HENRY FORD HEALTH®

Department of Ophthalmology
Detroit Institute of Ophthalmology

Philip C. Hessburg, M.D. – Art Van Elslander Chair in Ophthalmic Research presents:

11th World Research Congress **focusing on Vision and Driving**

The Eye, The Brain & The Auto
World Research Congress

November 18 - 19, 2024
Marriott Detroit Hotel at the Renaissance Center
Detroit, Michigan

henryford.com/TheEyeAndTheAuto

Thank you to

Macular Degeneration Foundation

for your **Leadership Level** support of **The Eye, The Brain and The Auto 2024** World Research Congress

Table of contents

GREETINGS!

It is my pleasure to welcome all of you on behalf of Henry Ford Health and the Department of Ophthalmology to The Eye, The Brain and The Auto, the 11th World Research Congress on Vision and Driving. This Congress brings together an interdisciplinary group of the world's leading experts on naturalistic driving. We will learn about the current uses of naturalistic driving, the impact on the visually impaired and future needs for Data Acquisition Systems (DAS).

I would like to express my deepest appreciation to Cynthia Owsley and the organizing committee who have worked tirelessly to facilitate such a wonderful and unique World Congress. I would like to thank our highly acclaimed presenters from many different countries who will be leading our discussions.

I hope that all of you enjoy this meeting. I look forward to your feedback and ideas as we plan future World Congresses.

Sincerely,

Nauman Imami, M.D., M.H.S.A.
Chair, Department of Ophthalmology
Henry Ford Health

Welcome to The Eye, The Brain, and The Auto 2024.

This is the 11th biennial world research congress, a testament to the commitment of the researchers and the underlying global need.

This year we have pivoted slightly to address a specific topic: exploring the data acquisition systems use and relationship(s) in naturalistic driving.

We have invited world experts in the field to form an elite focus group of sorts- to share, discuss, argue, and ultimately plan. All in an effort to propagate the vision of these conferences- promote collegiality in an effort to build collaborations, resulting in innovation and community impact.

I would be remiss not to acknowledge the true visionary behind these congresses, Dr. Philip C. Hessburg. An absolute giant in the ophthalmology community and tremendous advocate for the visually impaired, Dr. Hessburg's talents were extremely widespread. Most definitely, it is impossible to write all his amazing accomplishments or his impact on so many lives in a brief welcome letter, but we can all agree that his relentless pursuit of restoring vision, improving lives of the visually impaired, and making this world a better/safer place, will all live on through these Congresses and our own accomplishments.

We welcome you and look forward to an amazing conference.

Thank you for making a difference and leading this change.

David J Goldman, M.D., M.B.A.
Director, Detroit Institute of Ophthalmology
Vice Chairman, Education
Senior Staff Ophthalmologist
Henry Ford Health
Detroit, Michigan

The Detroit Institute of Ophthalmology

1972- 2024

Celebrating over 50 years

as a bridge between the sighted and the visually impaired communities

Imagine having very poor vision or not being able to see at all. Now imagine an organization that helps you and your family – and one that's a world leader in bringing together researchers studying advances in eyesight and vision.

For more than 50 years, that's been the mission of the Detroit Institute of Ophthalmology, the research education arm of the Henry Ford Health Department of Ophthalmology (DIO). The DIO exists to assist and educate the visually impaired helping them maintain independence and dignity and live satisfying lives in a sighted world. The DIO also sponsors international research congresses that annually bring together the world's leading vision-related scientists.

To help the blind and visually impaired maintain the highest quality of life, the DIO offers a comprehensive range of support services. These include::

Support groups

For more than four decades, the DIO has sought to help those who suffer from vision loss by managing support groups for the visually impaired. These groups are offered at various locations in southeast Michigan. All groups offer hope, joy, compassion, understanding and interaction with others who are similarly challenged. Thanks to Edward T. and Ellen K. Dryer Charitable Foundation and The Mary Thompson Foundation for their support.

Martha F. Gorey Resource Center

Named for a long-time benefactor and housed within the DIO, the Center offers a large selection of low-vision aids. These include closed-circuit magnifying machines, hand-held and stand magnifiers up to 3x, large-print calendars, talking watches, clocks and calculators.

Education

The DIO provides a variety of educational resources to both the visually impaired and sighted communities, including:

- **Professional Education:** DIO is closely affiliated with the ophthalmic technician training program at Henry Ford College, Dearborn, and the Henry Ford Health Department of Ophthalmology's Residency Training program. One of the physicians of the DIO serves as both the Medical Director for the Henry Ford College Ophthalmic Technician Training

Program and as the Residency Program Director and Vice Chair of Education for the Department of Ophthalmology at Henry Ford Hospital. Throughout the year, various workshops for training physicians in internal medicine and emergency medicine are conducted at the DIO.

- **Public Education:** Each year the DIO participates at the Assumption Senior Expo providing information and resources for visually impaired seniors and their families.

Research Congress

The DIO sponsors two international vision-related research congresses that assemble more than 30 of the world's top vision-related scientists for two or three days of meetings and seminars in Detroit. Alternating each year, these congresses are: The Eye, The Brain & The Auto, and The Eye and The Chip. Find more information at: **henryford.com/TheEyeAndTheChip**.

Friends of Vision

Many DIO programs rely on support from its volunteer arm, the Friends of Vision. They provide support to the visually impaired in several ways, including helping to set up and provide transportation to meetings and events; escorting them on field trips; staffing the Martha F. Gorey Resource Center store; and participating in such events as managing the cash raffle at the EyesOn Design Car Show. Volunteers receive necessary training and choose the activities that best match their schedules and interests.

DIO support

In addition to the EyesOn Design events, DIO programs are supported by generous donations from individuals, foundations and businesses. The many ways you can help include:

- Bequests
- Fundraisers/special events
- Donations of time and/or money
- Honorary/memorial gifts
- Endowments
- Matching funds

Through the commitment of several very generous donors, DIO has established the Philip C. Hessburg, M.D. Detroit Institute of Ophthalmology Endowed Lectureship: Progress in the Eradication of Blindness, and the Philip C. Hessburg, M.D.- Art Van Elslander Endowed Chair in Ophthalmic Research. Each honors Dr. Hessburg and ensures that the vital work of the Detroit Institute of Ophthalmology endures.

For more information, please call the DIO at (313) 824-4710 or visit **henryford.com/DIO**

At the Henry Ford Health Department of Ophthalmology, patients will find:

- Board-certified physicians, with leaders in comprehensive ophthalmology and ophthalmic sub-specialties, including surgical care
- Advanced treatment options, led by continuous research
- One of the largest practices in the United States, providing convenient, high-quality and compassionate care for over 75 years

At Henry Ford the patients come first
A leader in Michigan, as well as one of the largest ophthalmology practices in the United States, the Henry Ford Department of Ophthalmology treats more than 55,000 patients per year at 15 locations throughout southeast Michigan.

Coordinated care
Our ophthalmologists also work closely with Henry Ford Medical Group physicians in other departments, providing multidisciplinary, coordinated care for those patients who need it.

Pioneering vision research
In addition, we are dedicated to vision research, helping to increase our understanding of disease processes and the most effective ways to detect, diagnose, treat and prevent these conditions. Ultimately, our extensive research program helps to break new ground in critical areas of vision research, keeping us at the forefront of innovation while advancing the level of eye care that we provide to our patients.

Agenda

Monday, November 18, 2024

7:00 – 8:00 a.m. Breakfast

Introduction

8:00 – 8:15 a.m. Welcome
Nauman Imami, M.D., M.H.S.A., Chair, Department of Ophthalmology, Henry Ford Health, and David Goldman, M.D., M.B.A., Medical Director, Detroit Institute of Ophthalmology, Henry Ford Health, Detroit, Michigan

8:15 – 8:30 a.m. Introduction to Conference, Cynthia Owsley, Ph.D., University of Alabama at Birmingham

8:30 – 9:00 a.m. **Current Use and Future Needs of Data Acquisition Systems (DAS) in Naturalistic Driving**, Gerald McGwin, Ph.D., University of Alabama at Birmingham

Experience with Commercially Available DAS

9:00 – 9:30 a.m. **Leveraging Commercial DAS to Characterize Functional and Cognitive Decline among Older Adult Drivers: Pearls and Perils**, Ganesh Babulal, Ph.D., Washington University, St. Louis, Missouri

9:30 – 10:00 a.m. **Can We Build an Open-Source Platform to Support Naturalistic Driving Studies?**, Gang Luo, Ph.D., Schepens Institute, Harvard University, Boston, Massachusetts

10:00 – 10:30 a.m. Coffee Break

Continuation: Experience with Commercially Available DAS

10:30 – 11:00 a.m. **Experiences from the LongROAD Study: Compare and Contrast of Two Naturalistic Driving Collection Methods**, Linda Hill, Ph.D., University of California, San Diego, California

Agenda (continued)

Novel Approaches

11:00 – 12:30 p.m. **Exploring Data Acquisition in Naturalistic Driving: An Overview of Existing Technologies and a Novel Modular Device**, Elio Curcio and Stefano Rodino, Ph.D., University of Calabria, Italy

12:30 – 1:30 pm **Lunch**

Experiences at Massachusetts Institute of Technology (MIT)

1:30 – 2:30 p.m. **Insights and Innovations from 25 Years of Field and Naturalistic Data Logging Experience**, Bryan Reimer, Ph.D., Massachusetts Institute of Technology, Boston, Massachusetts

Driving Performance Variables of Interest in Studying Medically/Functionally Compromised Drivers

2:30 – 3:00 p.m. **Visually-Impaired Driver and Machine: A Fraught But Ideally Synergistic Relationship** Joseph Rizzo, M.D., Harvard University, Boston, Massachusetts

3:00 – 3:30 p.m. **Coffee Break**

3:30 – 4:00 p.m. **Insights from On-road Assessments in Drivers with Vision Impairment**, Joanne Wood, Ph.D., Queensland University of Technology, Brisbane, Australia

4:00 – 4:30 p.m. **Insights from closed-road assessments in drivers with vision impairment**, Alex Black, Ph.D., Queensland University of Technology, Brisbane, Australia

4:30 p.m. – 6:00 p.m. **Break**

6:00 p.m. – 9:00 p.m. **Bartimaeus Award Reception and Dinner**

Agenda (continued)

Tuesday, November 19, 2024

7:00 – 8:00 a.m. **Breakfast**

Continuation: Driving Performance Variables of Interest in Studying Medically/ Functionally Compromised Drivers

8:00 – 8:30 a.m. **Considerations for Data Acquisition and Analysis in Naturalistic Recording of Drivers with Central Vision Impairment Who use Bioptic Telescopes**, Bradley Dougherty, O.D., Ph.D., Ohio State University, Ohio

Approaches to Data Reduction and Analysis

8:30 – 9:30 a.m. **Data Acquisition Toolchain for Naturalistic Driving Studies**, Val Clément, CEESAR (European Centre for Safety Studies and Risk Analysis)

9:30 – 10:15 a.m. **AI Computer Vision Solution for Naturalistic Driving Analysis**, Steve Hellin, WorkProduct, St. Louis, Missouri, and Tamas Szabo Ph.D., WORKProduct, Hungary

10:15 – 10:30 a.m. **Coffee Break**

10:30 – 11:15 a.m. **Blind Spots: Contextualizing Driving Behavior with Environmental Factors**, David Brown, Ph.D., Washington University, St. Louis, Missouri

11:15 a.m. – 12:00 p.m. Summary and Issues for Moving Forward: Cynthia Owsley, Ph.D. and Gerald McGwin, Ph.D., University of Alabama, Birmingham, Alabama

12:00 p.m. **Departure**

Presenters

Leveraging Commercial DAS to Characterize Functional and Cognitive Decline among Older Adult Drivers: Pearls and Perils

Ganesh Babulal, Ph.D.
Associate Professor of Neurology
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Dr. Ganesh Babulal is an Associate Professor of Neurology at Washington University School of Medicine, a faculty member in the Institute of Public Health, an affiliated investigator of the Knight Alzheimer's Disease Research Center and has an adjunct appointment at the University of Johannesburg in South Africa. His research seeks to understand how the intersectional relationship between biological, sociological, and economic factors contributes to health disparities in brain health and dementia among older adults. His studies employ CSF, plasma, and neuroimaging biomarkers, digital neurobehavioral markers of driving, structural and social determinants of health, and community-based system dynamics. His research is currently funded by the NIH/NIA, Alzheimer's Association, and BrightFocus Foundation.

Presenters

Insights from Closed-road Assessments in Drivers with Vision Impairment

Alex Black, Ph.D.
Associate Professor, School of Optometry
and Vision Science
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Dr. Alex Black is an Associate Professor in the School of Optometry and Vision Science at the Queensland University of Technology, Brisbane, Australia. Since completing his Ph.D. in 2010, Dr. Black has been involved in a range of applied research projects assessing the impact of vision changes and ageing on driving performance. Projects include the impact of visual impairment on on-road driving safety in older adults, assessment of low luminance visual function relevant to night-time driving, and enhancing the conspicuity of vulnerable road-users, such as cyclists and pedestrians. Dr. Black has published over 70 peer reviewed papers across disciplines including optometry and ophthalmology, transportation research, gerontology, and medicine, and is actively involved in the clinical training of QUT optometry students.

Presenters

Philip C. Hessburg, M.D. – Art Van Elslander Chair in Ophthalmic Research Scholar Awardee

Matthew Blake
Washington University at St. Louis
St. Louis, Missouri
Mdblake1872@gmail.com

Matthew Blake recently graduated with a master's degree in data science from the University of Washington and completed a Bachelor of Science degree in biology from Boston College. Over the course of professional work experience he has taken projects in which he collaborated with scientists and engineers alike; many of these projects focused on the processing, maintenance, and analysis of data for various clinical studies. At the University of Washington Medical Center, he gained hands-on experience as to how informatics is implemented in both industry and academia for research. Matthew learned how to build processing pipelines for neuroimaging data and how to perform regression analyses with preprocessed data. At Bristol-Meyers Squibb and Ambry Genetics, he gained substantial experience in data management as he facilitated the validation, reconciliation, and processing of data that was received for multiple clinical studies. At his current position as a bio informaticist, he is primarily responsible for overseeing multiple data pipelines for his team and analyzing the data in a way that produces results that his PI would use in his research papers and grants. With these skills, Matthew hopes to grow a career in the field of bioinformatics.

Presenters

Blind Spots: Contextualizing Driving Behavior with Environmental Factors

David Brown, Ph.D.
Research Statistician, Department of Neurology
Washington University Medical School
DRIVES Lab
St. Louis, Missouri
browndavid@wustl.edu

Dr. David C. Brown is a Research Statistician in the DRIVES Lab. He completed his B.S. in Biology at the University of North Carolina Wilmington and earned his Ph.D. in Bioinformatics and Computational Biology from the University of North Carolina at Charlotte. His research there focused on understanding and predicting the inheritance of polygenic traits, like multidrug-resistant bacterial phenotypes, through the application of phylogenetic, statistical, and machine learning techniques to whole genome sequence (WGS) data. With the DRIVES Lab at Washington University Medical School in St. Louis, Dr. Brown's interest lies in uncovering and predicting the complex environmental, cognitive, behavioral, and multiomic factors that contribute to human disease.

Presenters

Exploring Data Acquisition in Naturalistic Driving: An Overview of Existing Technologies and a Novel Modular Device

Elio Curcio
University of Calabria
Calabria, Italy
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Elio Matteo Curcio is a Ph.D. candidate in Civil and Industrial Engineering at the University of Calabria and the founder of the innovative start-up Q-Bot s.r.l. His work at Q-Bot centers on developing advanced robotic and IT solutions for health monitoring, combining electromechanical design with intelligent control systems. The company's recent projects involve Shape Memory Alloy technology applied in medical and rehabilitation devices, earning multiple patents and recognition in national innovation competitions. Elio's research background also includes collaborative work on adaptive aerodynamics, integrating his expertise in electromechanical systems for cutting-edge applications in both healthcare and automotive fields.

Presenters

Considerations for Data Acquisition and Analysis in Naturalistic Recording of Drivers with Central Vision Impairment Who use Bioptic Telescopes

Bradley Dougherty, Ph.D.
Associate Professor
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Dr. Bradley E. Dougherty is an Associate Professor at the Ohio State University College of Optometry. Dr. Dougherty completed his clinical and research training at Ohio State, earning an O.D. and a Ph.D. in Vision Science. He also serves as a clinical attending optometrist in the Vision Rehabilitation Service. Dr. Dougherty's research includes several areas within low vision rehabilitation, including driving with vision impairment, assessment of patient-reported outcomes, and the relationships among stress, depression, and inflammation in macular degeneration. His Ph.D. dissertation work was on bioptic telescopic driving in people with central vision impairment, and he completed a project examining the visual and demographic factors associated with training, testing, and road safety outcomes in drivers with low vision who use bioptic telescopes for driving. He has expanded this work to the driving performance of drivers with low vision and completed a pilot study of road sign recognition in a driving simulator and ongoing studies using naturalistic recording of drivers in their own cars. He is also collaborating on a project that uses driving simulation to train new bioptic drivers. Dr. Dougherty's research has been funded by the National Eye Institute, Research to Prevent Blindness, The Ohio State University Center for Clinical and Translational Science, and the Ohio Lions Eye Research Institute.

Presenters

Experiences from the LongROAD Study: Compare and Contrast of Two Naturalistic Driving Collection Methods

Linda L. Hill, M.D., M.P.H.
Distinguished Professor
Herbert Wetheim School of Public Health
University of California San Diego
San Diego, California
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Dr. Linda L Hill, M.D., M.P.H., is a Distinguished Professor and Founding Faculty of the Herbert Wertheim School of Public Health at UC San Diego, where she is also Associate Dean. She is a Fellow of the American College of Preventive Medicine. San Diego Family Care, a Federal 330 Community Health Center, is the site of her clinical activities where she serves a largely refugee and migrant patient population. She directs the Transportation Research and Education for Driving Safety (TREDS) Center. Dr. Hill's research focuses on displaced populations and transportation safety (including fatigue, drug use, older drivers, drunk driving, distraction, and medical conditions). TREDS works across transportation modalities: passenger cars, commercial vehicles and railroads.

Presenters

Can We Build an Open-Source Platform to Support Naturalistic Driving Studies?

Gang Luo, Ph.D.
Associate Professor
Harvard Medical School
Boston, Massachusetts
Gang_Luo@meei.harvard.edu

Dr. Gang Luo is currently an Associate Professor of Ophthalmology at Harvard Medical School, and an Associate Scientist at Mass Eye and Ear. Dr. Luo is renowned for his research and development work in the area of low vision. He has been conducting naturalistic driving studies to understand the role of vision in driving safety. He is also pioneered in daily visual task-based naturalistic vision research based on vision app usage. In addition to clinical research, he also develops practical solutions, which include four vision assistance apps released to the public, to help visually impaired with their daily activities. He has been recognized with several honor awards, including the 2021 William Feinbloom Award by the American Academy of Optometry.

Presenters

Current Use and Future Needs of Data Acquisition Systems (DAS) in Naturalistic Driving

Gerald McGwin, Jr., Ph.D.
Professor, Department of Epidemiology
University of Alabama at Birmingham
Birmingham, Alabama
gmcgwin@uabmc.edu

Dr. Gerald McGwin is a professor in the University of Alabama Birmingham (UAB) Department of Epidemiology and holds a secondary appointment in the Department of Ophthalmology and Visual Sciences, where he currently serves as the associate director for the UAB Clinical Research Unit. Additionally, he holds secondary appointments with the UAB Department of Surgery and the Birmingham Veterans Affairs Medical Center. Dr. McGwin is also director of advanced enterprise analytics for UAB Health System and the biostatistics, epidemiology, and research design component of the UAB Center for Clinical and Translational Science. Dr. McGwin has authored or coauthored over 875 peer-reviewed manuscripts, with an emphasis on the epidemiology of injury, aging, eye disease and vision impairment and systemic lupus erythematosus.

Presenters

Summary and Issues Moving Forward

Cynthia Owsley, Ph.D., M.S.P.H.
Professor, Department of Ophthalmology
University of Alabama at Birmingham
Birmingham, Alabama
Cynthiaowsley@uabmc.edu

Cynthia Owsley Ph.D., M.S.P.H holds the Nathan E. Miles Chair and is Professor in the Department of Ophthalmology, University of Alabama at Birmingham (UAB). She is a Phi Beta Kappa graduate of Wheaton College, Massachusetts and received the Ph.D. in Experimental Psychology from Cornell University and the M.S.P.H. in Epidemiology from UAB. Dr. Owsley's research program focuses on aging-related eye disease and vision impairment, using many techniques including psychophysics, epidemiology, clinical trials, and health services research. Dr. Owsley has been continuously funded by NIH since 1983 and has over 312 publications indexed in PubMed. She has served on panels for the National Research Council including the Committee on Vision and the Committee on Disability Determination for Individuals with Vision Impairment and was a consultant to the Food and Drug Administration's Ophthalmic Devices Panel of the Medical Devices Advisory Committee. Dr. Owsley chaired the scientific review panel for NIH's Center for Scientific Review on Central Visual Processing and serves on NIH Special Emphasis review panels on a routine basis. She serves on the editorial board of **Investigative Ophthalmology and Visual Science** and **Annual Review of Vision Science**, and previously that for **Vision Research** and **Current Eye Research**. She is a Gold Fellow of the Association for Research in Vision and Ophthalmology (ARVO). Dr. Owsley serves on the Scientific Advisory Committee for Research to Prevent Blindness and will be the co-recipient of the Proctor Medal with Dr. Christine Curcio in 2025 from the ARVO.

Presenters

Henry Ford Health Department of Ophthalmology Research Director

Daniel Rathbun, Ph.D.
Henry Ford Health
Research Director, Department of Ophthalmology
Detroit Institute of Ophthalmology
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Dr. Daniel Rathbun received degrees in Neuroscience from the University of Texas at Dallas and the University of California, Davis. He studied bionic vision for a decade in Germany under Professor Eberhart Zrenner, a legend in the field. There, he founded the Experimental Retinal Prosthetics Group at the University Eye Clinic of Tuebingen. In late 2018, Dr. Rathbun moved to Detroit to create the Bionics and Vision lab at Henry Ford Health where he is also Research Director for the Ophthalmology Department.

In his research, Dr. Rathbun studies the language that the eye speaks to the brain to improve prosthetic vision devices. Such devices restore sight to patients blinded by retinal degenerations such as retinitis pigmentosa and macular degeneration. His other research projects on diabetic blindness detection and assistive devices for sight loss sit at the intersection of vision and technology. His expertise includes neural coding, applied artificial intelligence, machine learning, and computational modeling.

Dr. Rathbun is also a Senior Member of the Institute of Electrical and Electronics Engineers – Engineering in Medicine and Biology Society (IEEE-EMBS), Trustee for the Greater Detroit Agency for the Blind and Visually Impaired, Associate Professor in the Department of Physiology at Michigan State University, and Adjunct Professor in the Ophthalmology, Visual, and Anatomical Sciences at Wayne State University.

Presenters

Insights and Innovations from 25 Years of Field and Naturalistic Data Logging Experience

Bryan Reimer, Ph.D.
Massachusetts Institute of Technology
Boston, Massachusetts
reimer@mit.edu

Dr. Bryan Reimer is the founder and co-director of AgeLab's Advanced Vehicle Technology (AVT) Consortium and Advanced Human Factors Evaluator for Attentional Demand (AHEAD) consortium. He collaborates with industries, governments, and non-government organizations worldwide on the topics of driver safety, vehicle automation and other technological concerns related to human factors and Artificial Intelligence. In addition to his work with students and a multi-disciplinary team at MIT, he is a research advisory board member for Autoliv, an advisor to AI Sweden, former advisor to Affectiva, and an active consultant to the automotive and entrepreneurial community. In 2024, Dr. Reimer was appointed by U.S. Transportation Secretary Pete Buttegieg to the Department of Transportation's Transforming Transportation Advisory Committee (TTAC), a 27-member team of experts and advocates from academia, local government, industry, and the labor sector, to provide advice on plans and approaches for transportation innovation. He is a Contributor to Forbes and regularly featured in the press as a mobility futurist and as an expert in automotive safety. A seasoned conference and event presenter, Reimer has provided keynote addresses on the topics of driver attention and vehicle automation. In his 2018 TEDx talk, "There's more to the safety of driverless cars than AI", he discusses the undertreated health crisis on our roads and the limits of focusing on automation alone as a solution. He suggests that the modernization and automation of our mobility ecosystem will require increased transparency and collaboration between the public and private sectors to enhance consumer trust and make vehicle automation the most critical life-saving technology of the century.

Presenters

Philip C. Hessburg, M.D. – Art Van Elslander Chair in Ophthalmic Research Scholar Awardee

K. Scarlett Reynoso Moreno, B.S.
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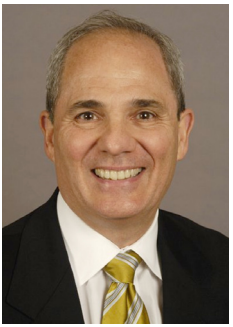
K. Scarlett Reynoso Moreno earned a Bachelor of Science in Computational Cognitive Science and Behavioral Data Analytics from the CUNY BA program at the City University of New York's Graduate Center. She works as a research coordinator in the Clinical Research Unit at the University of Alabama at Birmingham using R and Python to process ophthalmological data and explore machine learning methodology.

Presenters



Visually-Impaired Driver and Machine: A Fraught But Ideally Synergistic Relationship

Joseph Rizzo, M.D.
Simmons Lessell Professor of Ophthalmology
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Mass Eye and Ear / Harvard Medical School
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Dr. Joseph Rizzo sees complex neuro-ophthalmic disorders by referral within New England and worldwide. His clinical expertise informs his research, and he devotes a major portion of his professional focus to developing new therapeutic options for patients with vision disorders.

After obtaining his M.D. from Louisiana State University, Dr. Rizzo completed his neurology residency at Tufts University/New England Medical Center and an ophthalmology residency at Boston University. Subsequently, he joined Harvard Ophthalmology as a Clinical Fellow in Neuro-Ophthalmology and has served as a full-time faculty member since 1986.

Dr. Rizzo focuses his research on understanding the mechanisms of vision loss, improving diagnostic methods, and developing new treatments for blinding diseases. In particular, his clinical research includes the study of optic neuritis/ multiple sclerosis, ischemic optic neuropathy, pseudotumor cerebri, and giant cell arteritis. He also founded the Boston Retinal Implant Project in the late 1980s to develop a retinal prosthesis and offer a new therapeutic option for patients who have acquired blindness.

Each year, Dr. Rizzo supervises and teaches three clinical fellows and eight residents in the basic evaluation and management of neuro-ophthalmic disorders. As Director of the Neuro-Ophthalmology Service, he also designs and provides oversight for the fellowship program in Neuro-Ophthalmology. For more than 25 years, he directed the Neuro-Ophthalmology section of the Lancaster Course in Ophthalmology, which is the oldest and largest educational course that is designed for residents-in-training. He also serves as Director of Harvard Ophthalmology Alumni.

Presenters

Exploring Data Acquisition in Naturalistic Driving: An Overview of Existing Technologies and a Novel Modular Device

Stefano Rodinò, Ph.D.
University of Calabria
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Dr. Stefano Rodinò is a mechanical engineer with a Ph.D. in Civil and Industrial Engineering from the University of Calabria (UNICAL), specializing in robotics, mechatronics, and automotive systems. His expertise spans system design, prototyping, and data acquisition, particularly in the automotive sector, where he has worked on system and software testing for advanced driver-assistance systems (ADAS) and HVAC systems for IVECO Stralis trucks. Stefano has hands-on experience with CAN bus communication and STM32-based systems, contributing to the development and testing of automotive components and data acquisition systems. In addition to his automotive experience, Stefano has published multiple research papers on shape memory alloys and robotic actuation systems. He holds a patent for a robotic rehabilitation device and has a strong background in finite element analysis, embedded systems, and control algorithms for mechanical systems. Stefano continues to apply his knowledge to both academic research and industrial innovation, pushing the boundaries of mechatronic and robotic solutions.

Presenters

AI Computer Vision Solution for Naturalistic Driving Analysis

Steve Hellin
WORKProduct
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Tamas Szabo
WORKProduct
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tamas.szabo@workproduct.com

Steve Hellin is a business development leader with 25+ years of experience in growing businesses through strategic partnerships. His career includes partner leadership roles at IBM, Trimble, and several startups. He has worked across many industry verticals within the B2B SaaS/software industry and has experience with many different commercial models. He is passionate about leveraging partnerships to promote technology adoption and business success.

Tamas Zsolt Szabo is the CEO of WORK Product, a company dedicated to accelerating innovation in the software-fueled economy. With over four years at the helm, Tamas leads a team that empowers businesses to build better products faster, scale efficiently, and optimize product operations. WORK Product specializes in AI solutions, offering advanced object detection and facial analytics libraries, as well as tailored development teams to meet unique client needs.

Presenters

Data Acquisition Toolchain for Naturalistic Driving Studies

Clément Val
Head, Vehicle Environment &
Driver Behavior Department
CEESAR
Nanterre, France

Clément Val is responsible for driver behavior experiments and large-scale field data collection and analysis at CEESAR. He is leading an experienced engineering and research team, well accustomed to innovative and challenging projects merging human science, in-vehicle tests, and big data. Clément has 22 years of experience in the automotive industry, most of which was dedicated to road safety. He has led CEESAR's effort in multiple projects, including EUROFOT (First European, large scale Field Operational Test, for Advanced Driving Assistance Systems), UDRIVE (first European large scale Naturalistic Driving Study) and AVENUE (first European full-scale deployment of Autonomous Shuttles).

Clément graduated from Ecole Centrale de Lyon engineering college in 2002.

Presenters

Insights from On-road Assessments in Drivers with Vision Impairment

Joanne Wood, Ph.D.
Professor, Centre for Vision and Eye Research,
Optometry and Vision Science
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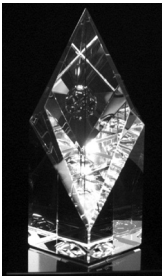
Professor Joanne Wood is from the Centre for Vision and Eye Research, Optometry and Vision Science, Queensland University of Technology, Brisbane, Australia. Her research focuses on the impact of vision impairment and ageing on functional outcomes, including understanding how vision impairment affects driving performance, the factors affecting night-time, pedestrian visibility and identifying risk factors for unsafe older drivers.



Bartimaeus Award Recipients (2003-2023)

The Bartimaeus Award is presented to an investigator who has distinguished himself or herself by prolonged substantial contributions to the progress in the field of The Eye and the Chip or The Eye, The Brain & The Auto.

Cynthia Owsley, Ph.D. (2003)
Department of Ophthalmology
School of Medicine
University of Alabama at Birmingham
Birmingham, Alabama

Joseph Rizzo, M.D. (2004)
Co-founder, Boston Retinal Implant Project
Massachusetts Eye and Ear Infirmary
Director, Neuro-Ophthalmology Service
Harvard Medical School
Boston, Massachusetts

Leonard Evans, Ph.D. (2005)
President, Science Serving Society
Bloomfield Hills, Michigan

Eberhart Zrenner, M.D. (2006)
Chair, Professor of Ophthalmology
Center for Ophthalmology, Institute for Ophthalmic Research
University of Tübingen
Tübingen, Germany

Richard Normann, Ph.D. (2008)
Distinguished Professor of Bioengineering and Ophthalmology
Moran Eye Center, University of Utah
Salt Lake City, Utah

Joanne Wood, Ph.D. (2009)
Professor, School of Optometry & Vision Science and Institute of Health & Biomedical Innovation
Queensland University of Technology
Australia

Robert Greenberg, M.D., Ph.D. (2010)
President and CEO
Second Sight Medical Products, Inc.
Sylmar, California

Mark S. Humayun, M.D., Ph.D. (2010)
Professor of Ophthalmology
Biomedical Engineering, Cell, and Neurobiology
University of Southern California
Los Angeles, California

Gerald McGwin, Ph.D. (2011)
Vice Chairman & Professor of Epidemiology
Department of Epidemiology
School of Public Health
University of Alabama at Birmingham
Birmingham, Alabama

Nigel Lovell, Ph.D. (2012)
Professor
University of New South Wales
Sydney, Australia

Gregg Suaning, Ph.D. (2012)
Associate Professor
University of New South Wales
Sydney, Australia

Matthew Rizzo, M.D. (2013)
Professor of Neurology
University of Iowa
Iowa City, Iowa

James Weiland, Ph.D. (2014)
Professor of Ophthalmology and
Biomedical Engineering
University of Southern California
Los Angeles, California

Eli Peli, MSc., O.D. (2015)
Professor of Ophthalmology
Schepens ERI, MEE
Harvard Medical School
Boston, Massachusetts

Gislin Dagnelie, Ph.D. (2016)
Johns Hopkins University School of
Medicine
JHU Lions Vision Center
Baltimore, MD

Shelley Fried, Ph.D. (2017)
Associate Professor
Department of Neurosurgery
Harvard Medical School
Massachusetts General Hospital
Boston, Massachusetts

Ulrich Schiefer, M.D. (2018)
Professor, Aalen University of Applied
Sciences
Tübingen University
Tubingen, Germany

Daniel Palanker, Ph.D. (2019)
Professor of Ophthalmology and
Electrical Engineering
Stanford University
Stanford, California

Philip R. Troyk, Ph.D. (2021)
Professor Department of Biomedical
Engineering
Illinois Institute of Technology
Chicago, Illinois

Timo Tervo, M.D., Ph.D. (2022)
University of Helsinki
Finnish Crash Data Institute
Helsinki, Finland

Eduardo Fernandez, M.D., Ph.D. (2023)
Professor
University Miguel Hernandez
Elche, Spain

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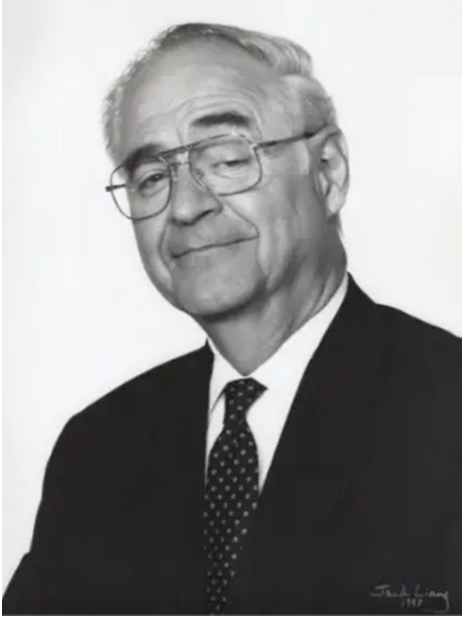
Bartimaeus Dinner

2022 Bartimaeus Award presentation to Timo Tervo, M.D., Ph.D.

Timo Tervo, M.D., Ph.D., and Philip C. Hessburg, M.D.

L – R: Cynthia Owsley, Ph.D., Timo Tervo, M.D., Ph.D., Joanne Wood, Ph.D., Matthew Rizzo, M.D. and Joseph Rizzo, M.D.



In memory of Philip C. Hessburg, M.D.
May 16, 1930 – October 2, 2024

Phil was an exemplary human being who projected the finest human qualities, always maintaining his integrity but not being shy about calling out those who did not share his principles. I greatly respected him and his leadership, and I relished his friendship. This is such a big loss for his family, for Henry Ford, for Detroit and for humankind.

– Joseph Rizzo, M.D.

Collegiality facilitates collaboration,
Collaboration accelerates progress!

– Philip C. Hessburg, M.D.

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2024 The Eye, The Brain and The Auto World Research Congress

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