IEEE Connecting the UNC NNECTED



An IEEE Future Networks Program



2023 WINNING PROJECTS



The IEEE Connecting the Unconnected (CTU) Challenge (<u>https://ctu.ieee.org/</u>) is an annual, global competition that solicits solutions from start-ups, grassroots organizations, universities, or individuals with projects or ideas to bridge the digital divide in innovative ways. Organized by the IEEE Future Networks Technical Community, the competition seeks applications from early-stage projects that offer unique ways to increase Internet access and usage for unconnected populations/geographies.

During 2023, IEEE honored 16 teams from thirteen countries for their innovations across three categories: Technology Applications that increase broadband access or otherwise enable connectivity where it never existed, Business Models that result in increased affordability for internet access, and Community Enablement solutions to convince populations to adopt available broadband access. Competitors could choose from these categories in two primary tracks: the Proof-of-Concept track, for teams or individuals who had a demonstrated (but early-stage) solution with measurable results; and the Concept Only track, for teams or individuals with a novel idea that had not yet been tested. For full details on the 2023 CTU Program, please refer to the <u>2023 year-end report</u>.

In light of the tremendous need for connecting the 2.9 billion unconnected people across the globe, the IEEE's FNTC has endeavored to support a competition to identify and award innovative ideas and early-stage concepts which have the potential to meet the challenge. To date, we completed three years of the competition, received over 772 total submissions, and awarded 40 winners from across the globe.

As part of our support provided to our winners, we offer a mentoring program to each of them. Mentors, provide valuable advice that could mean the difference between a brilliant concept "on paper" and a successful real-world deployment that provides life-changing benefits to unconnected/under-connected communities! The program provides guidance on technical feasibility, financial sustainability, business model innovation, deployment logistics, regional/local relevance and/or other areas.

The mentorship program will runs throughout 2024, engagement is on a monthly bases for a 3-4 month period, and also continued through the year on the online <u>IEEE Collabratec Platform</u>. There will also be an opportunity to connect with the CTU Organizing Committee on at least one occasion with notes about your progress.

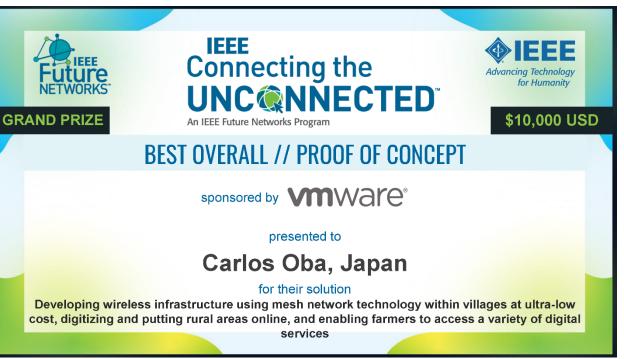
Please don't hesitate to contact us if you have any questions about the program. You can also find more details about the program here: https://ctu.ieee.org/about/volunteering-2/

Sudhir Dixit Ashutosh Dutta IEEE Connecting the Unconnected Co-Chairs

CTU Winners with Mentorship Matches (Pairing)

Mentee	Mentor	
Kimmie Weeks, Beatrice Deputie & Donald Kalokoh	Rami Amin	
Jeremiah Ater	Salim Abu Haniffa	
Oleg Missikoff, Heikki Almay, Joel Myers & Vincent Kaabunga	Sandeep Kumar Agrawal	
Augustina Okpechi & Jennifer Ljeh	Bill Murdoch	
Abhimanyu Pandey, Pavan Shakya, & Prabin Shakya	Huguette Diakabana	
Kim Khoa Nguyen	Lope Trujillo-Perdomo	
Navrati Saxena, Melody Moh & Abhishek Roy	Abdelaali Chaoub	
Carlos Oba	Mahesh Krishnaswamy	
Grant McNulty, Nqubeko Hlekwayo & Lucienne Argent	Dr. Satya N. Gupta	
Tao Zhou	Humphrey Muhindi	
Minh Ngo	Hani k. Shannak	
Joaquin Wray, Emilio Pallares & Nilolas Tapia	Juan Peirano	
Gonzalo Yrigoyen	Miguel Gutierrez Gaitan	
Soraya Fouladi	Andres Navarro	
Lusambya Milemo, Alphonsine Chalungu & Steven Mbale	Periklis Chatzimisios & Bill Woodcock	
George Musumba, Catherine Kyalo, Grace Githaiga & Mwendwa Kivuva	Michael Birochak	

2023 IEEE Connecting the Unconnected Winners Mentees



Carlos Oba - Presentation - carlos.oba@dotsfor.com



He has been involved in new business development and management in various countries including Africa at big companies like Amazon, startups, and public sectors. As a PM at Amazon, he contributed to top-line improvement and productivity improvement through projects based on data analysis. As an executive officer of C Channel's overseas business, he achieved multi-month profitability in Thailand and Indonesia in the first year. For the last two years, as New Business Manager at WASSHA, he led the launch of an engine rental business for the Tanzanian fishing industry and a motorcycle taxi hire service for businesses. He holds an MBA from the University of California, San Diego and is an active backpacker who has traveled to nearly 100 countries.



Kimmie Weeks – Presentation - kimmie@peaceforkids.org



Kimmie Weeks is an internationally acclaimed Liberian activist and humanitarian. He survived the Liberian war as a child and after nearly being buried alive in a refugee camp, he dedicated his life to making a difference for children and young people in Africa. At age seventeen, Kimmie Weeks was forced to flee Liberia and was granted political asylum in the United States as a result of his advocacy for the disarmament of child soldiers. He started Youth Action International while a student at Amherst College in the United States. Kimmie Weeks has received many honors and awards. Notable among them are the Golden Brick Award, the World's Children's Prize, and one of Liberia's highest civilian honors. He received his undergraduate degree from Amherst College, a Masters from the University of Pennsylvania and a law degree from the University of Liberia.



Lusambya Milemo – Presentation - Ibtransf@gmail.com



Fled from the Democratic Republic of the Congo due to ethnic persecutions and allocated to Dzaleka Camp, Malawi. Has a Bachelor degree in project management and a diploma in communication and technology, with skills in community mobilization, communication information and technology, project design, development, monitoring, evaluation, and reporting with high standards of risk mitigation and management. Award winners of the Global Youth Action Fund, the STEM International Fund, and the Refugee and Technology Innovation Fund.

With less than 4 percent of refugees and asylum-seekers connected to the internet in Dzaleka Camp, Malawi, the commitment is to bridge this gap to live in a society where all the unconnected refugees are connected. Milemo has furtherly been working with the United Nations Agency for Refugees (UNHCR) as a community innovator through its programme, bridging internet inequality gaps against refugees in Dzaleka Camp, Malawi. He is also acting as a young refugee advisor for the World University Service of Canada in its advisory committee to advance the participation of refugees in the development process and decision-making.



Joaquín Wray – <u>Presentation</u> - <u>jwray@equitableorigin.org</u>



Director of the Center for the Strengthening of Indigenous Rights (CEFO). Political scientist, passionate about the creation of public value and the defense of indigenous territories. He currently works alongside indigenous organizations from Mexico, Ecuador and Peru supporting the deployment of community networks for territorial monitoring and access to education and virtual health in key territories for climate change mitigation.



Grant McNulty – Presentation - grant@mcnulty.co.za



Grant McNulty runs iAfrika Digital and is an experienced project manager and research strategist. He focuses on making educational and cultural content available online and in African languages. Grant has held various positions as a research fellow and project manager at University College London and the University of Cape Town (UCT), including running cross-institutional projects with multiple stakeholders. He brings to our projects strategic insights, project management skills and a researched understanding of language and culture in Africa. He holds a Master's degree in Zulu (University of KwaZulu-Natal) and a PhD in Social Anthropology (UCT).



Minh Ngo - Presentation - huyenminh@nghilucsong.net



Is the co-founder cum General director of Will to Live Center which is providing free IT training and job support for people with disabilities in Vietnam.

With more than 14 years work with people with disabilities and over 10 years of experience in Human resource and management. She started up this business in order to establish an inclusive study and working environment for the disabled, especially disabled women; because she is convinced that education helps PWDs to find employment and generate an income.

She believes the best workplace for PWDs is where they feel like their home, where they can receive personalized and continual care from their extended family members; especially for PWDs with mobility issues, working from home provides immense savings in time and cost in transporting in Vietnam's congested traffic.

It is such a rough journey that she saw how computers, technology and the internet really changed their lives. They have jobs, more friends and they really touched the world with their finger! even by their toes as some of them have to use the keyboard by feet instead of hands!

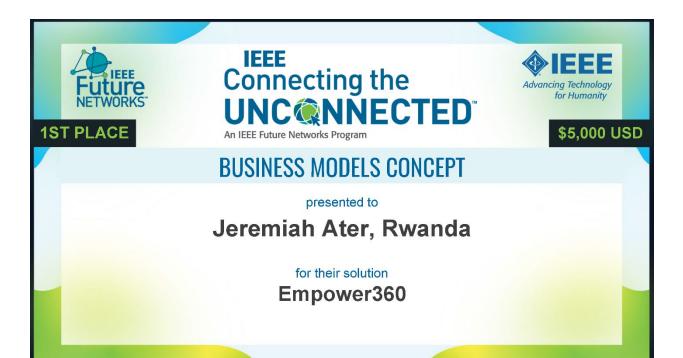
We have trained more than 1500 people with disabilities and more than 70% of them now are having decent jobs. Since the start we committed to keep the staff with at least 40% PWDs (now more than 50%). And all the shareholders committed their support in sustainable inclusion by contributing their profit each to fund for vocational training for PWDs and disadvantaged groups and the philanthropic work in the country.



Gonzalo Yrigoyen – Presentation - gonzalo@excuela.com



Gonzalo holds a BBA from the Universidad de Lima and has over six years of experience in the EdTech industry. Prior to joining Excuela, he played a pivotal role as an initial team member and first investor at uDocz, contributing to its growth from 2 to 22 employees and achieving over 1 million monthly active users (MAU). During his tenure at Excuela, Gonzalo successfully secured over USD 700K in funding from investors, including the IDB Lab. Excuela has generated over USD 150K in revenue and has established collaborations with prominent companies in Latin America. Gonzalo is also a Latitud Fellow (LF10), a prestigious network of entrepreneurs in Latin America dedicated to building the next generation of tech companies worldwide. Furthermore, he was named the Young Leader of the America Fellow for 2024 in acknowledgment of his impactful entrepreneurial journey. What Gonzalo finds most rewarding about Excuela is the opportunity to assist frontline workers in thriving and advancing within their organizations.



Jeremiah Madhol Ater – Presentation - madholakon@gmail.com



Jeremiah Madhol Ater embodies resilience, determination, and a profound commitment to leveraging technology for social change. Raised in a remote rural area, he hails from a family with little exposure to formal education. His journey is a testament to his unwavering dedication to create opportunities in communities where such paths are scarce.

From humble beginnings and an upbringing marked by limited access to educational resources, Jeremiah's life took a transformative turn in a refugee camp where he grasped the fundamentals of education. This pivotal experience fueled his ambition to pursue a B.Sc. in Computer Science at the African Leadership University.

As the Founder and President of Lift Me Up Initiative, a community-based organization operating in Kakuma refugee camp, Jeremiah has championed educational initiatives and social impact programs, aiming to bridge the gap for youth in underprivileged areas. His organization has been a beacon of hope, providing vital resources and educational support to those with limited opportunities.



Augustina Okpechi – Presentation - augustina@khalilhalilu.com



Augustina Okpechi is a project manager with a track record of successfully managing projects. In her years of experience, Augustina has gained expertise in leading diverse initiatives and events with a special focus on women and children empowerment. She has a keen interest in utilizing technology as a tool for problem-solving and integrating innovative solutions into projects. Augustina holds an undergraduate degree in communications from the University of Nigeria Nsukka.

LEEE Future NETWORKS 1ST PLACE	IEEE Connecting the UNC CONNECTED An IEEE Future Networks Program	Advancing Technology for Humanity \$15,000 USD	
TECHNOLOGY APPLICATIONS CONCEPT			
BEST OVERALL FROM CANADA	Fresented to Kim Khoa Nguyen, Canada	sponsored by MWare Mitacs	
In-Network Technology to Connect People with Vision Disability			

Kim Khoa Nguyen – Presentation - kimkhoa.nguyen@etsmtl.ca



Kim Khoa Nguyen is Associate Professor in the Department of Electrical Engineering and the founder of the IoT and Cloud Computing Laboratory at the University of Quebec's Ecole de technologie supérieure, Montreal, Canada. He holds a VMware Industrial Chair in Multi-Cloud Service Grid and Edge AI. In the past, he served as CTO of Inocybe Technologies (now is Kontron Canada), a world's leading company in software-defined networking (SDN) solutions. He is leading R&D in large-scale projects with VMware, Ericsson, Ciena, Telus, InterDigital, and Ultra Electronics. He is the recipient of Microsoft Azure Global IoT Contest Award 2017, and Ciena's Aspirational Prize 2018. He is the author of 175 publications, and holds several industrial patents. His expertise includes network optimization, cloud computing, IoT, 5G, machine learning, AI, smart city, high speed networks, and green ICT.



Navrati Saxena – Presentation - navrati.saxena@sisu.edu



Navrati Saxena is currently working as an Associate Professor in the Computer Science Department of San Jose State University (SJSU), USA. She is also the Graduate Coordinator for MS Computer Science at SJSU. During 2007-2019 she was an Assistant and Associate Professor in Sungkyunkwan University, South Korea and director of Mobile Ubiquitous System Information Center. She received her Ph.D. degree in 2005 from Univ. of Trento Italy. Her research interests include 5G/6G wireless networks, IoT and cloud RAN. She has more than 70 International journal publications with more than 6200 citation count and serves in the program committee of various international conferences. Email: navrati.saxena@sjsu.edu.



George Musumba – Presentation - gmusumba@kictanet.or.ke



George Musumba, is a member of faculty in the School of Computer Science and Information Technology and the Director, Centre for Data Research and Cyber Security at Dedan Kimathi University of Technology, Kenya. He holds a Ph.D. in Computer Science, an M.Sc. in Computer Science and a B.Sc. in Computer Science. His research interests encompass Artificial Intelligence, Social Networks, Multi-Agent Systems, Cyber Security, Fuzzy Logic, and Education Technology where he has published several peer reviewed papers. He has been involved in several projects including the Skills Initiative for Africa (SIFA) and Responsible Computer Science at the Mozilla Foundation. He is well versed in incident response, security architecture design and data privacy. He has served as the Chairperson for the Kenyan Universities Research Subcommittee under the Kenya ICT Authority, where he led and coordinated computing-related faculty and researchers, mobilizing funds for research projects, and overseeing their implementation, monitoring, and evaluation. His commitment extends to gender inclusivity and equality in the tech ecosystem, evident in projects like Responsible Artificial Intelligence for Gender Inclusion and Equality and collaborations with non-profit organizations. His multifaceted contributions exemplify his dedication to advancing research, education, and societal impact in the field of computer science and technology.



Tao Zhou – Presentation - tiger@ahadicorp.com



A visionary with over two decades of accomplishments, Mr. Tao Zhou is recognized as a pioneering leader in technology, business, and social impact. As Founder and CEO of AHADI Corporation, Zhou aspires to bring affordable broadband access to one billion Africans by creating Africa's largest community digital network. He successfully launched his Konnect Internet initiative in 2020, already serving 800,000 users in underserved Kenyan communities. Previously, Zhou founded several trailblazing startups in China, including the leading enterprise storage solutions company CeresData. There he designed innovative data infrastructure that empowered businesses to maximize the value of their data assets. Zhou has also worked to expand access to cloud computing and virtualization technologies in China. Zhou holds Bachelor's degrees in engineering, computer science and math from Dartmouth College and Middlebury College. He earned his Master's in Engineering Management from Dartmouth College's Thayer School of Engineering. With decades of technical excellence and visionary leadership experience, Zhou dreams audaciously - pushing boundaries and turning ambitious visions into reality. His passion for leveraging innovation to drive social good makes Zhou a transformative force across technology, business, and global community impact.

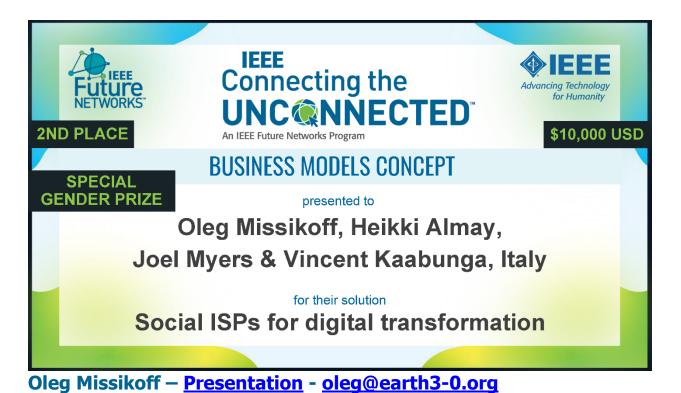


Soraya Fouladi – Presentation - soraya@joinjara.com



Soraya Fouladi is the Founder & CEO of Jara, on a mission to ensure the 816 Million children in high-poverty and lowconnectivity communities globally can get access to a quality education, anywhere, anytime, through her invention, the Jara Unit, an off-grid charging e-learning device. Soraya has been awarded as Forbes 30 Under 30, Cisco Global Problem Solver, Nobel Laureate Professor Muhammad Yunus Fellow, United Nations Keynote Speaker, SOCAP Fellow, Skoll Delegate, Gratitude Network Fellow, One Young World Ambassador, and Deloitte SDG4 Scholar Awardee. Soraya came up with the idea for Jara as a teenager at the United Nations International School, went to university to study Electrical Engineering to learn how to build what is now the Jara Unit, became a teacher, then a business management consultant helping spin out 72 businesses/products/services from deep tech, and has been building Jara for the past 7 years with an inspiring global team. Jara www.joinjara.com closes the global digital divide by building the e-learning solution, the Jara Unit, for children in

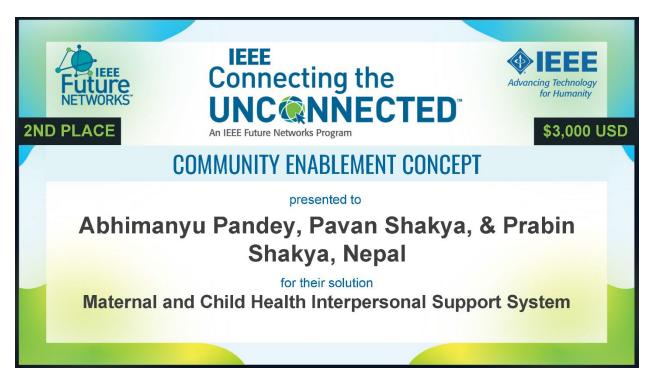
Jara www.joinjara.com closes the global digital divide by building the e-learning solution, the Jara Unit, for children in high-poverty, off-grid and low/no-internet communities globally. The Jara Unit, a learning tool for children and teaching tool for teachers, is a heavily research-backed solution Jara has co-created alongside under-served communities for years.



PhD in Organization of Business Information Systems at the Free International University of Social Studies "LUISS" in Rome. Title of the dissertation: "Cultural Information Systems: Valorising the Territory as a Key Resource for Socio-economic Development". The year abroad was spent in Boston at MIT and Harvard Business School, where he worked with Prof. Shoshana Zuboff.
Master in Computational Archaeology (MLitt) at University of Oxford, Christ Church College. Research topic: Knowledge Management in Archaeology.
Degree in Humanities at "La Sapienza" University of Rome. Title of the dissertation: "Application of an Artificial Intelligence System for the Analysis of Archaeological Data".

From 2023 he is an adjunct professor of Digital Humanities at Sapienza University of Rome.

Co-founder, in September 2021, of the Earth 3.0 Foundation with headquarters in London (UK) and a branch in Kampala (Uganda) with ongoing projects in 10 African countries (Tunisia, Morocco, Senegal, The Gambia, Guinea, Uganda, Burundi, Mozambique, Zambia and South Africa).



Abhimanyu Pandey – Presentation - abhimanyu.p@ict4dnepal.org



Abhimanyu Pandey am a team member of a profit-notdistributing research and outreach centric company based in Nepal. We work on projects based on Private Public Partnership business models to ensure sustainability through high quality service delivery. I specifically research intranet and local cache based systems in rural regions. I am also involved in developing and implementing rural and remote healthcare delivery models as part of the larger impetus to streamline Government to Citizen (G2C) services. Our most current focus is on Reproductive, Maternal, and Child healthcare delivery, especially through non-institutional healthcare delivery settings and non-traditional patient encounters.

2023 IEEE CONNECTING THE UNCONNECTED Volunteers Mentors



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IEEE CONNECTING THE UNCONNECTED VOLUNTEER CO-CHAIRS



Ashutosh Dutta

Ashutosh Dutta is senior scientist and 5G Chief Strategist at The Johns Hopkins University Applied Physics Laboratory (JHU/APL). He is also a JHU/APL Sabbatical Fellow and adjunct faculty at Johns Hopkins. He serves as the chairman for Electrical and Computer Engineering in the Department of Engineering for Professional Program at Johns Hopkins. !N)%%% &ELLOW, His career spans more than 30 years and includes positions as Director of Technology Security and Lead Member of Technical Staff at AT&T, CTO of Wireless for NIKSUN, Inc., Senior Scientist and Project Manager in Telcordia Research, Director of the Central Research Facility at Columbia University, adjunct faculty at NJIT, and Computer Engineer with TATA Motors.



Sudhir Dixit

Sudhir Dixit is a co-founder and Senior Fellow at the Basic Internet Foundation in Norway and heads its San Francisco office. He has more than 30 years of experience in computer networking and telecommunications and related fields. From 2015 to 2017 he was the CEO and Co-Founder of a start-up, Skydoot, Inc, in the cloud-based and collaboration space. From December 2013 to April 2015, he was a Distinguished Chief Technologist and CTO of the Communications and Media Services for the Americas Region of Hewlett-Packard Enterprise Services in Palo Alto, CA, and before that was the Director of Hewlett-Packard Labs India from September 2009. Prior to joining HP Labs Palo Alto, Dixit held a joint appointment with the Centre for Internet Excellence (CiE) and the Centre for Wireless Communications (CWC) at the University of Oulu, Finland. From 1996 to 2008, he held various positions with leading companies, such as BlackBerry, Nokia. From 1987 to 1996, he was at NYNEX Science and Technology and GTE Laboratories (both now Verizon Communications).

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