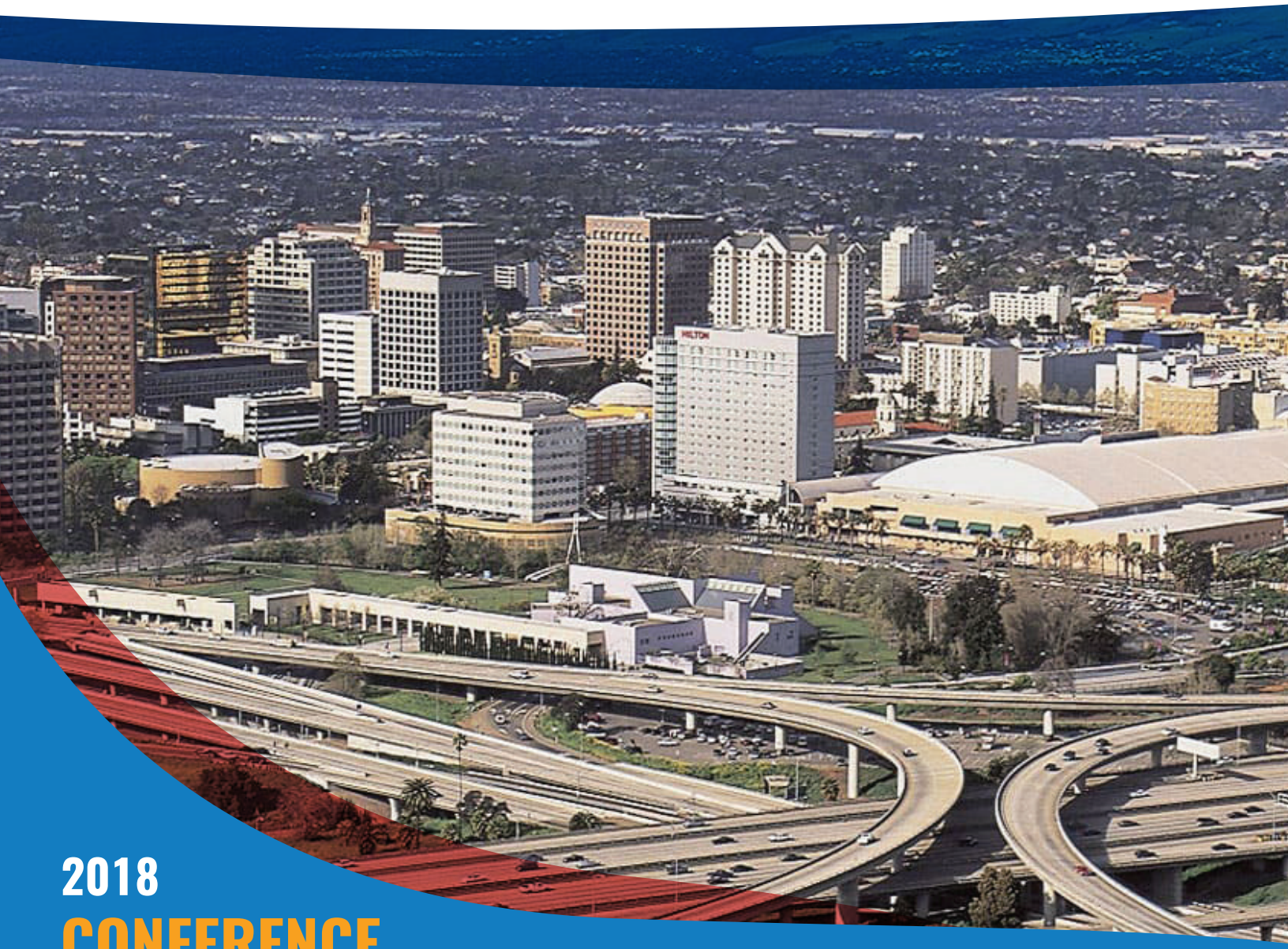
GHTC 2018

IEEE Global Humanitarian Technology Conference

DoubleTree By Hilton San Jose, California, USA — October 18 – 21, 2018



2018 CONFERENCE PROGRAM

Please visit website for more information!
2018.ieeeghtc.org

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IEEE Advancing Technology for Humanity

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IEEE Humanitarian Activities Committee

GHTC 2018 Welcome from the Chair

Dear Colleagues/Friends,

Welcome to the 8th annual Global Humanitarian Technology Conference hosted by IEEE Region 6 and the Santa Clara Valley section.

GHTC's focus is sustainable development and humanitarian technology related policy, insight and experiences and showcasing activities aligned with the United Nations Sustainable Development Goals (UNSDG). This year we partnered with the MIT D-lab for Friday's program on capacity building.

GHTC 2018's program features plenary presentations, paper and poster presentations, workshops, panel discussions, and unconference sessions. You will meet and exchange experiences with other researchers and practitioners related to Disaster Mitigation, Affordable & Clean Energy, Agriculture & Food Security, Applications for Poverty Alleviation, Clean Water & Sanitation, Community engagement and capacity-building, Connectivity & Communication, Healthcare, Humanitarian Challenges & Opportunities, Education and Entrepreneurship.

For 2018 we are introducing Participatory Workshop Sessions to showcase practitioner and field research related experiences as well as technology adoption or adaptation related issues in: Disaster Recovery; Energy, Health and Water/Agriculture.

Our Keynote speakers include Ron Snyder, Cisco Tactical Operations; Kofi Taha, MIT D-Lab; and Ben Wilson, Intellectual Ventures Laboratory.

Plenary Panels: Friday: Field Perspectives on the UN SDGs; Saturday: Role of Education in Development; Sunday: Disaster Response.

On Thursday, there are several special events:

- Workshop sponsored by the IEEE Humanitarian Activities Committee
- IoT architecture for humanitarian services Workshop (free with Conference registration)
- Student Poster Competition for undergraduate students featuring ideas or designs for developing projects/products supporting the key focus areas of GHTC
- Young Professionals Reception, featuring Erna Grasz from Asante Africa Foundation

On behalf of the conference committee I thank all of our sponsors, patrons, and exhibitors. Of course, we would not have a conference without all the speakers, authors and you, the participants in GHTC 2018. Thank you and we look forward to seeing you again, next year, at GHTC 2019 in Seattle.

Ed Perkins
Chair, IEEE GHTC 2018

Sponsors: IEEE GHTC 2018 is sponsored by IEEE Region 6 and the Santa Clara Valley Section, and technically co-sponsored by IEEE-USA, and the IEEE SSIT, CES, EMBS, MTT, and PES societies.

Patrons: Global Good (Intellectual Ventures) and IEEE Humanitarian Activities Committee.

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supports the goals of sustainability and humanitarian opportunities through multi-disciplinary collaborations.

Mission Statement

To serve diverse global communities by advancing, disseminating and applying engineering knowledge for improving the quality of life and communicating the excitement of engineering.

Come Join Us!!

UPCOMING EVENTS

Exhibitor

Access to electricity creates opportunity and improves lives in remote communities around the world. The IEEE Smart Village global network brings together local entrepreneurs, experienced engineers, expert educators, and passionate volunteers to seed-fund, launch, sustain, and develop clean energy and advanced education systems that serve their community's needs. Light bulbs are just the beginning, because we're about more than just power. We engage with our partners to foster the long-term mentorship, support, and continual shared learning that helps these community start-ups thrive. By working locally and connecting globally, the collective IEEE Smart Village family strives to make a lasting impact in villages across Cameroon, Haiti, India, Kenya, Nigeria, South Sudan, and Zambia. We bring the basic electrical services and transformational educational opportunities that support community well-being – from schools to clinics to businesses – to more than 50 million people by 2025. Together, we're lighting up homes, businesses, and global classrooms – and empowering local economies.

Exhibits will be in the Donner Room Hallway.

The exhibit area will be open from 13:00 – 18:00 Friday, October 19th and open at 10:00 AM Saturday October 20th and closing 6:00 PM.

Workshops

IoT architecture for humanitarian services

Thursday, October 18, 1:30 pm -5:30 pm

Abstract

In this 4-hour workshop we discuss potentials of Internet-of-Things (IoT) technologies in addressing humanitarian challenges in developing countries. We explore many examples of IoT applications, use-cases, and benefits such as improving agricultural production by alerting farmers about weather patterns, healthcare by remotely conducting remote diagnosis of diseases, livestock care by using of RFID tags, public health and safety by monitoring water sanitation and fire. In the second part, we describe the main IoT building blocks: (1) sensor types and their interfaces, including UART, SPI and I2C; (2) common microcontroller platforms including STM32 Nucleo, Samsung ARTIK, PIC MCU, etc.; (3) connectivity requirements and wireless technologies such as ZigBee, Wi-Fi, LoRa, Bluetooth Wireless 4 .0 LE, RFID, and NFC in terms of range, bandwidth, and battery life; (4) cloud computing and storage platforms such as AWS, IBM Blue mix, Microsoft Azure, GE Predix, etc. We also elaborate on power harvesting methods and the importance of power management for IoT-based networks and ways to optimize node life-time. We conclude the workshop with live demonstration of several IoT-based systems each having different design criteria and power constraints. The audience can interact with the systems and explore their capabilities and limitations.

Presenters

Shivakumar Mathapathi
Mr. Shivakumar Mathapathi has over 25 years of experience in product development, design and faculty. Mathapathi is a seasoned technologist, entrepreneur, instructor and practitioner on the Internet of Things (IoT) with extensive experience as lead faculty, lab-practice and mentorship in executing smart city, smart agriculture, assisted living and other IoT related projects. He has designed study programs and academic syllabus for The IoT course, a Masters curriculum (4 units) taught at Santa Clara University and California Polytechnic State University. He led capstone design project at Cal Poly (part of California Stata University) to design and develop IoT cloud platform needed for smart city.

Mr. Mathapathi has contributed to build the ecosystem and establish innovation pathways for the OpenIoT project, a blueprint and awarded Open Source project in the Internet of Things for smart Cities sponsored by the European commission. He is focused on academic research and Innovation and he is involved in architecture design and development of smart city projects such as smart trash monitoring, Flood monitoring and smart trail traffic monitoring –designed for the City of San Luis Obispo. California.

Mr. Mathapathi is also a team lead for Global City team Challenge (GCTC) project hosted by the National Institute of Standards and technology (NIST) under the Department of Commerce, USA. GCTC team comprises of Sonoma State University, Santa Clara University, City of San Leandro, City of Galway (Ireland) and City of Rohnert Park, CA.
Mr. Mathapathi has designed IoT development kit (patent file pending) .The Kit enables design proof of concept (PoC) for IoT application. The kit consists of various sensors viz Temperature, Humidity, Air quality (CO2), Light, pressure and Gas sensors connected to AWS (Amazon) IoT cloud platform.

Farid Farahmand
Farid Farahmand received his PhD in 2005 and is currently the Chair of the Engineering Science Department (Electrical Engineering) at Sonoma State University in California, U.S.A. He is also the director of Advanced Internet Technology in the Interests of Society Laboratory. Prior to his academic position at Sonoma State, Dr. Farahmand worked as the research scientist at Alcatel-Lucent Corporate Research and was involved in development of terabit optical routers. Farid has received multiple Fulbright Fellowships, and he has been a Fulbright Scholar since 2014. Dr. Farahmand holds multiple international patents, numerous reference conference articles and journal publications, and several book chapters, on the subjects of wireless communications, Internet-of-Things, optical networking, green networking, and delay tolerant networks. He has also authored many educational papers focusing on eLearning and Active Learning in classrooms. Farid is actively involved in many conferences and serves as the reviewer and co-editor to a number of technical conferences and journals. He is a member of IEEE, ASEE, and Engineers Without Borders-USA.

2018 IEEE GHTC – IEEE HAC Pre-Conference Workshop

"Technology and Innovation for the SDGs"

Donner

Thursday, October 18, 10:00 – 17:00

Objective: The main objective of this workshop is to discuss processes and socio-cultural and ethical issues associated with developing, adapting and deploying technology in resource constrained environments at home and abroad. Participants will have the opportunity to take a deep dive into how science, technology and engineering can make a significant contribution to successful implementation of Sustainable Development Goals (SDGs). Key steps and principles of technology development and collaborative open innovation in a sustainable development context are presented.

The IEEE Humanitarian Activities Committee (HAC) would like to invite active participation by a broad range of public, private, educational and research, societal and funding stakeholders active in the sustainable development space. IEEE GHTC 2018 conference participants, SIGHT members, active volunteers and volunteer leadership of EPICS in IEEE, Internet Initiative, Smart Village, MOVE, IEEE Empower a Billion Lives and IEEE-Eta Kappa Nu (IEEE-HKN), MDP staff and students, sustainable development labs, humanitarian technology or engineering programs are particularly welcome.

This IEEE HAC participatory workshop will combine theory, practice and working group collaboration. Participants will have the opportunity to learn from one another by combining personal experience with the diversity of perspectives and lessons learnt shared during the workshop. Time will be set aside for group work that will consider the socio-cultural contexts, design constraints, and potential implementation challenges associated with specific regions/communities well understood by attendees.

2018 IEEE GHTC – IEEE Humanitarian Activities Committee Workshop

Santa Clara Room

Saturday, October 20 ,13:30 – 17:30

Objective: This workshop is focused on facilitating stakeholder engagement and sharing insight into the work of the IEEE Humanitarian Activities Committee (HAC). IEEE HAC supports strengthening the capacity and impact of IEEE volunteers, staff and Organizational Units (OUs) involved in sustainable development and humanitarian technology-related activities around the world. During this workshop, you can learn more about how technologists, scientists, and engineers can contribute and also learn about some of the key characteristics that IEEE HAC Review Teams consider when analyzing submissions for project and event funding support. It is also an important opportunity for key stakeholders to share insight which will inform the implementation of education and training tailored to the needs of IEEE volunteers with different levels of prior experience and expertise. This education and training will be delivered in cooperation with strategic partners at times that will suit volunteers around the world.

Keynote Speaker

Saturday October 20, 2018 | 08:00 - 09:30
Room: Sierra/Cascade/Siskiyou

Kofi Taha

MIT D-Lab

Bio: As part of MIT D-Lab, Kofi's work focuses on advancing asset-based approaches to community-driven technology design and solution finding in communities where people on average earn less than $3 a day. He has co-facilitated village-level technology design trainings in Uganda and Haiti; helped interdisciplinary teams commercialize social impact products in Ghana and Tanzania; provided support to local innovation centers in Brazil, Colombia, and India; and helped build the International Development Innovation Network (IDIN.org), a global community of 1000+ innovators, entrepreneurs, ecosystem builders, researchers, and educators. Kofi pursues similar work in K-12 after-school programs in Mississippi and Massachusetts that focus on making design and educational resources accessible to geographically and economically isolated communities. Regardless of context or whether technology is a focus, what drives his work is a commitment to improving the use of inclusive practices that lead to practical solutions and equitable opportunities in historically excluded communities. Kofi studied political economy at Columbia University, urban planning at MIT, and is a doctoral candidate at the Harvard Graduate School of Education; he is from the Bronx and rarely eats pizza outside of New York City.

Keynote Speaker

Friday October 19, 2018 | 08:00 - 09:30
Room: Sierra/Cascade/Siskiyou

Ron Snyder
Cisco Tactical Operations

Bio: Ron is a Solutions Architect for Cisco Tactical Operations, a dedicated crisis response team that establishes emergency networks in the aftermath of a disaster. A member of TacOps since May 2013, he is responsible for leading the strategy and technical direction of the team's network infrastructure and deployable communications solutions. Ron deploys and supports mobile communication platforms such as the Network Emergency Response Vehicle, a.k.a. the NERV, and portable kits such as the Rapid Response Kits and Mesh Response Kits. He has deployed to provide communications support in more than 40 sites during the 2017 Hurricane Maria response in Puerto Rico, and in 2015 provided connectivity along the migrant route during European Refugee Crisis in Slovenia. Ron was also part of the 2015 Cyclone Pam response team that assisted in reestablishing communications supporting government CIO operations in Vanuatu, and deployed in 2013 to the Philippines for the Super Typhoon Haiyan response, installing satellite terminals and networks that supported local government relief efforts in Guiuan and Borongan.

Keynote Speaker

Sunday October 21, 2018 | 08:00 – 9:30
Room: Sierra/Cascade/Siskiyou

Ben Wilson
Center for Intelligent Devices at Intellectual Ventures Laboratory

Bio: Ben Wilson is the director of the Center for Intelligent Devices at Intellectual Ventures Laboratory. His projects focus on optical devices and machine learning for image and spectral interpretation. Ben received a Ph.D. in Electrical Engineering from the University of Washington. He has previously held research positions at the University of Washington and Pacific Northwest National Laboratory.

Field Perspectives on the UN SDGs

Friday, October 19th 11:30 AM - 12:30 PM
Room: Sierra/Cascade/Siskiyou

This panel organized by IEEE Smart Village brings together a set of experts from an array of backgrounds to discuss crosscutting between the UN Sustainable Development Goals in the perspective of in-field projects from across the globe.

Each of the panelists will address an SDG relating to their area of interest and work in sustainable development. Topics to be discussed will include

• The significance of each SDG and its target indicators

• SDG what progress has been made in the field for implementing the SDG

• what technical, social, and financial obstacles need to be overcome

• what innovations have been / need to be developed to accomplish the SDG

The forum will be organized as an interactive session during which each of the panelists will provide their view on each SDG, after which the audience can provide questions, comments, and field experiences. About 10 to 15 min will be allocated to discussion of each SDG.

• SDG 3: Good Health & Well-Being

• SDG 4: Quality Education

• SDG 6: Clean Water & Sanitation

• SDG 7: Affordable & Clean Energy

• SDG 8: Decent Work & Economic Growth

• SDG 9: Industry, Innovation, and Infrastructure

•SDG 17: Partnerships for the Goals

Panelists:

Solomon Darwin

Solomon Darwin is the Executive Director of the Garwood center at the Haas School of Business. He defines a smart village as “a community empowered by Digital Technologies & Open Innovation platforms to access global markets,” with the goal of “empowering people with access to tools, resources, real time transparent information and uninterrupted internet connectivity.” Darwin has an MBA from Golden Gate University and an MCCP from Harvard University's Graduate School of Business.

Bai Blyden

Bai Blyden is Vice Chair of the IEEE Smart Village Development Committee. He continues the legacy of his great grandfather, the human rights advocate and political philosopher Edward Wilmot Blyden (considered by many to be the father of Pan Africanism). Blyden received an MS in power systems engineer from the Moscow Energetics Institute, and is currently creating a Knowledge Engine for systems-based knowledge capture and transfer of best practices, education, technologies, and development strategies to every African community.

Alexander Anderson

Alexander Anderson is Chair of Partner Engagement at IEEE Smart Village and CEO of EmpowerPack Social Purpose Corporation. He focuses on strategy development and management of community infrastructure enterprise system-of-systems programs, as well as the development of innovative, rugged, and inexpensive solutions to ICT access for healthcare, education, and job creation. Anderson has an MS in power systems engineering from Washington State University and is a PhD candidate in Systems Engineering at Colorado State University.

Nirupama Kumar

Nirupama Kumar is a Senior Manager at Smart Wires Inc. and is active with numerous IEEE committees, including IEEE Smart Village, SIGHT, HAC, PES, WIE, and Sustainable Microgrids Task Force. She is an expert in energy markets strategies, delivering technologies to underprivileged communities, and coordinating programs for volunteers and community development in India and Zambia. Kumar received and MS from the University of Washington and MBA from Cornell University as an Environmental Finance and Impact Investing Fellow.

Robert Wubbena

Robert Wubbena is President of Transform International, retired Vice President of HDR Engineering, and former President of the American Water Works Association. He served on the board of Water for People for many years and was Vice-Chair of WASRAG (Rotary Int'l) for 6 years. Wubbena has launched, nurtured and supported large WASH programs and circuit rider training projects in rural America, Malawi, Papua New Guinea, and elsewhere.

Paul Cunningham

Paul Cunningham is CEO of the International Information Management Corporation and Director of the IST-Africa Institute and mHealth4Afrika. He is a technology, strategy, and policy expert for creating strategic collaboration with ministries and national councils responsible for innovation, science and technology in 18 African Member States. He is also 2017-18 President of the IEEE Society for Social Implications of Technology, 2018 Chair of the IEEE Humanitarian Activities Committee, and member of the Technical Activities Board. Cunningham has received degrees from Trinity College Dublin, UCD Graduate Business School, and is a PhD candidate in Computer and System Sciences at Stockholm University.

Joe Decuir

Joe Decuir is Editor of the IEEE 2030.10 DC Microgrids Standard, former Secretary of IEEE Region 6, and past chair of several IEEE GHTC conferences. He is focused on adaptation of USB, Bluetooth, and other communications protocols to enable plug-and-play compatibility between DC microgrid hardware. Decuir is a Fellow of IEEE and received an MS in Electrical Engineering from UC Berkeley.

GHTC 2018 Lab Plenary Panel

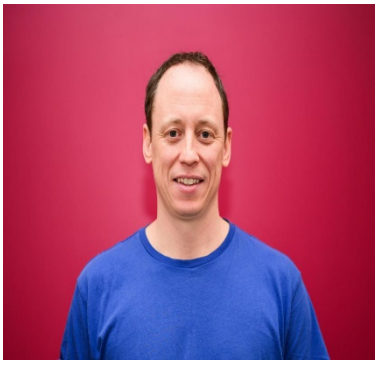
Saturday, October 20th 11:30 AM -12:30 PM
Room: Sierra/Cascade/Siskiyou

The panel is on "The Role of Education in Development". We are excited to have a great panel this year. All Panelists are listed below.

Panelists:

Kofi Taha - Associate Director MIT D-Lab as moderator

As part of MIT D-Lab, Kofi's work focuses on advancing asset-based approaches to community-driven technology design and solution finding in communities where people on average earn less than $3 a day. He has co-facilitated village-level technology design trainings in Uganda and Haiti; helped interdisciplinary teams commercialize social impact products in Ghana and Tanzania; provided support to local innovation centers in Brazil, Colombia, and India; and helped build the International Development Innovation Network (IDIN.org), a global community of 1000+ innovators, entrepreneurs, ecosystem builders, researchers, and educators. Kofi pursues similar work in K-12 after-school programs in Mississippi and Massachusetts that focus on making design and educational resources accessible to geographically and economically isolated communities. Regardless of context or whether technology is a focus, what drives his work is a commitment to improving the use of inclusive practices that lead to practical solutions and equitable opportunities in historically excluded communities. Kofi studied political economy at Columbia University, urban planning at MIT, and is a doctoral candidate at the Harvard Graduate School of Education; he is from the Bronx and rarely eats pizza outside of New York City.



Dr. Eric Verploegen, Research Engineer MIT D-Lab

Eric Verploegen joined D-Lab in 2014 to expand D-Lab's research efforts in the area of off-grid energy.

Prior to D-Lab, Eric worked on developing materials for solar cells and waste remediation systems for the oil and gas industry. He is passionate about helping organizations based in off-grid regions identify technologies, products, and distribution strategies to increase energy access in their communities.

He has a background in materials science and received his Ph.D. in Polymer Science and Technology from MIT in 2008.

Khanjan Mehta - Vice Provost for Creative Inquiry and Director for the Mountaintop Initiative Academic Affairs at Lehigh University

Khanjan Mehta is the inaugural Vice Provost for Creative Inquiry and Director of the Mountaintop Initiative at Lehigh University. Mehta champions the creation of learning environments and ecosystems where students, faculty, and external partners come together to increase their capacities for independent inquiry, take intellectual risks and learn from failure, recognize problems and opportunities, and effect constructive and sustainable change. In a previous avatar, Mehta was the Founding Director of the Humanitarian Engineering and Social Entrepreneurship (HESE) Program, Assistant Professor of Engineering Design, and Affiliate Professor of International Affairs at Penn State. Mehta serves as an Associate Editor for the IEEE Technology and Society Magazine and Contributing Editor for the Engineering 4 Change portal. His latest book, Solving Problems that Matter (and Getting Paid for It), takes a deep dive into STEM careers in social innovation and global sustainable development.

Dr. Silvia Figueira, Santa Clara University

Dr. Silvia Figueira received her B.S. and M.S. degrees in Computer Science from the Federal University of Rio de Janeiro (UFRJ), Brazil, and her Ph.D. degree also in Computer Science from the University of California, San Diego. Currently, she is an Associate Professor of Computer Engineering at Santa Clara University, where she is also the director of the SCU Frugal Innovation Hub, in which she leads the Mobile Lab and advises students working on mobile applications for under-served communities and emerging markets. She has published over 70 papers and has established several collaborations with both companies in Silicon Valley and social entrepreneurs in the United States and abroad.

Macauley Kenney, Instiglio

Macauley manages operations for Instiglio, a Colombian-based non-profit that consults on Results-Based Financing. Before joining Instiglio, she researched the impact of founding team composition on access to resources for improved cookstove companies as a fellow at MIT's D-Lab. Macauley co-founded the Rwandan freight brokerage Kumwe Logistics, and consulted on company operations for early-stage ventures in the U.S. She holds a master's in Technology and Policy from MIT, a sustainability certificate from the Sloan School of Management, and a bachelor's in Biomedical Engineering from Worcester Polytechnic Institute. She can be reached at mkenney913@gmail.com.

Thursday, October 18, 2018

07:00 - 18:00
Registration
Room: Bayshore Foyer

10:00 – 17:00
Participatory Workshops on Health, Disaster Situations, Energy and HAC
“Technology and Innovation for the SDGs”
Room: Donner

13:30 – 17:30
IOT Workshop
Room: San Jose

16:30 – 17:30
Student Poster Competition
Room: Bayshore Foyer

18:00 - 20:30
Young Professional and Women in Engineering Reception
Keynote: Erna Grasz
Room: Donner

All attendees are invited to the Welcome Reception for drinks and light hors d'oeuvres.

Friday, October 19, 2018

07:00 - 18:00
Registration
Room: Bayshore Foyer

07:00 - 18:00
Cisco NERV Vehicle
Room: Outside

08:00 – 09:30
Opening Plenary
Speaker: Ron Snyder
Room: Bayshore Ballroom

09:30 - 10:00
Break
Room: Bayshore Foyer

10:00 - 11:30
A1: Technology Enhanced Healthcare
Room: San Jose

Pulmonary Screener: A Mobile Phone Screening Tool for Pulmonary and Respiratory Disease
Aneesh Anand (Massachusetts Institute of Technology, USA)
Christian Infante (MIT, USA)
Daniel Chamberlain (Massachusetts Institute of Technology, USA)
Rahul Kodgule (Chest Research Foundation, India)
Yogesh Thorat (Chest Research Foundation)
Richard Fletcher (MIT, USA)

A Testbed Evaluation for a Privacy-Aware Monitoring System in Smart Home
Mohsen Shirali (Shahid Beheshti University, Iran)
Mona Ghassemian (King's College London / University of Greenwich, United Kingdom (Great Britain))
Masoumeh Sharafi (University of Qom, Iran)
Faranak Fotouhi (Qom University, Iran)

Smart Phone-Based Non-Contact Assessment of Human Breathing and Respiration for Diagnostic and Therapeutic Applications
Xavier Soriano Diaz (MIT, USA)
John Mofor (Massachusetts Institute of Technology, USA)
Raghavendra Bhat (Swamy Vivekananda Yoga Anusandhana Samsthana, USA)
Richard Fletcher (MIT, USA)

Halo: A Personal IoT Air Monitor
Benjamin Lampe (Santa Clara University, USA)
Taylor Mau (Santa Clara University, USA)
Samantha Morehead (Santa Clara University, USA)
Naeem Turner-Bandele (Santa Clara University, USA)
Shoba Krishnan (Santa Clara University, USA)
Behnam Dezfouli (Santa Clara University, USA)

Friday, October 19, 2018

10:00 – 11:30
A2: Disaster Mitigation, Preparedness, Response & Recovery
Room: Santa Clara
Session Chair:

ENGINEERING CRISIS SOFTWARE: LESSONS LEARNT FROM A FLINT WATER CRISIS APP PLATFORM
Mark Allison (The University of Michigan-Flint, USA)
Cindy Zhang (Google, USA)
Miyako Jones (University of Michigan - Flint, USA)

CLOUD-BASED DISASTER MANAGEMENT AS A SERVICE: A MICROSERVICE APPROACH FOR HURRICANE TWITTER DATA
Abeer Abdel Khaleq (University of Colorado Denver, USA)
Ilkyeun Ra (University of Colorado Denver, USA)

Toward Human-Centered Simulation Modeling for Critical Infrastructure Disaster Recovery Planning
Abbas Ganji (University of Washington, USA)
Scott B Miles (University of Washington, USA)

Malasakit 2.0: A Participatory Online Platform With Feature Phone Integration and Voice Recognition For Crowdsourcing Disaster Risk Reduction Strategies in the Philippines
Brandie Nonnecke (UC Berkeley, USA)
Shrestha Mohanty (University of California, Berkeley, USA)
Andrew Lee (University of California, Berkeley, USA)
Jonathan Lee (University of California, Berkeley, USA)
Sequoia Beckman (University of California, Berkeley, USA)
Justin Mi (University of California, Berkeley, USA)
Thanatcha Panpairoj (University of California, Berkeley, USA)
Jeffrey Rosario Ancheta (De La Salle University, Philippines)
Hilary Martinez (National University, USA)
Nathaniel Oco (National University, Philippines)
Rachel Edita Roxas (National University, Philippines)
Camille Crittenden (UC Berkeley CITRIS, USA)
Ken Goldberg (UC Berkeley, USA)

10:00 – 11:30
A3: Participatory Energy Workshop
Room: Carmel

10:00 – 11:30
A4: Clean Water & Sanitation
Room: Carmel

Do-it-Yourself (DIY) Workspaces Run by Local Entrepreneurs That Transform Plastic Waste Into Valuable Water and Sanitation Products
Jan-Carel Diehl (Delft University of Technology, The Netherlands)
Mathijs Stroober (Delft University of Technology, The Netherlands)
Prarthana Majumdar (Delft University of Technology, The Netherlands)
Annemarie Mink (Delft University of Technology, The Netherlands)

Uncovering the Super-Plant: Improving Domestic Water Reuse
Ayush M. Panara (School of Engineering and Applied Science(SEAS), Ahmedabad University, India)

Comparative Study of Maintenance Planning and Failure Modes of Drinking Water Project: Case Studies from Eastern Uganda
Grace Burleson (Oregon State University, USA)
Kendra Sharp (Oregon State University, USA)

Community Resource Management: Sanitation and Septic System in Resource-Stressed Environments
Megan Richardson (Oregon State University, USA)
Kendra Sharp (Oregon State University, USA)

Friday, October 19, 2018

11:30 - 12:30
Smart Village Plenary Panel
Room: Bayshore Ballroom

12:30 - 13:30
Lunch

13:30 - 15:00
B1: Participatory Health Workshop
Room: San **Jose**

13:30 - 15:00
B2: Disaster Mitigation, Preparedness, Response & Recovery
Room: Santa Clara

Design and Development of the Red Cross Mobile Flush Toilet toward the Smart Design Shelter
Yasuhiro Soshino (Japanese Red Cross Kumamoto Hospital, Japan)
Akinori Kuroda (Japanese Red Cross Kumamoto Hospital, Japan)
Akira Miyata (Japanese Red Cross Kumamoto Hospital, Japan)
Koji Kurayama (Nishimu Electric and Electron Corporation, Japan)

Natural Language Processing for Analyzing Disaster Recovery Trends Expressed in Large Text Corpora
Lucy H. Lin (University of Washington, USA)
Scott B Miles (University of Washington, USA)
Noah A. Smith (University of Washington, USA)

The EDNA Public Safety Drone: Bullet-Stopping Lifesaving
Leah La Salla (RPSearch Services, Astral AR, Texas, USA)
Camila Belduque (RPSearch Services, Astral AR, Texas, USA)
Giselle Espada (Regis University Data Sciences Graduate School, RPSearch Services, Astral AR, Texas USA)
LaShana Lewis (RPSearch Services, Astral AR, Texas, USA)
Ayodele Odubela (Regis University Data Sciences Graduate School, RPSearch Services, Astral AR, Texas, USA)
Aaron Wood (Texas A & M Mechanical Engineering Undergraduate Student, RPSearch Services, Astral AR, Texas, USA)

Distributed Reinforcement Learning Framework for Resource Allocation in Disaster Response
Cesar Lopez (University of British Columbia, Canada)
Jose R. Marti (University of British Columbia, Canada)
Sarbjit Sarkaria (University of British Columbia, Canada)

13:30 - 15:00
B3: Affordable & Clean Energy
Room: Carmel

The effect of biochar addition on biogas production from poultry litter
Mathu Indren (The University of Adelaide, Australia)
Cris Birzer (The University of Adelaide, Australia)
Paul Medwell (The University of Adelaide, Australia)
Stephen Kidd (The University of Adelaide, Australia)

Survey-based behavior and impact assessment A case study of improved cookstove adoption in rural Honduras
Mohammad Pakravan (Oregon State University, USA)
Nordica MacCarty (Oregon State University, USA)
Katie Laughlin (StoveTeam International, USA)

A Scalable Clean Cooking Stove Matching the Cooking Habits of Ghana and Uganda
Jan-Carel Diehl (Delft University of Technology, The Netherlands)
Stephanie van Sprang (Delft University of Technology, The Netherlands)
Jiddu Alexander (Independent, The Netherlands)
Wouter Kersten (Delft University of Technology, The Netherlands)

Friday, October 19, 2018

13:30 - 15:00
B4: Agriculture & Food Security
Room: Monterey

Predictive Model for Affordable Greenhouse Operations
Brett Abele (World Hope & Pennsylvania State University, USA)
Khanjan Mehta (Lehigh University, USA)
Leah Bader (Lehigh University, USA)

Design of a Climate Smart Farming System in East Africa
Cristina Whitworth (Santa Clara University, USA)
Laura Doyle (Santa Clara University, USA)
Lauren Oliver (Santa Clara University, USA)

Affordable Mushroom Production System Design and Operations
Timothy Predmore (Lehigh University, USA)
Leah Bader (Lehigh University, USA)
Talmage Payne (World Hope International, Cambodia)
Khanjan Mehta (Lehigh University, USA)

Implementation of Small-Scale Mushroom Production System in Rural Cambodia
Lauren Fosbenner (Lehigh University, USA)
Timothy Predmore (Lehigh University, USA)
Samuel Evers (Lehigh University, USA)
Sean Conway (Lehigh University, USA)
Khanjan Mehta (Lehigh University, USA)
Talmage Payne (World Hope International, Cambodia)

16:00 - 17:30
C1: Technology Enhanced Healthcare
Room: San Jose

Deep Learning Based Image Classification for Remote Medical Diagnosis
Juliana Shihadeh (Santa Clara University, USA)
Anaam Ansari (Santa Clara University, USA)
Tokunbo Ogunfunmi (Santa Clara University, USA)

A design of a mobile health system to address teenage pregnancy in South African high schools
Patrick Ndayizigamiye (University of KwaZulu-Natal, South Africa)
Sogo France Matlala (University of Limpopo, South Africa)

Roadmap for Design of Surgical Equipment for Safe Surgery Worldwide
Roos Oosting (Delft University of Technology, The Netherlands)
Linda Wauben (Rotterdam University of Applied Sciences, The Netherlands)
June Madete (Kenyatta University, Kenya)
Reinou Groen (John Hopkins University, USA)
Jenny Dankelman (Delft University of Technology, The Netherlands)

Train the Trainers: Medical Technology for the Sustainable Development of Africa
Juan Ruiz-Alzola (University of Las Palmas de Gran Canaria & Instituto de Astrofísica de Canarias, Spain)
Asmaa Skareb (University of Las Palmas de Gran Canaria, Spain)
Ahmedou Moulaye Idriss (Al Aassriya Nouakchott University, Mauritania)
Babacar Diao (Military Medical School, Senegal)
Joseane Alexandra Da Rosa De Pina Ferreira (Agostinho Neto Hospital, Cape Verde)
Maria Alexandra F. Rodrigues (Medical School at Eduardo Mondlane University, Mozambique)
Luis Lopez Rivero (Hospitalario Insular de Gran Canaria, Spain)
Ron Kikinis (Brigham and Women's Hospital and Harvard Medical School & Surgical Planning Laboratory, USA)

Friday, October 19, 2018

16:00 - 17:30
C: Participatory Disaster Workshop
Room: Santa Clara

16:00 - 17:30
C3: Affordable & Clean Energy
Room: Carmel

An Innovative Concentrating Photovoltaic Thermal System for Rural Electrification and Water Supply
Huling Xie (Sichuan Energy Internet Institute of Tsinghua University, P.R. China)
Yuchao Hu (Sichuan Energy Internet Institute of Tsinghua University, P.R. China)
Alexander Anderson (EmpowerPack Social Purpose Corp & IEEE Smart Village, USA)
Jinjia Wei (Xian Jiaotong University, P.R. China)
Gaoming Zhang (Xian Jiaotong University, P.R. China)
Xiaohui Zhang (Sichuan Energy Internet Institute of Tsinghua University, P.R. China)
Xuesong Wu (Sichuan Energy Internet Institute of Tsinghua University, P.R. China)

Design and implementation of a monitoring system for decision support in a micro-business based on solar energy microgrid in rural Colombia
Ingvild Forseth (NTNU, Norway)
Vegar Aabrek (NTNU, Norway)
Maximiliano Bueno (Universidad de La Salle & Norwegian University of Science and Technology, Colombia)
Marta Molinas (NTNU, Norway)

DC Approximate Models for Modeling Minigrid Systems
Daniel Zimmerle (Colorado State University, USA)
Arthur Santos (Colorado State University, USA)
Gerald P Duggan (Colorado State University, USA)

Design of Hybrid Solar-hydro Microgrid for Village School in China
Xiaoyu Duan (Tsinghua University, P.R. China)
Sirui Wu (Tsinghua University, P.R. China)
Rui Diao (Tsinghua University, P.R. China)
Aobo Yang (Tsinghua University, P.R. China)

Friday, October 19, 2018

16:00 - 17:30
C4: Agriculture & Food Security
Room: Monterey

Evaluation of Low-Cost Evaporative Cooling Technologies for Improved Vegetable Storage in Mali
Eric Verploegen (MIT & D-Lab, USA)
Ousmane Sanogo (World Vegetable Center, Mali)
Takemore Chagomoka (World Vegetable Center, Mali)

IoT Sensor Network Approach for Smart Farming: An Application in Food, Energy and Water System
Yemeserach Mekonnen (Florida International University, USA)
Lamar Burton (Florida International University, USA)
Arif Sarwat (Florida International University, USA)
Shekhar Bhansali (Florida International University, USA)

IoT-based Precision Monitoring of Horticultural Crops - A Case-study on Cabbage and Capsicum
Ajay Mittal (Research, India)
Sanat Sarangi (Tata Consultancy Services, India)
Saranya Ramanath (Tata Consultancy Services, India)
Prakruti V. Bhatt (Tata Consultancy Services, India)
Rahul Sharma (Tata Consultancy Services, India)
Srinivasu Pappula (Tata Consultancy Services, India)

18:00 - 20:00
Evening Reception Sponsored by HAC/SIGHT

Saturday, October 20, 2018

07:00 - 18:00
Registration
Room: Bayshore Foyer

08:00 - 09:30
Plenary Session
Speaker: Kofi Taha
Room: Bayshore Ballroom

09:30 - 10:00
Coffee Break
Room: Bayshore Foyer

10:00 - 11:30
D1: Technology Enhanced Healthcare
Room: San Jose

mHealth4Afrika Beta v1 Validation in Rural and Deep Rural Clinics in Ethiopia, Kenya, Malawi and South Africa
Paul M Cunningham (IIMC / mHealth4Afrika / IST-Africa Institute, Ireland)
Miriam Cunningham (IIMC / IST-Africa, Ireland)

3D Printing to Supplement Rural Healthcare Supplies - What Do Healthcare Facilities Want?
John Gershenson (The Pennsylvania State University, USA)

SolarSPELL Health and Education: Global Solutions with Local Impacts
Laura Hosman (Arizona State University, USA)
Heather Ross (Arizona State University, USA)
Bruce Baikie (EWB & Green WIFi, USA)
Emily Blau (Arizona State University, USA)
Carol Simpson (Arizona State University, USA)
Kristen Linzy (Arizona State University, USA)
Chloe Scott (Arizona State University, USA)
Brittany Blevins (Arizona State University, USA)

Bridging the Gap between Paper Patient Records and EHR Systems with the piClinic Console
Robert B Watson (Mercer University, USA)

10:00 - 11:30
D2: Connectivity & Communication
Room: Santa Clara

Feasibility of an Amateur Radio Transmitter Implementation Using Raspberry Pi for a Low Cost and Portable Emergency Communications Device
Cyril Paolo C Quitevis (University of the Philippines, Philippines)
Charleston Dale M. Ambatali (University of the Philippines, Philippines)

Environmental Monitoring Using Low-Cost Hardware and Infrastructureless Wireless Communication
Lars Baumgärtner (University of Marburg, Germany)
Alvar Penning (University of Marburg, Germany)
Patrick Lampe (University of Marburg, Germany)
Björn Richerzhagen (Technische Universität Darmstadt, Germany)
Ralf Steinmetz (Technische Universität Darmstadt, Germany)
Bernd Freisleben (Philipps-Universität Marburg, Germany)

Saturday, October 20, 2018

Demonstrating a low-cost and zero-recurrent-cost hybrid mesh and satellite based early warning system
Paul Gardner-Stephen (Flinders University, Australia)
Matthew Lloyd (New Zealand Red Cross, New Zealand)
Jeremy Lakeman (Flinders University of South Australia, Australia)
Ghassan Al-Nuaimi (Flinders University, Australia)

University of Colorado at Boulder WiLDNet Testbed
Heinz Boehmer Fiehn (University of Colorado at Boulder, USA)
Bennett Miller (University of Colorado at Boulder, USA)
Arturo Freydig Avila (University of Colorado at Boulder, USA)
Kaitlin Y Mazotti (University of Colorado at Boulder, USA)
Rick Wallace Kenyon (University of Colorado at Boulder, USA)
Lewis Schiebel (University of Colorado Boulder, USA)
Alan Mickelson (University of Colorado at Boulder, USA)

10:00 - 11:30
D3: Affordable & Clean Energy
Room: Carmel

Demonstration of Virtual Inertia Emulation using Energy Storage Systems to Support Community-based High Renewable Energy Penetration
Thongchart Kerdphol (Kyushu Institute of Technology, Japan)
Fathin Rahman (Kyushu Institute of Technology, Japan)
Yasunori Mitani (Kyushu Institute of Technology, Japan)
Veena Phunpeng (Suranaree University of Technology, Thailand)
Masayuki Watanabe (Kyushu Institute of Technology, Japan)

Remote Diagnosis of Solar Panel Performance: A Case Study of the Filibaba Energy Kiosk
Caitlin Berry (KiloWatts for Humanity, USA)
Henry Louie (Seattle University, USA)
J McLean Sloughter (Seattle University & KiloWatts for Humanity, USA)

Green Energy Distribution in Southwestern Haiti
Arturo Freydig Avila (University of Colorado at Boulder, USA)
Rick Wallace Kenyon (University of Colorado at Boulder, USA)
Alan Mickelson (University of Colorado at Boulder, USA)

Improving Shoestring Surveys for Off-grid Humanitarian Power Projects: Kilowatts for Humanity and KoboCollect
Peter Dauenhauer (University of Strathclyde, United Kingdom (Great Britain))
Matt Shields (Seattle University, USA)
J McLean Sloughter (Seattle University & KiloWatts for Humanity, USA)
Allen Stewart (Seattle University, USA)
Christopher Lacrampe (Seattle University, USA)
Elsa Magness (Bryn Mawr College, USA)
Jeffrey Ochavillo (Seattle University, Guam)
Jason Limfueco (Seattle University, USA)
Alyssa Mendoza (Seattle University, USA)

10:00 - 11:30
D4: Participatory Agriculture/Water
Room: *Monterey*

12:30 - 1:30
Lunch
Room: *Bayshore Foyer*

Saturday, October 20, 2018

13:30 - 15:00
E1: Technology Enhanced Healthcare
Room: San Jose

The VRehab System: A Low-Cost Mobile Virtual Reality System for Post-Stroke Upper Limb Rehabilitation for Medically Underserved Populations
Chloe Zirbel (San Francisco State University, USA)
Charmayne ML Hughes (San Francisco State University & Health Equity Institute, USA)
Xiaorong Zhang (San Francisco State University, USA)

Development of a mHealth system for stroke patients with upper limb impairments: An iterative usability study
Charmayne ML Hughes (San Francisco State University & Health Equity Institute, USA)
Amy Hintze (Health Equity Institute, USA)
Alejandra Padilla (Health Equity Institute, USA)
Tatiana Mariscal (San Francisco State University, USA)
Sam Warner (Health Equity Institute, USA)
Michael Sera (San Francisco State University, USA)
Tony Peng (Health Equity Institute, USA)

BrainSmart: Ambient Assisted Living System Smartphone App Prototype for Parkinson's Disease Patients
Darvy P. Ong (University of the Philippines Diliman, Philippines)
Nestor Michael C. Tiglao (University of the Philippines, Philippines)

13:30 - 15:00
E2: Participatory HAC Workshop
Room: Santa Clara

13:30 - 15:00
E3: Community Engagement, Capacity-Building, and Behavior Change
Room: Carmel

The collaborative design of a low-cost, accessible rice seeder for rural Cambodia: Trade-offs and challenges
Andrew Drain (Massey University, New Zealand)
Melissa McCreery (Engineers Without Borders Australia, Australia)
Aruna Shekar (Massey University, New Zealand)
Nigel Grigg (Massey University, New Zealand)

Lessons in Biochar: Advancing research through service learning courses in Nepal
Mark Henderson (Arizona State University, USA)
Netra Chhetri (Arizona State University, USA)
Fiona Johnson (University of New South Wales, USA)

Capacity Building and Development for a Local Community through Engineering Service-Learning Projects - A 5-year Study in Rural Cambodia
Kenneth Wai Kwan Lo (The Hong Kong Polytechnic University, Hong Kong)
Chi Kin Lau (The Hong Kong Polytechnic University, Hong Kong)
Stephen Chi Fai Chan (The Hong Kong Polytechnic University, Hong Kong)
Grace Ngai (The Hong Kong Polytechnic University, Hong Kong)

Assessing Energy and Communication needs for the Sustainable and Educational Development of the Inhabitants of the Galapagos Islands
Javier Urquizo (Villanova University, USA)
Pritpal Singh (Villanova University, USA)
David Lansdale (Beyond Chacay Foundation & USFQ, Ecuador)
Diana Banda (Villanova University, USA)
Lauren Henderson (Villanova University, USA)
Sarah Chen (Villanova University, USA)
Gibel Sowe (Villanova University, USA)
Karol Pierre (Villanova University, USA)
Cecilia Guerrero (Regis University, USA)
David Jaben (Denison University, USA)

Saturday, October 20, 2018

13:30 - 15:30
E4: Technology Enhanced Quality Education Delivery
Room: Monterey

Lesson Planner for Rural Nepal
Roshan Ramankutty, Kate Lassalle-Klein, Elise Herrmannsfeldt and Suparna Jasuja (Santa Clara University, USA); Skip Stritter and David Sowerwine (VillageTech Solutions, USA); Silvia Figueira (Santa Clara University, USA)

Innovation for Education, Spatial Thinking and GeoICT: A Rwandan Case Study
Brian Tomaszewski and Anthony Vodacek (Rochester Institute of Technology, USA); Gaspard Rwanyiziri (University of Rwanda, Rwanda)

Using Machine Learning to Automate Classroom Observation for Low-resource Environments
Salsabeel Shapsough (American University of Sharjah, United Arab Emirates)
Imran A. Zualkernan (American University of Sharjah, United Arab Emirates)

An Innovative new Approach to Animal Care
Paul Johnson (Prairie View A&M University, USA)

15:30 - 16:00
Coffee Break
Room: Bayshore Foyer

16:00 - 17:30
F1: Technology Enhanced Healthcare
Room: San Jose

An Innovative new Approach to Animal Care
Prairie View A&M University, USA

A Low-Cost and Energy-Efficient Platform for Unsupervised Parkinson's Disease Assessment
Alexander Adranly (Santa Clara University, USA)
Senbao Lu (Santa Clara University, USA)
Yousef Zoumot (Santa Clara University, USA)
Yuling Yan (Santa Clara University, USA)
Behnam Dezfouli (Santa Clara University, USA)

A holistic approach to the design of hearing aids for children with hearing impairment in resource constrained settings
Rohit Nambiar (Indian Instituite of Science, India)
Deval Karia (Indian Institute of Science, India)
Kavyashree Venkatesh (Dayananda Sagar College of Engineering, India)
Arpitha Ramesh (Dayananda Sagar College of Engineering, India)
Anagha Thattankandy (Dayananda Sagar College of Engineering, India)
Siddharth Nair (Indian Institute of Science, India)
Agniwesh Pratap Maurya (Indian Instituite of Science, India)
Ramesh A. (St. John's Medical College Hospital, India)
Manish Arora (Indian Institute of Science, India)

Development of a low-cost and multi-size foot prosthesis for humanitarian applications
Juan P Santana (Tecnologico de Monterrey, Mexico)
Karla Beltran (Tecnologico de Monterrey, Mexico)
Eduardo Barocio (Purdue University & School of Materials Engineering, Mexico)
Gabriel I Lopez-Avina (Tecnologico de Monterrey & Biomechatronics Laboratory, Mexico)
Joel Huegel (Tecnologico de Monterrey & Biomechatronics Lab, Mexico)

Frugal Skin Graft Expansion Device: An affordable, modular, and autoclavable skin meshing device for the developing world *Kaileen Cruden (Santa Clara University, USA)*
Sophia Sparagana (Santa Clara University, USA)
Maggie Alt (Santa Clara University, USA)
Josee Fournier (Santa Clara University, USA)
Madeline Krenek (Santa Clara University, USA)
William Paton (Santa Clara University, USA)

16:00 - 17:30
F2: Participatory HAC Workshop
Room: Santa Clara

Saturday, October 20, 2018

16:00 - 17:30
F3: Social Science & Entrepreneurship Community Engagement, Capacity-Building, and Behavior Change Other United Nations Sustainable Development Goals
Room: Carmel

Increasing the Success of Clean Cooking Technologies: The impact of founding team nationality on company growth in Uganda
Macauley Kenney (MIT, USA)
Eric Verploegen (MIT & D-Lab, USA)

Socially-Beneficial Technologies in the African Marketplace: Product Perceptions and Consumer Preferences
Leah Bader (The Pennsylvania State University, USA)
Sara Warnquist (The Pennsylvania State University, USA)
Khanjan Mehta (Lehigh University, USA)

Community Outreach Through K-12 Engineering Education: Water Conservation Implementation, Observations, and Survey
John Lund (Western Washington University, USA)

e-Government Identification To Accomplish Sustainable Development Goals (UN 2030 Agenda) A Case Study Of Pakistan
Kashif Rajput (Mehran University of Engineering Science & Technology Jamshoro, Pakistan)
Asif Ali Shah (Mehran University of Engineering & Technology Jamshoro, Sindh, Pakistan)
Khalil Ahmed (Mehran University of Engineering & Technology Jamshoro, Sindh, Pakistan)

16:00 - 17:30
F4: Technology and Applications for Poverty Alleviation
Room: Monterey

Healthy Forest, Healthy People II
Eric Kaiser (Plant With Purpose, USA)
Bunsak Thongdi (Upland Holistic Development Project, Thailand)
Jamlang Pawkham (Upland Holistic Development Project, Thailand)
Doug Satre (Upland Holistic Development Project, Thailand)
James Watt (Plant With Purpose, USA)
Robert Morikawa (Plant With Purpose, Canada)

A study of technical, economic and social factors affecting micro-hydropower plants in Nepal
Joe Butchers (University of Bristol, United Kingdom (Great Britain))
Sam Williamson (University of Bristol, United Kingdom (Great Britain))
Julian Booker (University of Bristol, United Kingdom (Great Britain))
Anh L.H. Tran (Coventry University, United Kingdom (Great Britain))
Biraj Gautam (People, Energy and Environment Development Association, Nepal)
Prem Karki (People, Energy and Environment Development Association, Nepal)

A Mixed- Method Approach: Design of a Novel Sensor System to Measure Cookstove Usage and Fuel Consumption
Jennifer Ventrella (Oregon State University, USA)
Nordica MacCarty (Oregon State University, USA)
Shaozeng Zhang (Oregon State University, USA)

HedhiHelp - A Health Education App for Girls in Rural Kenya
Arbelina Bebla (Santa Clara University, USA)
Mira Diwan (Santa Clara University, USA)
Elizabeth Smith (Santa Clara University, USA)
Michele Parker (Santa Clara University, USA)
Sarah Pagnan (Santa Clara University, USA)i
Kelsey Pasco (Santa Clara University, USA)
Sarek Sotelo Jimenez (Santa Clara University, USA)
Brandon Smith (Santa Clara University, USA)
Kitty Kenyon (Santa Clara University, USA)
Silvia Figueira (Santa Clara University, USA)

Saturday, October 20, 2018

17:30 - 19:00
Poster Session & Reception

18:00 - 19:00
Awards Ceremony
Bayshore Ballroom

Sunday, October 21, 2018

08:00 - 11:00
Registration
Room: Bayshore Foyer

8:30 - 10:00
G1: Technology Enhanced Healthcare
Room: San Jose

Accessible, Point-of-Care Screening Solution to Detect Urinary Tract Infections in Developing Countries
Daniella Fodera (Lehigh University, USA)
Naakesh Gomanie (Lehigh University, USA)
Christian Pardo (Desales University, USA)
Meghan Nolte (Lehigh University, USA)
Natalee Castillo (Lehigh University, USA)
Khanjan Mehta (Lehigh University, USA)

Urinalysis Screening for Rural Communities
Dana Bren-Cardali (Santa Clara University, USA)
Lilian Dao (Santa Clara University, USA)
Jeff Destruel (Santa Clara University, USA)
Ryan Fernandez (Santa Clara University, USA)
Unyoung Kim (Santa Clara University, USA)
Silvia Figueira (Santa Clara University, USA)

Design of a Low-Cost Universal Colour Sensor to Support Rural Healthcare
Harikrishnan Venugopal (Amrita Vishwa Vidyapeetham, India)
Akshay Jayakumar (Amrita University, India)
Georg Gutjahr (Amrita Vishwa Vidyapeetham, India)
Gj Nair (Amrita Vishwa Vidyapeetham University & Amritapuri, India)
Prema Nedungadi (Amrita Vishwa Vidyapeetham, India)

8:30 - 10:00
G2: Humanitarian Challenges & Opportunities Connectivity & Communication
Room: Santa Clara

Humanitarian Efforts for Improving Air Quality using Solar Power
Joshua Schapiro (Carnegie Mellon University, USA)
Michael Taylor (Carnegie Mellon University, USA)
Illah Nourbakhsh (Carnegie Mellon University, USA)

'Roshini'- Developing a DIY Rural Solar Light: utilizing products at End-of-Life (EoL) stage
Siddharth Nair (Indian Institute of Science, India)
Roshan Rao (Indian Institute of Science, India)
Tarun Kumar (Indian Institute of Science, Bangalore, India)
Guru Prasad G (Indian Institute of Science, India)
Manish Kumar (Indian Institute of Science, India)
Khadeeja Henna P (Indian Institute of Science, India)
Aysha Saifudeen (Indian Institute of Science, India)
Monto Mani (Indian Institute of Science, India)

Text to Braille Scanner with Ultra Low Cost Refreshable Braille Display
Shahruk Hossain (Bangladesh University of Engineering and Technology, Bangladesh)
Abdullah Raied (Bangladesh University of Engineering and Technology & 10 Minute School, Bangladesh)
Md. Asifur Rahman (Bangladesh University of Engineering and Technology, Bangladesh)
Dipanjan Adhikary (Bangladesh University of Engineering and Technology, Bangladesh)
Zaowad Abdullah (Bangladesh University of Engineering and Technology, Bangladesh)
Ahsan Khan (Bangladesh University of Engineering and Technology, Bangladesh)
Arnab Bhattacharjee (Bangladesh University of Engineering and Technology, Bangladesh)
Shaikh Anowarul Fattah (BUET, Bangladesh)
Celia Shahnaz (BUET, Bangladesh)

Sunday, October 21, 2018

Making HF useful 365 days of the year, to make sure it works the one day you need it
Paul Gardner-Stephen (Flinders University, Australia)
Ghassan Al-Nuaimi (Flinders University, Australia)
Jeremy Lakeman (Flinders University of South Australia, Australia)
Matthew Lloyd (New Zealand Red Cross, New Zealand)
Hugo Dupré (Flinders University, Australia)

8:30- 10:30
Building Capacity for the Coming Era of Connectivity: The Next Billions
Room: Carmel

Session Description:
The value of the economic, social and political gains offered by internet connectivity have been well-documented. The benefits that can be realized through increased connectivity—individually, locally and globally—can be transformational. Many citizens in the world increasingly rely on the internet for access to education, health care, employment, finance, commerce and information. And the emerging Internet of Things has the potential to dramatically further increase the positive social and economic impacts of global connectivity.

At some point this year, the world will see internet users reach 4 billion, but yet there will remain a significant population of the world that is not connected. Connecting this population, however, figures to be a different and a more difficult challenge than was connecting the first billions. There are a variety of reasons why, including that the last billions are typically living in remote, rural and/or sparsely populated areas, access is still too expensive, the internet lacks content that is relevant to them and the internet may be too unfamiliar. To continue to address and overcome these challenges and, more so, to enable sustainable internet access, many from various walks of life, disciplines and professions, including engineering professionals, will need to work together to help build capacity and skills—as these are levers for economic, social and sustainable development.

This hands-on workshop will explore what is needed to build the necessary capacity and skills for local citizens so they can support projects that lead to future organic expansion and sustainability of internet connectivity. To inspire an open discussion among the participants, the speakers will share first-hand experiences in building skills and capacity in network engineering, technology support, application development and training, as well as in specialized skill sets of financing, policy education and others. This will be followed by an interactive discussion to identify and capture what factors need to coalesce to ensure sustainable internet access that will be collectively generated and managed by those who will benefit, while keeping a focus on local community needs.

10:00 - 10:30
Coffee Break
Room: Bayshore Foyer

10:30 - 12:00
Plenary and Closing
Room: Bayshore Ballroom


SECOND FLOOR
CEDAR
PINE
FIR
OAK
STORAGE
GATEWAY FOYER
STAIRS
SILICON VALLEY ROOM
GYM
ZINFANDEL
RIESLING
BOARDROOM
CHARDONNAY
CITY FOYER
SAN SIMEON
SAN MARTIN
SAN JUAN
SAN CARLOS
SAN JOSE
SANTA CLARA
CARMEL
MONTEREY
GUEST ROOM ELEVATORS
EXECUTIVE
POOLSIDE FOYER
SIERRA
CASCADE
SISKIYOU
DONNER
CAPITOLA ROOM
SPA
SALES & CATERING OFFICE
BAYSHORE FOYER
STORAGE
SPENCER'S
FOR STEAKS AND CHOPS
POOL
1ST FLOOR GUEST ROOMS
STAIRS
Sprigs
LOBBY LOUNGE
Sushi
CONVENTION ENTRANCE
LOBBY LEVEL
GUEST SERVICES
FRONT DESK
MAIN ENTRANCE
GIFT SHOP