Chang, R. T.
2020; 2020: 1920352

- **Smartphone-Based Ophthalmic Imaging Compared to Spectral Domain Optical Coherence Tomography Assessment of Vertical Cup-to-Disc Ratio among Adults in Southwestern Uganda.** *Journal of glaucoma*
Idriss, B. R., Tran, T. M., Atwine, D. n., Chang, R. T., Myung, D. n., Onyango, J. n.
2020; Publish Ahead of Print
- **Detection of glaucomatous optic neuropathy with spectral-domain optical coherence tomography: a retrospective training and validation deep-learning analysis.** *The Lancet. Digital health*
Ran, A. R., Cheung, C. Y., Wang, X., Chen, H., Luo, L. Y., Chan, P. P., Wong, M. O., Chang, R. T., Mannil, S. S., Young, A. L., Yung, H. W., Pang, C. P., Heng, et al
2019; 1 (4): e172-e182
- **Detection of glaucomatous optic neuropathy with spectral-domain optical coherence tomography: a retrospective training and validation deep-learning analysis** *LANCET DIGITAL HEALTH*
Ran, A., Cheung, C. Y., Wang, X., Chen, H., Luo, L., Chan, P. P., Wong, M. O. M., Chang, R. T., Mannil, S. S., Young, A. L., Yung, H., Pang, C., Heng, et al
2019; 1 (4): E172–E182
- **Dry eye and sleep quality: a large community-based study in Hangzhou.** *Sleep*
Yu, X., Guo, H., Liu, X., Wang, G., Min, Y., Chen, S. S., Han, S. S., Chang, R. T., Zhao, X., Hsing, A., Zhu, S., Yao, K.
2019
- **Comparison of 1 year effectiveness of trabecular microbypass stent implantation (iStent) among mild, moderate, and severe primary open angle glaucoma**
Chansangpetch, S., Ittarat, M., Yang, S., Fisher, A. C., Singh, K., Lin, S. C., Chang, R.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2019
- **A 3D Deep Learning System for Detecting Referrable Glaucoma Using Full OCT Macular Cube Scans**
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- Glaucoma: Early Diagnosis and Prevention of Blindness - Pan American Ophthalmology Congress (8/10/2013)
- Genetics of Glaucoma - Stanford (7/24/2013)
- Glaucoma and Myopia: Challenges and Pearls for Progression Detection - World Glaucoma Congress (7/19/2013)
- Update in Ophthalmology - Dominican Hospital (7/12/2013)
- Fixing the Plumbing of the Eye - ASORN (4/27/2013)
- The Art of Fundus Photo Interpretation - Glaucoma Research Foundation (2/2/2013)
- iPhone Physician Education and Reference Tools - American Academic of Ophthalmology (11/11/2012)
- OCT Diagnostic Performance Studies - FDA (10/5/2012)
- Collagen Disease and Glaucoma - Asia Pacific Academy of Ophthalmology (4/16/2012)
- Myopia and Glaucoma - Glaucoma 360 (2/3/2012)
- Iphone Apps and the Present/Future of Patient Education - Grand Rounds Stanford (11/1/2011)
- Management of Acute Angle Closure - Asia Pacific Academy of Ophthalmology (3/21/2011)
- Trabeculectomy Failure - World Glaucoma Congress (7/2/2011)
- Glaucoma Technology: Surgical Innovation - Stanford Biodesign (1/29/2011)
- Glaucoma Devices: Diagnostic and Therapeutic - Stanford Biodesign (8/26/2010)
- Retcam Goniography - AGS PreSurgical Meeting (3/3/2010)
- Vision and Aging: Glaucoma, Macular Degeneration, and Cataracts - Stanford (1/12/2015)

- New Clinical Dimensions in Glaucoma Diagnostics - Hawaiian Eye (1/20/2015)
- Smartphone-Based Tele-Ophthalmology Screening For Diabetic Eye Disease - UC Berkeley (2/6/2015)
- The EyeGo and Mobile Health Innovation - UC Berkeley (2/12/2015)
- New Developments in OCT Imaging for Glaucoma: Update on the Macula - AGS (3/1/2015)
- Smartphone and Tablet Computers for Ophthalmic Information for Private Study or by the Bedside: Ophthalmic Imaging Anterior and Posterior Segment - APO (4/15/2015)
- When and What Treatment to Start in Glaucoma Suspect - WGC (June 7, 2015)
- Digital Health Innovation: A Personal Journey in Silicon Valley - SCPKU (7/24/2015)
- Applications of Machine Learning in Ophthalmology - ISO (10/31/2015)
- Similarities and Differences Between Chinese and American Policies in Medical Innovation - Caixin Annual Summit (11/7/2015)