

**IYRC
2023**

INTERNATIONAL
YOUNG RESEARCHERS'
CONFERENCE 2023

PROGRAM BOOK

IYRC

**7th International
Young
Researchers'
Conference**

June 17-18, 2023
The University of Tokyo

ABOUT IYRC

The IYRC was founded in 2017 as a platform for high school students to share their research projects with the community. Since then, the organization has expanded to include not only research, but also community projects, global health narratives, case study competitions, and student-led programming. The IYRC is an independent public benefit incorporation in Japan, but we work with hundreds of students from more than twenty countries. Our program would not be possible without the generous support of our university partners, high school leaders, and reviewers.

The IYRC is an interdisciplinary conference where high school students publish original research from all disciplines and present it to an international audience. Since 2018, six IYRC conferences have been successfully organized, attracting the participation of aspiring young researchers from 23 countries, resulting in the acceptance of 262 papers.

IYRC team



NEIL NGUYEN
Founder and Director



PAUL LEWIS
Founder and Director



CANH VU DUC
Coordinator



FAIRUZ ALFADIA
Assistant

GENERAL INFORMATION

DATE: June 17-18, 2023

- In-person conference on June 17, 2023
- Virtual conference on June 18, 2023

VENUE:

- **For the in-person conference (June 17, 2023):**

Address:

#76 Faculty of Engineering Building 2

The University of Tokyo 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113-8656 JAPAN

Access:

- 10 min walk from Hongo-Sanchome Station (Tokyo Metro Marunouchi Line, Tokyo metropolitan Oedo Line)
- 5 min walk from Todaimae Station (Tokyo Metro Nanboku Line)
- 10 min walk from Nezu Station (Tokyo Metro Chiyoda Line)

Google access: <https://goo.gl/maps/cM5p58os2iZ8wzaJ7>



- **For the virtual conference (June 18, 2023):**

The conference will be held virtually via the Zoom platform.

INSTRUCTION FOR PRESENTERS:

For in-person conference (June 17):

- Each presentation is 12 minutes in length, followed by 3 minutes for Q&A
- Please bring your presentation on a USB as a laptop will be provided in all rooms. Using your own laptop is not necessary and may cause technical difficulties and time delays.
- We kindly ask you to be in the room 15 minutes before the start of your session and upload your presentation into the prepared laptop.
- Presentation formats: PowerPoint (format 16:9) or PDF
- File name: Presentation ID_name (e.g., IYRC01_ABC)

For virtual conference (June 18):

- All authors need to submit a 12-minute pre-recorded presentation by **June 4**. The presentation will be published on the conference website on the conference date to encourage audience participation and discussion.
- Live presentation on the conference date is 12 minutes, followed by 3 minutes for Q&A.
- Please Install and update Zoom for the latest version in advance since Zoom is used for the virtual conference (<https://zoom.us/download>)
- We kindly ask you to be in Zoom 15 minutes before the start of your session to check internet connection and other technical tests.

You can find the presentation rubric [here](#).

You can find the presentation guide [here](#).

TENTATIVE PROGRAM

In-person conference on June 17, 2023

(Note: schedule is subject to change)

Jun 17 (JST)		Conference hall
9:30 AM	10:15 AM	Opening and Keynote Speech "Soft Robotics and Digital Fabrication" Dr. Ta Duc Tung (The University of Tokyo)
10:15 AM	12:00 PM	General session 1
10:15 AM	10:30 AM	"Functional Decline as a Major Outcome of Geriatric Depression and Predictor of Its Trajectories: Longitudinal Evidence from the Health and Retirement Study (HRS)" Xinyi (Annie) Shan (BASIS Independent Brooklyn) , Shuquan (Mark) Chen (Columbia University)
10:30 AM	10:45 AM	"How promising is Psilocybin therapy for the treatment of depression and anxiety? A meta-analysis of 4 studies" Paulina Suchecka (Leysin American School)
10:45 AM	11:00 AM	"The "Tumblr Sexyman" Internet Phenomenon and its Influence on Perceived Attractive Traits among Late Adolescents" R E Benozza (Philippine Science High School - Main Campus)
11:00 AM	11:15 AM	"A Study of Knowledge, Attitude, and Practice (KAP) Regarding Uses of Antibiotics Among Children with Cleft Lips" Khue Bao Le (Concordia International School Hanoi), Nam Tue Nguyen (Reigate Grammar School Vietnam)
11:15 AM	11:30 AM	"A Systematic Review: Are Probiotics and Fecal Microbiota Transplantations Effective Treatments For Autism Spectrum Disease" MyAnh Hisaeda (The Lawrenceville School)
11:30 AM	11:45 AM	"Holding to Your Horoscopes: Its Effect on Post-Pandemic Relationships Among Philippine Science High School Students" Y D Austria, B L Bueno, M F Alegre, B Montemayor Jr. (Philippine Science High School)
11:45 AM	12:00 PM	"Bone Health Optimization in the Perioperative Spine Patient: Findings from a Single Academic Institution " R Rahman (Northern Highlands Regional High School)
12:00 PM	1:30 PM	Lunch + Networking
1:30 PM	4:00 PM	General session 2
1:30 PM	1:45 PM	"Q-Switched Pulse Generation Utilizing a Thin-Film Titanium Aluminum Carbide Saturable Absorber in Mode-Locked Erbium-Doped Fiber Laser" Ayden Victory Haoken (Sinarmas World Academy)

1:45 PM	2:00 PM	"The Power of Love: The Effects of Grade 11 Students' Romantic Relationships on Their Academic Motivation" Y. D. L. Añonuevo, S. D. Recio, and M. F. T. Alegre (Philippine Science High School)
2:00 PM	2:15 PM	"The Factors That Affect Green Purchase Intention Using Text Mining and Regression Analysis" Daniel Lee (High School South Korea)
2:15 PM	2:30 PM	"Disseminate to Deceit: The Impact of Fake News on Social Media on Gen Z Filipinos' Political Stances" B. M. Gonzalez, J. D. R. Dela Cruz (Philippine Science High School)
2:30 PM	2:45 PM	"The Effects of a Post-Roe America on Filipino Women's Sexual and Reproductive Health Rights " B.M.G. Sacramento, M.F. Alegre, J.Q.V. Tarcelo (Philippine Science High School)
2:45 PM	3:00 PM	"The Effect of the COVID-19 Pandemic on the Christmas Traditions of the Families of PSHS-MC Batch 2024 Students" L. M. M. T. Tolin, E. A. T. Norcio and S. J. S. Napoles (Philippine Science High School)
3:00 PM	3:15 PM	"Correlation Between Levels of Political Participation and Social Indicators among Group of Twelve Countries" Ririko Noda (Tokyo Metropolitan Kokusai High School)
3:15 PM	3:30 PM	"Study Strategies and Recurring Learning Issues of Philippine Science High School Main Campus Students" Z. C. Timbreza, M. F. T. Alegre (Philippine Science High School)
3:30 PM	3:45 PM	"How is communication affected by the implied meanings of digital ideograms?" Yumiko Baba (Aoba-Japan International School)
3:45 PM	4:00 PM	"A Systematic Review of Medical Marijuana Policies Around the World" Megumi Kurosu (The American School in Japan)
4:00 PM	4:15 PM	Break
4:15 PM	5:15 PM	Special session 1
5:15 PM	6:15 PM	Special session 2
6:15 PM	6:30 PM	Closing

Note: Each presentation is 12 minutes in length, followed by 3 minutes for Q&A

TENTATIVE PROGRAM

Virtual Conference on June 18, 2023

(Note: schedule is subject to change)

Zoom link

EDT Time Zone		JST Time Zone		Virtual Conference	
June 18		June 18-19			
10:00 AM	10:45 AM	11:00 PM	11:45 PM	Zoom 1: https://columbiacuimc.zoom.us/j/95381434985?pwd=MUJQUkFJT3M4aklxVUE2bFcyWURoZz09 Meeting ID: 953 8143 4985 Passcode: 749928	
				Opening and Keynote Speech 1 (Zoom 1)	
10:45 AM	12:00 PM	11:45 PM	1:00 AM	General session (Zoom 1)	
12:00 PM	12:45 PM	1:00 AM	1:45 AM	Keynote Speech 2 (Zoom 1)	
12:45 PM	1:15 PM	1:45 AM	2:15 AM	Break	
1:15 PM	6:00 PM	2:15 AM	7:00 AM	General Session 1 (Zoom 1) Join Zoom Meeting 1: https://columbiacuimc.zoom.us/j/95381434985?pwd=MUJQUkFJT3M4aklxVUE2bFcyWURoZz09 Meeting ID: 953 8143 4985 Passcode: 749928	General Session 2 (Zoom 2) Join Zoom Meeting 2: https://u-tokyo-ac-jp.zoom.us/j/87405035984?pwd=UnA1VjFWdkhUOWJlNkloREUyOTNqdz09 Meeting ID: 874 0503 5984 Passcode: 789452
				Closing	
6:00 PM	6:15 PM	7:00 AM	7:15 AM	Join Zoom Meeting 1 (Zoom 1): https://columbiacuimc.zoom.us/j/95381434985?pwd=MUJQUkFJT3M4aklxVUE2bFcyWURoZz09 Meeting ID: 953 8143 4985 Passcode: 749928	

Zoom 1: <https://columbiacuimc.zoom.us/j/95381434985?pwd=MUJQUkFJT3M4aklxVUE2bFcyWURoZz09>

Zoom 2: <https://u-tokyo-ac-jp.zoom.us/j/87405035984?pwd=UnA1VjFWdkhUOWJlNkloREUyOTNqdz09>

General session 1 (Zoom 1)

Zoom 1

Link:

<https://columbiacuimc.zoom.us/j/95381434985?pwd=MUJQUkFJT3M4aklxVUE2bFcyWURoZz09>

Meeting ID: 953 8143 4985; Passcode: 749928

EDT time zone		JST time zone		Virtual conferenece
June 18		Jun 18-19		
10:00 AM	10:45 AM	11:00 PM	11:45 PM	Opening and Keynote Speech 1 (Zoom 1) "Colors and Patterns: The Art of Dermatology" Dr. Laura Levin (Columbia University Vagelos College of Physicians and Surgeons)
10:45 AM	12:00 PM	11:45 PM	1:00 AM	General session (Zoom 1)
10:45 AM	11:00 AM	11:45 PM	12:00 AM	"Investigating the efficiency of constructed wetlands for the phytoremediation of nanosilver and microplastics" Anagha Iyer (American Heritage School)
11:00 AM	11:15 AM	12:00 AM	12:15 AM	"Triboelectric Nanogenerator-Enabled Energy Harvesting from Rotational Motion of Vehicle Wheels" Alaa Amr Shata (Sharkya STEM School), Mohamed Ehab Ahmed (Obour STEM School)
11:15 AM	11:30 AM	12:15 AM	12:30 AM	"Training and Diagnosis of Retinal OCT images with Auxiliary Data Using TripleGAN when Imbalanced Class Occurs" Justin Joshua Park (The Thacher School)
11:30 AM	11:45 AM	12:30 AM	12:45 AM	"Vehicle-Mounted Real-Time Animal Detection System for Preventing Roadkill" Jeesung Lee (Saint Johnsbury Academy Jeju)
11:45 AM	12:00 PM	12:45 AM	1:00 AM	"The Neurological Effects of Aluminum Nitrate 9-Hydrate on the Behavior of Caenorhabditis Elegans" J S Hong, L Hand (Biotechnology High School)
12:00 PM	12:45 PM	1:00 AM	1:45 AM	Keynote Speech 2 (Zoom 1) "Neurology, Research, and Global Health" Dr. Kiran Thakur (Columbia University Vagelos College of Physicians and Surgeons)
12:45 PM	1:15 PM	1:45 AM	2:15 AM	Break
1:15 PM	6:00 PM	2:15 AM	7:00 AM	General session 1 (Zoom 1)
1:15 PM	1:30 PM	2:15 AM	2:30 AM	"Skin Lesion Classification Using Convolutional Neural Network With Soft-Attention" Nguyen Ngo Anh Tuan, V. D. Nguyen (School of Electrical and Electronics, Hanoi University of Science and Technology)

1:30 PM	1:45 PM	2:30 AM	2:45 AM	"Implementing Multi-Cancer Early Detection Tests to Improve Standard-Of-Care Cancer Detection" A Lee (The Buckley School)
1:45 PM	2:00 PM	2:45 AM	3:00 AM	"Organic Architecture Beyond Frank Lloyd Wright" Heuseo Kim (Palisades Park Jr. Sr. High School)
2:00 PM	2:15 PM	3:00 AM	3:15 AM	"The Effects of Study Techniques on University Student Learning – A Systematic Review" Cristina Iordache (Strathcona Composite High School)
2:15 PM	2:30 PM	3:15 AM	3:30 AM	"Common Practices of Pandemic Speakers and the Influence of the Virtual Modality" D N A Magpantay, J E R Sales (Philippine Science High School)
2:30 PM	2:45 PM	3:30 AM	3:45 AM	"Algorithms for detection of centromeric satellite DNAs and circular DNAs" A H Li (Commonwealth School)
2:45 PM	3:00 PM	3:45 AM	4:00 AM	"Detecting Emotions in Autism Spectrum Disorder via Deep Learning Algorithms" Minju Kang (North London Collegiate School Jeju)
3:00 PM	3:15 PM	4:00 AM	4:15 AM	"The Potential Impact of GPT-4 on Healthcare: A Systematic Review and Analysis" Maha Yehia (Lexington High School)
3:15 PM	3:30 PM	4:15 AM	4:30 AM	"Comparative Analysis of Indoor Visible Light Communication Systems Enhanced with Positioning Algorithm" Mustafa Ege Yardımcı (TED Ankara College Foundation High School), Kerem Günel (TED Ankara College Foundation High School), Fatih Kalcı (McLean High School)
3:30 PM	3:45 PM	4:30 AM	4:45 AM	"Pillar-Based Overhang Generation to Reduce Waste in 3D Printing" Raymond Feng (Monta Vista High School)
3:45 PM	4:00 PM	4:45 AM	5:00 AM	"Development of a Novel Cell-penetrating Peptide (CPP) For Anti-cancer Therapy" Young Min (The Harker School)
4:00 PM	4:15 PM	5:00 AM	5:15 AM	"Developing the Smart Farming Index Across Countries" Youngtak Seo (Cranbrook Kingswood Upper School)
4:15 PM	4:30 PM	5:15 AM	5:30 AM	"Machine Learning Model to Predict Autism in Children Using Facial Features" Jasamarbir Singh Arora (American High School)

4:30 PM	4:45 PM	5:30 AM	5:45 AM	<p>"Development of Latent Fingerprints from Fired Cartridge Case Using Acidified Hydrogen Peroxide Technique"</p> <p>Sooan Kim (Northfield Mount Hermon School)</p>
4:45 PM	5:00 PM	5:45 AM	6:00 AM	<p>"Research on Water Quality Improvement Using Recycled Masks"</p> <p>Junghyun Park (Chadwick International School)</p>
5:00 PM	5:15 PM	6:00 AM	6:15 AM	<p>"From Wastewater to Energy: Generation of hydrogen gas from treated domestic water"</p> <p>S.R.Gaber, M.N.Asaad (STEM Alexandria school)</p>
5:15 PM	5:30 PM	6:15 AM	6:30 AM	<p>"Predicting WQI via Machine Learning"</p> <p>Suyeong Hahn (Eaglebrook School)</p>
5:30 PM	5:45 PM	6:30 AM	6:45 AM	<p>"Improvements in Texturizing Data for Automated Roman Numeral Analysis with Neural Networks"</p> <p>Arisa Okamura (The Lawrenceville School)</p>
5:45 PM	6:00 PM	6:45 AM	7:00 AM	<p>"Resilience of Ukrainian Refugees in Japan"</p> <p>Maya Murakami-Moses (American School in Japan)</p>
6:00 PM	6:15 PM	7:00 AM	7:15 AM	<p style="text-align: center;">Closing (Zoom 1)</p> <p>https://columbiacuimc.zoom.us/j/95381434985?pwd=MUJQUkFJT3M4aklxVUE2bFcyWURoZz09</p> <p>Meeting ID: 953 8143 4985 Passcode: 749928</p>

General session 2 (Zoom 2)

Link: <https://u-tokyo-ac-jp.zoom.us/j/87405035984?pwd=UnA1VjFWdkhUOWJlNkloREUyOTNqdz09>

Meeting ID: 874 0503 5984; Passcode: 789452

EDT time zone		JST time zone		Virtual conferenece
June 18		Jun 18-19		
1:15 PM	6:00 PM	2:15 AM	7:00 AM	General session 2 (Zoom 2)
1:15 PM	1:30 PM	2:15 AM	2:30 AM	"Systematic Review of Disparities in Access to Physical Medicine and Rehabilitative Care" JaeJun Park (Illinois Mathematics and Science Academy)
1:30 PM	1:45 PM	2:30 AM	2:45 AM	"Colorimetric Assay using Unmodified Gold Nanoparticles for Label-free Detection of COVID-19" Nagomi Gopinath (Fairview International School)
1:45 PM	2:00 PM	2:45 AM	3:00 AM	"The use of the Crude Extract of Immuno-activated C. Elegans as Treatment for Inflammation" Malcolm Owusu (American Heritage School)
2:00 PM	2:15 PM	3:00 AM	3:15 AM	"Emission Effect of the Fluid According to the Propeller Structure" Joonwoo Bae (Seoul International School)
2:15 PM	2:30 PM	3:15 AM	3:30 AM	"SECRNN: Convolutional Recurrent Network for Spatial Audio Event Recognition" Max Xiao (International Academy Okma)
2:30 PM	2:45 PM	3:30 AM	3:45 AM	"Unraveling the Underlying Factors Contributing to Cancer Incidence: A Comparative Analysis of Environmental and Behavioral Factors - Focusing on Lung Cancer, Hepatocellular Cancer, Colorectal Cancer, and Stomach Cancer -" Junseo David Park (Korea International School)
2:45 PM	3:00 PM	3:45 AM	4:00 AM	"Cranial Radiation Therapy's Prominent Role in Genetic Alterations in CDKN2A EGFR and PDGFRA Leading to Secondary Neurological Malignancies" Saanvi S. Lavande (Mission San Jose High School)
3:00 PM	3:15 PM	4:00 AM	4:15 AM	"Novel Pipeline to Detect and Correct Cyberbullying" Nehal Singh (Texas Academy of Mathematics and Science)
3:15 PM	3:30 PM	4:15 AM	4:30 AM	"Exercise-induced Neuroadaptations that Predispose to Addiction" Erica Jiang (Horace Mann School)
3:30 PM	3:45 PM	4:30 AM	4:45 AM	"Noise Application Against FPS Aimbot via Deep Learning Algorithms"

				Jaeyun Hwang (Dwight School Seoul)
3:45 PM	4:00 PM	4:45 AM	5:00 AM	"Utilizing Checkpoints with Deep Neural Networks for Enhanced Speech Transcription in Neurodegenerative Diseases: A Case Study on Huntington's Disease" Kevin Liu (High Technology High School)
4:00 PM	4:15 PM	5:00 AM	5:15 AM	"3D Printing Personalized Knee Implants: Novel Computational Geometric Models for Stem Cell Regeneration in Meniscus Tears" Calvin Mathew (American Heritage School)
4:15 PM	4:30 PM	5:15 AM	5:30 AM	"Analysing Cyanocobalamin's Health and Anti-Oxidative Properties in Caenorhabditis elegans" Declan Turbitt, Linda Hand (Biotechnology High School)
4:30 PM	4:45 PM	5:30 AM	5:45 AM	"Finger Spreading and Swim Speed" Isra Alsahli, Iyad Alsahli (Sir Winston Churchill Secondary School)
4:45 PM	5:00 PM	5:45 AM	6:00 AM	"Detecting Stress with Sleep-Related Factors via Machine Learning" Raehyun Kim (Brooklyn Technical High School)
5:00 PM	5:15 PM	6:00 AM	6:15 AM	"Türkiye As a Case Study: Developing an Effective Earthquake Management and Infrastructure System" Simay Yüksel, Arda Eraslan, Bora Ayanoğlu (TED Ankara College Foundation High School)
5:15 PM	5:30 PM	6:15 AM	6:30 AM	"Discovery of a Novel Brain Damage Pathway Caused by Caffeine Overdose" Hyunmin Lee (The Hockaday School)
5:30 PM	5:45 PM	6:30 AM	6:45 AM	"Investigating Quality of Life among Day Scholars and Hosteller School Children at District Sirmaur, Himachal Pradesh, India" Roopneet Cheema, Neelam Kaur, Muthu Kumaran (Akal Academy)
5:45 PM	6:00 PM	6:45 AM	7:00 AM	"Determining the Optimal Hollow Fiber Filter MWCO for Isolating Exosomes from Bovine Milk" Jennifer Huang (Adlai E. Stevenson High School)
6:00 PM	6:15 PM	7:00 AM	7:15 AM	Closing (Zoom 1) https://columbiacuimc.zoom.us/j/95381434985?pwd=MUJQUkFJT3M4aklxVUE2bFcyWURoZz09 Meeting ID: 953 8143 4985 Passcode: 749928

IYRC
2023

INTERNATIONAL
YOUNG RESEARCHERS'
CONFERENCE 2023

IYRC MEDICINE AND RESEARCH SUMMER PROGRAM

The Medicine and Research Summer Program hosted by Columbia University Vagelos College of Physician and Surgeons (VP&S) Global Health Organization is a 9-week summer program featuring students from around the world who learn from physicians, researchers, and medical students at Columbia University VP&S about diverse topics of medicine. Throughout the summer, students learn how to take a patient history, interview several standardized patients, engage in ethical discussions, have conversations about narrative medicine, and study various systems of human anatomy. In addition to the clinical aspects of the program, students learn research methods for finding sources, analyzing data, and writing a manuscript. This summer features an additional Brain Intensive focused on Neurology, Neurosurgery, and Psychiatry where students will learn about anatomy, diagnoses, and patient experiences.



Medicine & Research Summer Program

Columbia VP&S Global Health Organization (GHO)
International Young Researchers' Conference

IYRC SUMMER PROGRAM 2023

Medicine and Research: June 24- August 19
Virtual: Saturdays 10:30AM-1PM EST

Program Highlights

- Listen to Talks from Medical Students, Researchers, Physicians, and Surgeons
- Meet Diverse Students
- Learn Various Aspects of Health
- Practice Simulated Patient Interviews
- Prepare a Research Paper
- Participate in the Harvard Alumni for Global Women's Empowerment Essay Contest
- Synchronous & Asynchronous Content

Additional Brain Intensive

Neurology Neurosurgery Psychiatry



Website: www.the-iyrc.org | Email: info@the-iyrc.org