

20
23

HIGHLIGHTS

OCT
5-7
2023

MCDONNELL INTERNATIONAL SCHOLARS ACADEMY
GLOBAL RESEARCH SYMPOSIUM

FORCES RESHAPING THE WORLD

THE ENVIRONMENT, SOCIAL INNOVATION,
GLOBAL HEALTH, AND DIGITAL TRANSFORMATION



Washington University in St. Louis

MCDONNELL INTERNATIONAL SCHOLARS ACADEMY

DANFORTH
CAMPUS

MEDICAL SCHOOL
CAMPUS

2023 GLOBAL RESEARCH SYMPOSIUM HIGHLIGHTS

INNOVATING TOGETHER

Nearly 300 attendees from Washington University, and international collaborators convened to discuss innovative approaches to address global challenges in the environment, social innovation, global health, and digital transformation. The thought-provoking and insightful information kept attendees engaged, curious, and eager to continue discussing the exceptional work supported by the McDonnell Academy's seed grant initiatives.



300
ATTENDEES



25+
PRESENTATIONS

featuring
research

ACROSS



45+
COLLABORATORS



3MT
COMPETITION



16
COUNTRIES/
REGIONS

and



18
INTERNATIONAL
INSTITUTIONS



PHOTO
COMPETITION

INTRODUCTIONS

Laura Benoist, director of the McDonnell Academy, highlighted the impact of the Global Incubator Seed Grants program, which has resulted in more than nine-fold return on investment, or more than \$12 million in additional external funding secured by WashU faculty as a result of this initiative.

Daniel Giammar, Walter E. Browne Professor of Environmental Engineering, provided an overview of WashU's efforts to create a multidisciplinary, collaborative hub for environmental research. The newly created Center for the Environment, which he directs, will mobilize WashU expertise in planetary health, biodiversity, environmental solutions and environmental justice to help address complex societal challenges.

Philip Payne, Janet and Bernard Becker Professor and director of the Institute for Informatics, Data Science and Biostatistics, introduced the Digital Intelligence Innovation (DI2) Accelerator, a new platform for WashU digital transformation, which will expand and support work in the digital domains and embed digital competencies into teaching and learning.



[VIEW PHOTO GALLERY](#)

KEYNOTE



“Every modern challenge has geography at its core. Every person with a cellphone has a sense of geospatial location.”

— Vice Admiral Frank Whitworth

Vice Admiral Frank D. Whitworth, Director of the National Geospatial-Intelligence Agency (NGA), delivered the opening keynote address. He discussed the history and mission of the NGA, and the role of geospatial methods in understanding the “Forces Reshaping the World.”

KEY TAKEAWAYS:

- Geospatial methods will lead the way to understanding a rapidly changing world. The NGA is tasked with making sense of this transformation from a national security perspective, but its efforts go beyond security issues. The NGA serves multiple customers, including first responders in support of humanitarian and disaster relief efforts.
- As the NGA further cements its standing in the St. Louis region with a new facility, NGA West, partnerships with industry and academia are key to the local GEOINT ecosystem. The Taylor Geospatial Institute has become an important geospatial hub, and Moonshot Labs provides an unclassified space to interact with partners. The NGA welcomes academic and scientific collaboration.
- GEOINT has a variety of applications in understanding the climate-water-food-security nexus. Some examples include tracking changing coastlines and the thickness of sea ice, wildlife trafficking, food supply chains, environmental and cultural heritage destruction.



PLENARY I | THE ENVIRONMENT

From providing clean air to preserving the biodiversity of species, this plenary session, chaired by Daniel Giammar, fostered cross-disciplinary dialogue on the existential threats facing our planet and its inhabitants.

Jonathan Losos, William H. Danforth Distinguished University Professor and director of the Living Earth Collaborative at WashU and Elizabeth Carlen, postdoctoral research associate in the Department of Biology, presented two seed grant-funded projects that deal with how systems are impacted by humans: one exploring urban biodiversity and the other looking into domestic animals becoming feral. Carlen has been exploring how urban pigeons differ from one city to the next, collecting samples in New York City and Hong Kong. Together with collaborators from The University of Melbourne, Losos has been observing feral cats in Australia, demonstrating that darker habitats have darker cats.

Krista Milich, assistant professor of biological anthropology and Penina Acayo Laker, assistant professor in the Sam Fox School of Design and Visual Arts, shared insights from their collaboration with David Tumusiime from Makerere University on human health and wildlife conservation in Uganda. They are working with communities bordering Kibale National Park to co-create solutions that improve perceptions of wildlife, especially red colobus monkeys, to reduce human-wildlife interactions and decrease the potential for zoonotic disease transmission.

Randall Martin, Raymond R. Tucker Distinguished Professor in the McKelvey School of Engineering, discussed the wealth of information collected by the SPARTAN air quality network and the GEOS-Chem Community, which include multiple McDonnell Academy partners. He focused on a theme that connects across these networks – fine particulate matter ($PM_{2.5}$), a leading determinant of longevity. Combining satellite observations with ground-based measurements enables more accurate measurements of $PM_{2.5}$.

Jay Turner, professor of energy, environmental and chemical engineering in the McKelvey School of Engineering, and Sagnybek Orunbaev, associate professor in the Department of Environmental Sustainability and Climate Sciences at the American University of Central Asia, presented the group's ongoing efforts to better understand air quality in Central Asia and identify knowledge gaps to drive effective air quality management.

Hongxi Yin, Ian Trivers and Zhifang Wang presented a collaboration between WashU's Sam Fox School and Peking University on improving sustainability of stormwater management, focusing on what St. Louis can learn from China's Sponge City Initiative. The team explained what makes a Sponge City in China different and how this innovative approach to managing stormwater can be applied in the context of St. Louis.

KEY TAKEAWAYS:

- **Jonathan Losos:** Charles Darwin was wrong about the pace of evolution. When the environment changes, species can evolve very quickly to adapt to their environment.
- **Elizabeth Carlen:** Cities are like McDonald's, each with its own flavor, also affecting wildlife diets.
- **Krista Milich:** There are opportunities to shift humans' negative perceptions of wildlife and reduce the potential for harmful human-wildlife interactions that lead to disease transmission and biodiversity loss.
- **Randall Martin:** Outdoor $PM_{2.5}$ is a major risk factor for mortality, yet vast areas of the world have no adequate monitoring. International networks are key to addressing this knowledge gap. Burning of solid fuels drives a large fraction of the $PM_{2.5}$ burden.
- **Jay Turner:** Air pollution in many regions of Central Asia is severe, but the drivers vary dramatically across the region, and there are knowledge gaps that need to be addressed to inform science-based interventions.
- **Sagnybek Orunbaev:** As Central Asia glaciers are melting at record levels, more storage capacity is needed in the mountains (dams and reservoirs) to respond to climate change.
- **Hongxi Yin, Ian Trivers and Zhifang Wang:** Some lessons for St. Louis from China's Sponge City are to prioritize stormwater management early in the design and development process and to leverage stormwater management designs to enhance urban space, amenities, and increase the wider ecological benefits.



PLENARY II | SOCIAL INNOVATION

In this plenary, change-makers from different fields came together to explore social innovation strategies that drive positive change and reach those with the greatest need—from creating economic opportunity to providing mental health services.

Two presentations focused on the idea of Child Development Accounts (CDAs), a concept developed by Michael Sherraden, the George Warren Brown Distinguished University Professor and founding director of WashU's Center for Social Development (CSD), in his seminal book, *Assets and the Poor*, which has influenced asset-based policies and programs in the U.S. and many other countries.

Building on this body of work, Michal Grinstein-Weiss, Shanti K. Khinduka Distinguished Professor at the Brown School and her colleagues at the Social Policy Institute (SPI), are collaborating with partners in Israel and the U.S. to advance evidence-based interventions and shape policy. SPI Senior Advisor, Ray Boshara, and Dr. Aviv Gaon, senior lecturer at Reichman University, shared lessons from applying these policies both domestically and internationally. Additionally, Grinstein-Weiss highlighted the impact of the seed grant-funded project, which enabled the team to conduct timely research in Israel on the socio-economic impacts of the Covid-19 pandemic, generating data from six waves of surveys that informed policy at the Knesset.

Li Zou, international director of WashU's Center for Social Development (CSD) and Jin Huang, professor of social work at Saint Louis University, presented their ongoing research in collaboration with Suo Deng, CSD faculty director from Peking University, highlighting how asset-building programs and proposals vary across Asia and the U.S. Zou noted that, ideally, CDAs should be universal, automatic, progressive, potentially lifelong, and purposeful (for education, housing, and long-term security). Currently, the top six countries with CDAs are the U.K., U.S., Israel, Canada, Singapore and South Korea, collectively accounting for approximately 20 million accounts.

Three additional presentations focused on providing support for vulnerable groups and addressing gaps in mental health services. The first study, "Say No to Stigma," is a cross-disciplinary collaboration between Dr. Penina Acayo Laker in the Sam Fox School of Design & Visual Arts, Dr. Ozge Sensoy Bahar in the Brown School, and Dr. Noeline Nakasujja at Makerere University. Their seed-grant funded project has led to the creation of new, age-appropriate, culturally relevant visuals and messaging around mental health and stigma to be used in Uganda's primary schools.

Mitra Naseh, assistant professor in the Brown School, Yasemin Sohtorik İlkmen, assistant professor of psychology at Boğaziçi University, and Ceren Acartürk, associate professor in clinical psychology at Koç University, drew attention to the high prevalence of mental health problems among forcibly displaced people and their limited access to culturally responsive interventions. To address this growing need among Afghan refugees in Turkey, they are developing a protocol for virtual delivery of mental health services, using a community-informed strategy.

Early in the pandemic, the UN Secretary General voiced concern about the global surge in domestic violence. To investigate this problem, Kim Thuy Seelinger, research associate professor in the Brown School, connected with collaborators Ana Pamela Eguiguren Bravo at the University of Chile and Zahara Nampewo at Makerere University in Uganda. Together, they set out to collect data on changes in the rates of intimate partner violence and the factors driving them in three different cities: St. Louis, Santiago, and Kampala. Though the team struggled with interpreting the data because during the pandemic "service itself was restricted so numbers were not reliable," they were still able to identify some commonalities and differences in what was happening in each of the three countries.

KEY TAKEAWAYS:

- **Shanti Parikh:** "Diseases are so creative; they have no boundaries. Why does our work occur in silos?" Social innovation is about how to "disrupt the categories we have created" (gender, geography, etc.).
- **Michal Grinstein-Weiss:** Israel has one of the highest levels of income inequality compared to other OECD countries. To address this, WashU researchers introduced the idea of Child Development Accounts (CDAs) for every child in Israel to advance long-term asset-building and child development. A new policy has been implemented in Israel since 2017 through the establishment of a universal CDA program called Saving for Every Child Program.
- **Li Zou:** "All children—especially the poor and vulnerable—must have a financial footing to reach their potential." The Center for Social Development's vision is for every newborn child on the planet to start life with a Child Development Account and an initial deposit.
- **Penina Acayo Laker:** Mental health services sub-Saharan Africa are severely underequipped. To address this gap, it is important to create interventions that are culturally relevant and that communities are invested in.
- **Mitra Naseh:** Turkey is host to the world's largest refugee population. There is a growing need for mental health services among refugees, with approximately 23% of child and adolescent refugees and 31% of adult refugees living with PTSD.
- **Kim Thuy Seelinger:** Covid-19 public health measures impacted access to and delivery of support services for victims of intimate partner violence, but there were differences and nuances in these impacts across countries.

Jin Huang, Kim Seelinger, Ceren Acartürk, Michal Grinstein-Weiss, Ozge Sensoy Behar and Shanti Parikh during the panel session of the Social Innovation plenary.



PLENARY III | GLOBAL HEALTH CHALLENGES

The third plenary delved into critical public health challenges impacting the well-being of communities in St. Louis and around the world. Chaired by Mark Huffman, professor of medicine and co-director of WashU's Global Health Center, this session provided a platform to explore innovative solutions to advance global health equity and resilience.

Jorge Llibre-Guerra, assistant professor of neurology at Washington University School of Medicine in St. Louis, presented an overview of the Dominantly Inherited Alzheimer Network and ongoing efforts to expand their work in Latin America. For his seed grant-funded project with collaborators at the University of Chile, Llibre-Guerra sought to enhance clinical genetic testing and family counseling for Alzheimer's disease in Chile. The pilot data and field experience are now also facilitating outreach in other countries across Latin America. One important insight is that there are different attitudes towards genetic testing across Latin American countries, with only 44% in Colombia who want to know their genetic status compared to 89% in Argentina.

Professors Gaby Vintimilla and Iván Tomás Palacios León from Universidad San Francisco de Quito joined Lora Iannotti, professor in the Brown School and director of the E3 Nutrition Lab, to present the Mikhuna Project in Ecuador, focusing on nutrition effects on early brain development. This is a randomized control study during pregnancy in rural, low-resource communities in Ecuador, with the intervention group receiving a food basket with animal source foods and a diverse range of native fruits and vegetables, and a control group engaged through workshops. The team is looking at fetal and newborn outcomes at four measurement timepoints (weeks 12, 21, 35, and 1-2 weeks post-partum). Seed grant funding is supporting further research into the effects of nutrition on breastmilk composition and brain development during the first three months of life.

Evelyn Bonney from the University of Ghana and George Kyei, who holds a joint appointment at WashU and at the University of Ghana, presented their work on building capacity for HIV cure research, antimicrobial stewardship and infection prevention in Ghana. They observed that the past ten years have seen major advances in HIV cure research, such as the shock and kill approach. Yet most of this research is done in the western world without involving African patients or scientists. To address this gap, Kyei has been training scientists in Ghana. His seed grant-funded project focusing on antimicrobial stewardship and infection prevention at the University of Ghana Medical Center has already led to an additional grant from Pfizer-West Africa to bring the team from Ghana to WashU for a one-month intensive training.

For their project on political ideology, affective polarization and Covid-19 mitigation across Latin America, political scientists Guillermo Rosas from WashU and Sebastián Vallejo Vera from the University of Western Ontario and Tecnológico de Monterrey, teamed up with a multidisciplinary, multinational team. To understand attitudes, knowledge and behavior related to Covid-19 in Brazil, Chile, Colombia and Mexico, they conducted two waves of surveys of more than 8,000 respondents in 2021 and 2022. They found that affective polarization shapes attitudes toward epidemiological and economic policy responses to Covid-19 and drives respondents' policy preferences. They are also looking into how this connection is mediated by views on religion and science.

Leyao Wang, assistant professor of medicine at WashU, studies the origins and etiology of asthma, one of the most common chronic diseases in children. The infant nasal microbiome is a promising mechanism to prevent asthma, however, it has not been well characterized. This is the goal of an ongoing collaboration with Beatrice Irene Nyann and Christiana Kuti at the University of Ghana Medical Center, launched with seed grant support from the McDonnell Academy. From the samples the team has collected and analyzed so far, there are differences in the infant nasal microbial compositions in WashU and Ghana. The most abundant beneficial bacteria transferred from mother to infant nasal microbiome in both locations was *Corynebacterium*. The team hopes to scale the study by building capacity to do some of the testing on the ground in Ghana rather than shipping the samples to WashU.

KEY TAKEAWAYS:

- **Jorge Llibre-Guerra:** Though there has been significant progress in understanding the main genetic drivers of Alzheimer's disease in the last three decades, studies have mostly told a US- and Europe- centric story, leaving "blind spots" in parts of Latin America and Africa.
- **Gaby Vintimilla, Iván Tomás Palacios León & Lora Iannotti:** There are 150 million children with stunted growth globally. More studies are needed to understand how deficiencies in key nutrients, such as iron, zinc, and choline, affect early brain development.
- **Evelyn Bonney & George Kyei:** The African continent bears the brunt of the HIV pandemic (~70 percent), yet less than 5 percent of HIV research involves African patients or scientists. There is an urgent need to involve African patients and scientists in HIV cure research.
- **Guillermo Rosas:** Technical knowledge and expertise should guide public health policy, yet technically perfect solutions will not become policy if they are politically inexpedient.
- **Leyao Wang & Beatrice Irene Nyann:** Asthma prevalence has been increasing in Africa. The infant nasal microbiome is a promising mechanism to understand asthma development.
- **Mark Huffman:** The Translational Science Benefits Model is a useful framework to help demonstrate the impact of academic research in the real world and recognize the knock-on effects.



PLENARY IV | DIGITAL TRANSFORMATION

The last plenary, chaired by Professor Randi Foraker, director of the Center for Population Health Informatics at WashU, explored the dynamic realm of technological innovation and the exciting possibilities digital technologies hold for shaping our world.

Guy Genin, Harold and Kathleen Faught Professor of Mechanical Engineering in the McKelvey School of Engineering, and Changqing Chen, head of the Department of Engineering Mechanics at Tsinghua University, have been working together to convert 3D-printed materials into fully functional computers. “An important part of the digital transformation is the transformation of what a computer is going to be,” said Genin. He invited the audience to envision a future where everything around us is a computer. Chen traced the role of materials as a prominent player throughout human history, from the stone age to the current AI age, posing the question whether information processing can become an inherent property of materials. Together, Genin and Chen are studying how mechanical metamaterials can be used to store and process information, with numerous potential applications.

Professors Chia-Cheng Wei and Shao-Yiu Hsu, both from National Taiwan University, joined Jr-Shin Li, the Newton R. and Sarah Louisa Glasgow Wilson Professor from the McKelvey School of Engineering, to present their seed grant-funded collaboration on “Learning global climate systems using computational topology.” Seed grant support allowed the team to pursue a “high-risk but very likely to be high-return project,” said Li. “Our ultimate goal is to learn global changes in climate systems using topological information inherent in big climate data.” As foundation of a large portion of modern mathematics, topology is concerned with the properties of a geometric object that are preserved under continuous deformation. The team discussed three topological properties—connectedness, dimension, and “hole” structure—and their various potential applications in analyzing global warming or the intensity of hurricanes. The team demonstrated the importance of topological tools and approaches in different domains, with examples from toxicology and geosciences, and at different scales—from 10^{-6}m to 10^6m .

Professors William Yeoh and Chien-Ju Ho from the McKelvey School of Engineering and Sarah Keren from Technion - Israel Institute of Technology, have been working together to understand human-AI collaboration. Their overarching interest is in designing AI systems that can guide humans to make better decisions, particularly in cases where neither humans nor AI can solve a problem efficiently, and where it would make sense to combine the complementary strengths of both AI and humans. Yeoh explained that in disaster response situations, for example, AI robots have better sensors and better mobility than humans, but humans are nevertheless needed to make critical value judgment calls such as which search areas to prioritize. In the creative arts, AI systems may allow for greater creativity in generating unconventional designs for buildings, but human architects are still needed to ensure sound and feasible structures. The puzzle this team is trying to solve is how to make it easier for humans to figure out what the AI system is trying to do, how to account for human behavior so that AI can accurately infer what humans are trying to do, and how to jointly optimize who does what. The team has already made important contributions to the literature on goal recognition design, for example by looking into modifying the environment to remove possible actions. Their seed grant-funded project focuses on learning the expected average difficulty of a goal recognition problem, rather than assuming a worst-case measure for the problem's difficulty. To do that, they are using data from a cooking simulation video game called “Overcooked.”

KEY TAKEAWAYS:

- **Randi Foraker:** When we think about the 'digital transformation', most people think about the technologies involved, but we really should be thinking about an overlapping Venn Diagram that includes the technologies, but also the processes we are using and the people involved.
- **Guy Genin:** The idea of what constitutes a computer is rapidly changing. Envision a future where everything around us is a computer.
- **Jr-Shin Li:** In many applications, topological properties matter, not the shapes. A topological data analysis approach can help in quantifying the impacts of climate change.
- **William Yeoh:** Optimizing AI performance alone without considering human counterparts is not adequate. To optimize the joint performance of human-AI teams, the AI agent must understand the behavior of its human teammate and make its behavior easily understandable to humans.



SYMPOSIUM STUDENT ENGAGEMENT

As we gathered to explore the pressing issues reshaping our world, the McDonnell Academy invited students to be active participants in our thought-provoking plenaries, workshops and competitions.

FORCES RESHAPING THE WORLD PHOTO CONTEST

To showcase unique perspectives and contribute to the visual narrative that reflects the profound changes shaping our global reality, the WashU community and international partners were invited to submit photos for the Forces Shaping the World Photo Contest.

PHOTO CONTEST WINNERS



**MCDONNELL SCHOLARS
CONTRIBUTE TO THE VOICE
OF THE SYMPOSIUM**

Scholar Voices Symposium Edition is Scholar-driven content that sparks conversations and deepens connections within the McDonnell Academy, with our partners, and across the WashU community.

[READ THEIR STORIES](#)

THREE-MINUTE THESIS COMPETITION

To highlight the talent of graduate students at WashU and our international partners, a Three Minute Thesis (3MT[®]) competition showcased their research and projects in the four thematic areas for a chance to win cash prizes.

3MT COMPETITION WINNERS

- **Yarden Avnor**, University of Haifa
Social Innovation | First Place Award & People's Choice Award
- **Messi Lee**, Washington University in St. Louis
Digital Transformation | First Place Award & People's Choice Award
- **Sujit Modi**, Washington University in St. Louis
The Environment | First Place Award
- **Ephrance Eunice Namugenyi**, Makerere University
The Environment | People's Choice Award
- **Yi-Hsuan Shih**, Washington University in St. Louis
Global Health | People's Choice Award
- **Judith Sokei**, Washington University in St. Louis
Global Health | First Place Award



McDonnell Academy Global Research Symposium 3MT contestants competed for cash prizes and recognition.

THANK YOU TO OUR CAMPUS PARTNERS

The McDonnell Academy Global Research Symposium, *Forces Reshaping the World*, featured the work of seed grant awardees who have received funding from the McDonnell International Scholars Academy and our campus partners over the last three years in areas that align with Washington University's "Here and Next" strategic plan. The Global Incubator Seed Grant funding is made possible with the support of a number of different campus partners.

OFFICE OF THE PROVOST



The provost is the chief academic officer of Washington University in St. Louis, responsible for teaching, learning, scholarship, and research across the Danforth Campus. The provost is responsible for university-wide curricular and co-curricular activities such as undergraduate and graduate education, diversity, internationalization, and outreach, as well as collaboration with the other executive vice chancellors on research and information technology for all seven schools.

SOCIAL POLICY INSTITUTE



Combining lessons from areas such as economics, business, medicine, public policy, social work, and sociology, the Social Policy Institute (SPI) at Washington University provides a systems-level understanding of policy problems and promotes systems-level solutions. SPI aims to build upon existing international collaborations and establish new partnerships, further enhancing Washington University's reputation as a global research leader. SPI values the robust array of its partnerships—ranging from local St. Louis nonprofits to national government agencies in the U.S. and abroad, to corporations that affect the daily lives of people in communities.

INSTITUTE FOR INFORMATICS, DATA SCIENCE & BIostatISTICS

(I²DB)

The Institute for Informatics, Data Science and Biostatistics (I²DB) provides an academic and professional home for both research and practice. While sitting at the intersection of all three fields, I²DB provides for a crosscutting community of practice that enhances and extends the academic and operational strengths of Washington University and leverages the unique living laboratory afforded by the co-location of the medical school, BJC HealthCare, and the Cortex Innovation Community.

INSTITUTE FOR PUBLIC HEALTH

WashU
Public Health

The Institute for Public Health (IPH) harnesses the strengths of Washington University in St. Louis to address the complex health issues and health disparities facing the St. Louis region and the world. By bringing together diverse disciplines to share knowledge, develop partnerships, and convert ideas into action, IPH improves, amplifies, and supports public health activities in St. Louis and around the world.



GLOBAL SEED GRANTS

Seed grants provide momentum for international collaboration

The McDonnell International Scholars Academy is a catalyst for collaborative research across countries and disciplines. Through its seed grant initiatives, in the last three years the McDonnell Academy launched more than 65 new research projects in 30 countries.

The awards are in partnership with the Office of the Provost and aligned with "Here and Next", the Washington University in St. Louis strategic plan.

SEED GRANT-FUNDED PROJECTS REAP LIFE-CHANGING RESULTS

Leveraging and strengthening global partnerships that harness the power to change lives for the better, the 2022 seed grant cycle has already resulted in a nine-fold return on the university's investment.

[READ THE STORY](#)

GLOBAL SEED GRANTS BY THE NUMBERS

RESULTS



200
TOTAL APPLICATIONS



67 NEW PROJECTS LAUNCHED

IMPACT

\$1.3M
AWARDED
2020 - 2023



\$12M
Total Amount of External Grants Brought In



9X
ROI



100+
RESEARCHERS

30+
COUNTRIES

ALL
7
WASHU
SCHOOLS

25 MCDONNELL ACADEMY
PARTNER UNIVERSITIES

40
DEPARTMENTS



67 RESEARCH
PROJECTS



30+ COUNTRIES



\$1.3M

AWARDED 2020-2023

AFRICA

Cameroon

- River blindness

Ethiopia

- Rheumatic heart disease in pregnancy

Ghana

- AIDS-associated malignancies
- Covid-19 strain on healthcare personnel
- Environmental health hazards
- Health literacy & linguistic diversity
- Impact of Covid-19 on HIV care
- Infant nasal microbiome
- Stewardship intervention to address perioperative antibiotic use

Nigeria

- Enhancing intergenerational health
- Environmental health hazards

Rwanda

- Assessment of metabolic phenotypes of adults with Type 2 Diabetes

South Africa

- A smartphone-based hearing screen
- Crime victims & democratization
- Drone-based arts & media workshops
- Gender-based violence
- Social determinants of parkinsonism
- Smart, community-based audiometry for African townships

Uganda

- Addressing HIV risk & treatment
- Adherence and mental health outcomes among refugee youth living with HIV
- Covid-19 & intimate partner violence
- Depression in youth living with HIV
- Human health & wildlife conservation
- Mental health & stigma
- Radiation therapy treatments
- Reducing mental health stigma among primary school students

THE AMERICAS

Argentina

- Genetic factors & nonalcoholic fatty liver disease

Brazil

- Covid-19 consequences in pregnancy
- Disruptions to healthcare systems and HIV care
- Learning-based visual event demarcation
- Open access walkways in collective housing

Chile

- Covid-19 and intimate partner violence
- Family counseling for Alzheimer's disease

Brazil, Chile, Colombia, Mexico

- Role of political ideology on Covid-19 mitigation

Canada, U.S.

- Processing biases in diagnosing Covid-19 patients

Costa Rica

- Bamboo poles as a sustainable structural material alternative

Ecuador

- Pregnancy nutrition & infant brain development

Mexico, Nigeria, United Kingdom

- Cross-gender spillover effects of public health campaigns

ASIA

China (PRC)

- Asset-building for child health
- Cross-cultural developmental study & common good
- Integrated machine learning and point-of-care technology
- Improving sustainability of stormwater management
- IT & political communication in socialist China, 1966-1978
- Topological superconductors

China (PRC), Singapore, Korea

- Reshaping the global intellectual property system

Hong Kong (SAR)

- Advancing innovative chem-bio interfaces for efficient carbon capture & utilization
- Developing a miniaturized photoacoustic microscope
- Stable isotope analyses of diets in native & introduced doves

Hong Kong (SAR), Taiwan (ROC)

- Wealth accumulation & asset poverty among older adults

India

- Cloud processes and transmission of respiratory diseases
- Construction of AI models to discriminate Crohn's disease from gastrointestinal tuberculosis
- Disparities in fine particulate matter exposure & Covid-19 spread
- Toll of Covid-19 on mental health

Indonesia

- Improved antibody surveillance

Taiwan (ROC)

- Climate systems & computational topology
- Equitable cancer prevention and control
- Social determinants of health & policy design

EUROPE & MIDDLE EAST

Finland

- Energy efficiency via the sync model of communication

Germany

- Enslavement in Eastern Europe

Israel

- Economic fallout of Covid-19 & policy responses
- The intersections of poverty & child neglect
- Social mobility & Israel's pandemic recovery
- Human-AI collaboration

The Netherlands

- WHO & Global Governance

Switzerland, Israel

- Processing biases in diagnosing Covid-19 patients

Turkey

- Virtual delivery of transdiagnostic mental health intervention

United Kingdom, U.S.

- Behavioral and attitudinal effects of voter ID

Uzbekistan

- Developing conceptual models for air quality

OCEANIA

Australia

- Evolutionary adaptation by feral cats
- Psychological toll of Covid-19
- Social media use & healthy adolescent development

Australia, Korea

- Pandemic's impact on retirement

Australia, Singapore, Taiwan (ROC)

- WHO & global governance





Washington

University in St. Louis

McDONNELL INTERNATIONAL
SCHOLARS ACADEMY

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