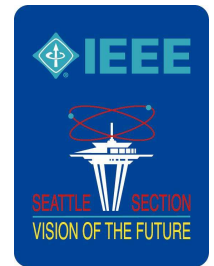




# IEEE Global Humanitarian Technology Conference (GHTC)

October 30 – November 1, 2011  
Seattle, Washington



## Technology for the Benefit of Humanity

Sponsored by IEEE Seattle Section and IEEE Region 6

### Final Program

### Sunday, 30 October 2011

12:00 - 9:00 PM	<p style="text-align: center;"><b>REGISTRATION</b> Courtyard Foyer - B Level</p>
1:30 – 4:45 PM	<p style="text-align: center;"><b>TUTORIALS</b> Madison Ballroom, Salons A, B, C – 2<sup>nd</sup> Floor Chair: Kambiz Rahimi</p>
	<p style="text-align: center;"><b>Tutorial #1 - Salon A</b> <b>Affordable Energy Solutions for Developing Communities</b> <b>Speaker:</b> Robin Podmore, President of Incremental Systems Corporation and Co-Chair IEEE Community Solutions Initiative.</p>
	<p style="text-align: center;"><b>Tutorial #2 - Salon B</b> <b>Village-level Renewable Energy projects for the Developing World</b> <b>Speaker:</b> Michel Maupoux, Technical Director, Green Empowerment</p>
6:00 - 9:00 PM	<p style="text-align: center;"><b>PROJECTS PEER TO PEER EVENT</b> Courtyard Ballroom – B Level Food, beverage, tables Projects Show and Tell, Demonstrations Peer to Peer Discussion</p>
9:00 PM - Close	<p style="text-align: center;"><b>GOLD (Graduates Of the Last Decade): Social Networking with Ice-Cream Party</b> Visions Lounge – Hotel 28th Floor <b>Guest Speakers:</b> Tony Marjoram, UNESCO; Soon Wan, IEEE GOLD =&gt; Engaging Young Professionals to Humanitarian</p>

## Monday, 31 October 2011

7:00 AM - 5:00 PM	<b>CHECK-IN AND REGISTRATION</b> Courtyard Foyer – B Level
7:00 - 8:00 AM	<b>CONTINENTAL BREAKFAST</b> Restaurant – 2 <sup>nd</sup> Floor
8:00 - 10:00 AM	<b>PLENARY SESSION</b> Courtyard Ballroom – B Level
	<b>OPENING CEREMONY</b> Paul Kostek – GHTC Welcome Ed Perkins – Region 6 Welcome Kambiz Rahimi – Seattle Section Welcome Moshe Kam – IEEE 2011 President - IEEE and Humanitarian Technology <b>KEYNOTE</b> Tony Marjoram – Specialist in engineering and technology for development, former head of engineering at UNESCO
	<b>PANEL</b> <b>Humanitarian Technology - Good and Bad</b> <b>Moderator:</b> Paul Kostek Kentaro Toyama - UC Berkeley Akhtar Badshah - Senior Director, Microsoft Community Affairs
10:00 - 10:30 AM	<b>Networking Morning Break</b>

## Parallel Tracks

10:30 AM - 12:30 PM	<b>PANEL</b> <b>What Works and What Doesn't</b> Madison Ballroom – 2 <sup>nd</sup> Floor
	<b>Coordinators:</b> Ed Perkins and Lew Terman John Coonrod, The Hunger Project Mark Henderson, Arizona State University Cathy Leslie, Engineers Without Borders Tony Marjoram, Former UNESCO Engineering Head Michel Maupoux, Green Empowerment Jay Pearlman, IEEE Committee on Earth Observation

<b>10:30 AM - 12:30 PM</b>	<b>POSTERS</b> <b>Poster Presentations - Courtyard Ballroom – B Level</b>	<b>Paper</b>
10:30am	<b>Simulation of Rural Electrification via Cellular Enabled Micro Inverter</b> Kurtis Unger, University of Waterloo	<b>7</b>
10:50am	<b>Assistive communication device for cognitive disability and spastic children</b> Prasanna Venkatesan, Niranjana Uma Shankar, PiSutra Software; Samarth Deo, Varun Sarma, Sreenidhi Institute of Science & Technology	<b>153</b>
11:10am	OPEN	
11:30am	<b>A Study Of Low Cost Electrification Using Solar Energy</b> Jery Althaf, Sankar R, IEEE LINK	<b>97</b>
11:50am	<b>Off-Grid Power for Small Communities with Renewable Energy Sources</b> Eugene Moe, AECOM	<b>154</b>
12:10pm	OPEN	

<b>10:30 AM - 12:30 PM</b>	<b>POWER TRACK</b> <b>Paper Presentations - 3<sup>rd</sup> Floor – South Room</b> <b>Session Chair – Henry Louie</b>	<b>Paper</b>
10:30am	<b>Bottle Schools</b> Heenal Rajani, Laura Kutner, Hugitforward.org	
10:50am	<b>Power Systems For People Without Power: Solving Energy Problem in a New Way</b> Liang Downey, Nextek	<b>16</b>
11:10am	<b>Aluminum Economy for Sustainable Development. Aluminum as core material for energy storage and energy saving products: Low cost, high performance, and easy processing in developing countries.</b> S.C. Mok, Display Research Laboratory	<b>38</b>
11:30am	<b>New Village Gadgets: Synergy of human-powered generation and ultra-efficient electrical appliances for poverty eradication</b> S.C. Mok, Display Research Laboratory	<b>45</b>
11:50am	<b>Calumet Modular Waste/Renewable Energy System for Production of Electricity, Heat, and Potable Water in Remote Locations</b> Robert Kramer, Libbie Pelter Purdue University Calumet; John Patterson, Kraig Kmiotek, Purdue University	<b>47</b>
12:10pm	<b>An Efficient Design of Solar Cell Antenna for Mobile and Vehicular Applications</b> Alagar Samy Suresh Kumar, PABCET; S Sundaravadivelu	<b>50</b>

<b>10:30 AM - 12:30 PM</b>	<b>AGRICULTURE TRACK</b> <b>Paper Presentations - 3<sup>rd</sup> Floor – West Room</b> <b>Chair – Chilka Sharma</b>	<b>Paper</b>
10:30am	<b>Software-Configurable Herbivore Control Device ("Pseudo-Fence")</b> Jonathan Cummings, SRA International	<b>37</b>
10:50am	<b>Mobile Communications Research Laboratory Electric Fence Intrusion Alert System (eleAlert)</b> Dileeka Dias, University of Moratuwa; Lanka Wijesinghe, Prasanga Siriwardena, Dialog-University of Moratuwa Mobile Communications Research Laboratory; Ravi Corea, Sri Lanka Wildlife Conservation Society; Shamali Dahanayake, Dialog-University of Moratuwa Mobile Communications Research Laboratory	<b>94</b>
11:10am	<b>Poultry Pharming for Global Health: New technologies for egg-based biopharmaceutical manufacturing.</b> Eluemuno Blyden, AfriVax; Ken Christiansen, The RAND Alliance	<b>121</b>
11:30am	<b>Low-Cost Salinity Sensor Increases Economic Yields and Environmental Sustainability for Small Plot Shrimp Farmers</b> Stephen Honan, Brad Bishop, US Naval Academy	<b>144</b>
11:50am	<b>Remote sensing data and models for improved targeting of humanitarian aid</b> Molly Brown, NASA	<b>184</b>
12:10pm	<b>Agricultural Model Intercomparison and Improvement Project: Climate Impacts on Agricultural Production and World Food Security</b> Ken Boote	<b>187</b>

<b>10:30 AM - 12:30 PM</b>	<b>HEALTH TRACK</b> <b>Paper Presentations - 3<sup>rd</sup> Floor – North Room</b> <b>Chair – Martin Murillo</b>	<b>Paper</b>
10:30am	<b>Compact and Cost-effective Lensless Telemedicine Microscopy for Global Health Applications</b> Onur Mudanyali, UCLA; Derek Tseng; Serhan Isikman; Cetin Oztoprak; Ikbal Sencan; Waheb Bishara, UCLA; Oguzhan Yaglidere; Aydogan Ozcan, UCLA	<b>55</b>
10:50am	<b>Automated Validation of Capillary Refill Time Measurements Using Photo-plethysmogram from a Portable Device for Effective Triage in Children</b> Walter Karlen, Amelia Pickard, Jeremy Daniels UBC; Arthur Kwizera, MUCHS; Charles Ibingira, Makerere University; Guy Dumont, Mark Ansermino, UBC	<b>60</b>
11:10am	<b>'Neurogame therapy' for improvement of movement coordination after brain injury: developing a wireless biosignal game therapy system</b> Chet Moritz, Tim Morrison, Brian Otis, Dianne Rios, Torey Gilbertson, Sarah McCoy, University of Washington	<b>70</b>
11:30am	<b>Design of a novel mechanical syringe pump for neonatal care in low-resource settings</b> Cynthia Sung, Rashmi Kamath, Yiwen Cui, Clare Ouyang, Elizabeth Carstens,	<b>111</b>

	Renata Ramos, Z. Maria Oden, Rice University	
11:50pm	<b>Reducing Maternal Mortality: An Ultrasound System for Village Midwives</b> Ruth Anderson, Waylon Brunette, Beth Kolko, University of Washington	<b>113</b>
12:10pm	<b>Development of Simplified Negative Pressure Wound Therapy Device for Low-Resource Settings</b> Danielle Zurovcik, Alexander Slocum, MIT; Gita Mody, Robert Riviello, Brigham and Women's Hospital; Robert Sheridan, Shriners Hospital	<b>117</b>

<b>10:30 AM - 12:30 PM</b>	<b>X-Track</b> <b>Paper Presentations - 3<sup>rd</sup> Floor – East Room</b> <b>Sponsored by Engineering For Change (E4C)</b> <b>Chair – Ted Weiler</b>	<b>Paper</b>
10:30am	<b>The Humanitarian FOSS Project: Goals, Activities, and Outcomes</b> Ralph Morelli, Trinity College; Allen Tucker, Bowdoin College; Trishan de Lanerolle, Trinity College	<b>126</b>
10:50am	<b>FOSS Panel</b> Panelists TBA	
11:10am	<b>An Open Source Mobile App for Assisting Health and Agricultural Aid in Haiti</b> Ralph Morelli, Trishan de Lanerolle, Trinity College; Emmet Murphy , ACIDI/VOCA	<b>138</b>
11:30am	<b>FOSS as a tool for Development: The Kerala Experience</b> Satish Babu, IC-FOSS	<b>136</b>
11:50am	<b>Off-grid Solar Power for Remote Habitations: Lessons for Sustainability</b> Satish Babu, IC-FOSS	<b>139</b>
12:10pm	<b>Robotics and Automation Society (RAS) Humanitarian Applications</b> Raj Madhavan	

<b>10:30 AM - 12:30 PM</b>	<b>Forum Space- 3<sup>rd</sup> Floor – West Room</b> <b>Chair – Ted Weiler</b>
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<b>12:30 - 1:30 PM</b>	<b>LUNCH</b> <b>Courtyard Ballroom – B Level (Box lunches, topic tables)</b> <b>EPICS Lunch X-Track – East Room</b>
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1:30 AM - 3:30 PM	<b>PANEL</b> <b>IEEE HTC Projects</b> <b>Madison Ballroom – 2<sup>nd</sup> Floor</b>
	<b>Chair:</b> Russ Lefevre Reliable Electricity-Haiti: Henry Louie Data Connectivity-Peru: Peter Spring Patient ID-India: Ali Zalzal Reliable Electricity-Nicaragua- Butch Shadwell

1:30 - 3:30 PM	<b>POSTERS</b> <b>Poster Presentations - Courtyard Ballroom – B Level</b>	Paper
1:30pm	<b>Remote Sensing for the Audit and Assurance of the Carbon Market</b> Keith Cunningham, UAF – SNAP	<b>104</b>
1:50pm	<b>THEIA: The Portable Visual Aid System</b> Saranyaraj Rajendran, Ujval Kumar Bucha, Kamalesh Babu, Arjun Singh, Park College of Engineering and Technology	<b>46</b>
2:10pm	OPEN	
2:30pm	<b>The VALUE @ Amrita Virtual Labs Project: Using Web Technology to Provide Virtual Laboratory Access to Students</b> K Achuthan, S Sreelatha, S Surendran, S Diwakar, P Nedungadi, S Humphreys, S Sreekala, Z Pillai, R Raman, A Deepthi, R Gangadharan, S Appukuttan, J Ranganatha, S Sambhudevan, S Mahesh, Amrita University	<b>77</b>
2:50pm	<b>Mobile Devices and Health Systems</b> David Roberge, University of Southern Maine	<b>119</b>
3:10pm	<b>A Synopsis of Health in the Green Economy How Carbon Reduction May Impact Health in Health Sector Services</b> Amy Jarvis, Walt Vernon, Mazzetti Nash Lipsey Burch	<b>182</b>

1:30 - 3:30 PM	<b>POWER TRACK</b> <b>Paper Presentations- 3<sup>rd</sup> Floor – South Room</b> <b>Chair – Dave Butcher</b>	Paper
1:30pm	<b>Hybrid Renewable Energy Used to Power Computer Laboratory: A Project by University of Cape Town IEEE Student Branch</b> David Oyedokun, Nana-Ampofo Ampofo-Anti, University of Cape Town; Saurabh Sinha	<b>53</b>
1:50pm	<b>Reuse of Post-consumer E-waste for Low Cost Micropower Distribution</b> Daniel Ludois, Jonathan Lee, Patricio Mendoza, Giri Venkataramanan, University of Wisconsin	<b>56</b>
2:10pm	<b>Optimizing outages and hydro strategy to reduce load-shedding in Bangladesh</b> Sebastien Lannez, Jean-Christophe Passelergue, Alstom Grid	<b>62</b>

2:30pm	<b>Assessment of Power Availability and Development of a Low-cost Battery-Powered Medical Oxygen Delivery System; For use in low-resource health facilities in developing countries</b> Beverly Bradley, University of Toronto; David Peel, Ashdown Consultants; Shauna Mullally, Stephen Howie, UK Medical Research Council, The Gambia	<b>63</b>
2:50pm	<b>Low-cost Light-weight Quick-Manufacturable Blades for Human-scale Wind Turbines</b> Pedro Melendez-Vega, Giri Venkataramanan, Daniel Ludois, Justin Reed, University of Wisconsin	<b>64</b>
3:10pm	<b>Engineering A Brighter Sudan: Bringing Sustainable Energy to the Theou Village School</b> Michael Rios, Mou Riiny, Emmett Perl, Enrique Rayon, University of San Diego	<b>67</b>

<b>1:30 - 3:30 PM</b>	<b>WATER/AGRICULTURE TRACK</b> <b>Paper Presentations- B Level – Federal Room</b> <b>Chair – Jay Pearlman</b>	<b>Paper</b>
1:30pm	<b>Proving Sustainability: The International Development Monitoring Initiative</b> Evan Thomas, Portland State University; Karl Linden, Christina Barstow, University of Colorado at Boulder; Zdenek Zumr, Portland State University	<b>28</b>
1:50pm	<b>Use of High Resolution Satellite Images for the Calibration of Hydro-geological Models in Semi-Arid Regions: A Case Study</b> Fabio Ciervo; Youssouf Koussoube; Gerardo Di Martino; Daniele Riccio, Giuseppe Ruello, Ivana Zinno, University of Napoli	<b>122</b>
2:10pm	<b>Land surface hydrology: science and technology for managing water resources</b> Dennis Lettenmaier, University of Washington	<b>186</b>
2:30pm	<b>Improving Water Productivity for Agriculture - Predicting and Preventing Crisis in Irrigated Water Use in a Changing Climate</b> Prasad Thekabail, USGS	<b>152</b>
2:50pm	<b>Developing End User Technology for Making Sustainable Development a Living Reality in Semi Arid Areas</b> Jaswant Sharma, RRSC NRSC ISRO; Jay Pearlman, IEEE; Chilka Sharma, MDS University	<b>90</b>
3:10pm	<b>Advanced Image Analyses for Water Harvesting and Crop Productivity</b> Chilka Sharma, India	<b>183</b>

<b>1:30 - 3:30 PM</b>	<b>HEALTH/CONNECTIVITY TRACK</b> <b>Paper Presentations- 3<sup>rd</sup> Floor – North Room</b> <b>Chair – Martin Murillo</b>	<b>Paper</b>
1:30pm	<b>Making Health Care More Accessible To Rural Communities In Waslala, Nicaragua Using Low-Cost Telecommunications</b> Pritpal Singh, Sarvesh Kulkarni, Betty Keech, Ruth McDermott-Levy, James	<b>120</b>

	Klingler, Villanova University	
1:50pm	<b>Design and development of a system to manually fabricate contoured seats for children with disabilities</b> Jorge Letechipia, Abel Arredondo, Graciela Fregoso, Universidad Iberoamericana; Aldo Alessi, Instituto Nacional de Rehabilitacion; Daniela Jourdain, CITeR	<b>125</b>
2:10pm	<b>True Energy Sure Chill vaccine refrigerator - improving the cold chain in the developing world</b> Stewart Jones, True Energy	<b>180</b>
2:30pm	<b>International Consultants in Medicine: A Framework for Medical Expertise and Social Telemedicine Addressing Medical Disparities</b> Demetrios Sapounas, Center for International Rehab	<b>19</b>
2:50pm	<b>Functional Contact Lenses for Remote Health Monitoring in Developing Countries</b> Nicole Thomas, Ilkka Lähdesmäki, Andrew Lingley, Yu-Te Liao, Jagdish Pandey, Andrei Afanasiev, Brian Otis, Tueng Shen, Babak Parviz, University of Washington	<b>65</b>
3:10pm	<b>Architecture of Tertiary Healthcare Delivery Model for Sub-Urban/Rural India</b> Sharad Kumar, Amrita, Dhruves Biswas, Indian Institute of Technology Kharagpur	<b>92</b>

<b>1:30 - 3:30 PM</b>	<b>X-Track Paper Presentations- 3<sup>rd</sup> Floor – East Room Sponsored by Engineering For Change (E4C) Chair – Ted Weiler</b>	<b>Paper</b>
1:30pm - 2:30pm	<b>SERVIR</b> Molly Brown, NASA	<b>195</b>
2:30pm -3:30pm	<b>Computation Intelligence Society (CIS) Workshop, Developing A Decision Support System for Watershed Management in Developing Countries</b> Tracy A. Farrell, Leo Saenz and Miro Honslav, Conservation International (CI)	<b>192</b>

<b>1:30 - 3:30 PM</b>	<b>Forum Space- 3<sup>rd</sup> Floor – West Room Chair – Ted Weiler</b>
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<b>3:30 - 4:00 PM</b>	<b>Networking Afternoon Break</b>
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4:00 – 6:00 PM	POWER TRACK Paper Presentations- 3 <sup>rd</sup> Floor – South Room Session Chair – Henry Louie	Paper
4:00pm	<b>An Advanced Model for MicroGrid and Energy Independence</b> Bai Blyden, BBRM Group; Virgil Perryman, Earth Power Group; Brendon Hausberger, Holland&Hausberger; Kim Choon Ng, National University Of Singapore; Wei Jen Lee, ESRC University Of Texas	<b>68</b>
4:20pm	<b>Energy Potential &amp; Generation Through IRES in City of Faridabad</b> Rafi Khwaja, Brown Hills College of Engineering; Majid Jamil, Jamia Millia Islamia, India	<b>95</b>
4:40pm	<b>Electromagnetic Field Modeling of Appropriate Technology Generators for Rural Electrification Applications</b> Henry Louie, Steve Szablya, Seattle University	<b>128</b>
5:00pm	<b>Shortcut to Failure --- Why Balance of System Components are Crucial to Solar Power System Performance</b> Eric Youngren, Solar Nexus International	<b>145</b>
5:20pm	<b>A Low-Cost Bio-Mechanical Energy Generator For Off-Grid Users In Emerging Markets</b> Venkat Natarajan, Amit Baxi, Intel Corporation	<b>69</b>
5:40pm	<b>Feasibility and Importance of an Automatic Controller for Solar Hot Water System</b> AKM Abdul Azad, Md. Raied Hasan, BRAC University; Asif Rahman	<b>177</b>

4:00 – 6:00 PM	WATER/AGRICULTURE TRACK Paper Presentations- B Level – Federal Room Chair – Jay Pearlman	Paper
4:00pm	<b>CI Water Applications</b> Tracy Farrell, CI	<b>190</b>
4:20pm	<b>Topics in African Water Quality Development</b> Rochelle Holm, Vista Engineering Technologies	<b>17</b>
4:40pm	<b>Biosensor Networks for Monitoring Water Pollutio</b> David Rickerby, EC JRC	<b>185</b>
5:00pm	<b>A Low-Cost Solar Disinfection Indicator for Safe Water</b> Charlie Matlack, University of Washington; Jacqueline Linnes, Brigham and Women's Hospital; Tyler Davis, Howard Chizeck, University of Washington	<b>112</b>
5:20pm	<b>Water Treatment Considerations and Options for Hospitals in Developing Countries</b> Walter Vernon, Mazzetti Nash Lipsey Burch	<b>181</b>
5:40pm	<b>Ocean wave energy-driven desalination systems for off-grid coastal communities in developing countries</b> Eshwan Ramudu, Resolute Marine Energy	<b>73/169</b>

<b>4:00 – 6:00 PM</b>	<b>HEALTH/CONNECTIVITY TRACK Paper Presentations- 3rd Floor – North Room Chair – Martin Murillo</b>	<b>Paper</b>
4:00pm	<b>Low-Cost Tele-Radiology Solution for Rural Ultrasound</b> Roy Peterson will be presenting for Martin Anderson who recently passed away, Philips Healthcare; Matthew Rielly, Philips Healthcare; Kristen DeStigter, University of Vermont; Brian Garra, Washington DC VA Medical Center & FDA; Andrea Newton, Imaging The World; Michael Kawooya, Mengo Hospital	<b>99</b>
4:20pm	<b>Assistive Technology for Elders: Wireless Intelligent Healthcare Gadget</b> Rajesh Kannan Megalingam, Vineeth Radhakrishnan, Akhil Sudhakaran, Deepak Krishanan Unnikrishnan, Denny Jacob, Amrita University	<b>100</b>
4:40pm	<b>Design of new health management information system (HMIS) model to improve productivity of health workers: Lessons from a case study of primary health in rural Orissa</b> A Garai, AIHMS	<b>107</b>
5:00pm	<b>Experiences in volunteer dynamics, inter-institutional collaboration and management for the purpose of deploying telemedicine solutions in remote areas in developing nations</b> Martin Murillo, IEEE HTC; Pierre Lalonde, University of Ottawa; Doug Reid, Algonquin College; David Wright, University of Ottawa	<b>118</b>
5:20pm	OPEN	
5:40pm	<b>Architecture of Tertiary Healthcare Delivery Model for Sub-Urban/Rural India</b> Sharad Kumar, Amrita, Bhaskar Bhowmick, Dhruvas Biswas, Indian Institute of Technology Kharagpur	<b>172</b>

<b>4:00 – 6:00 PM</b>	<b>X-Track Paper Presentations- 3rd Floor – East Room Sponsored by Engineering For Change (E4C) Chair – Ted Weiler</b>	<b>Paper</b>
4:00pm - 4:40pm	<b>Eye on Earth</b> Aditya Agrawal	<b>197</b>
4:40pm - 5:40 pm	<b>HIVE</b> Michael Ruiz	<b>196</b>

<b>4:00 – 6:00 PM</b>	<b>Forum Space- 3<sup>rd</sup> Floor – West Room Chair – Ted Weiler</b>
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<b>6:00 – 8:30PM</b>	<b>EVENING RECEPTION Dinner Reception / Keynote Speaker / EWB's Silent Auction Courtyard Ballroom – B Level</b>
	Paul Kostek - Welcome Matt Schatzle - Executive Director ASME Foundation <b>Keynote:</b> Lawrence Friedl – NASA

## Tuesday, 1 November 2011

<b>7:30 - 8:00 AM</b>	<b>CHECK-IN AND REGISTRATION</b> Courtyard Foyer – B Level
<b>7:00 - 8:00 AM</b>	<b>CONTINENTAL BREAKFAST</b> Restaurant – 2 <sup>nd</sup> Floor
<b>8:00 - 9:30 AM</b>	<b>PLENARY SESSION</b> Courtyard Ballroom – B Level
	<b>KEYNOTE</b> Patrick Ball VP Benetech
	<b>PANEL</b> <b>Role of Professional Societies in Humanitarian Technology</b> Cathy Leslie – ED, EWB Noha El Ghobashy – ED, Engineering for Change Pete Sobel – IEEE Staff Director Global Business Development
<b>9:30 - 10:00 AM</b>	<b>Networking Morning Break</b>

## Parallel Tracks

<b>10:00 AM - 12:00 PM</b>	<b>POSTERS</b> Poster Presentations - Courtyard Ballroom – B Level	<b>Paper</b>
10:00am	<b>Extreme User Centered Design: Methodology for Eliciting and Ranking Requirements in User-Centered New Product Development Case Studies from Central African Republic and Honduras</b> Gregory Bixler, The Ohio State University	11
10:20am	<b>Advanced Acousto-ultrasonic Landmine Detector for humanitarian mine sweeping</b> Rajesh KR, CDAC(T); Murali R, CDAC; Mohanachandran R, CDAC	76
10:40pm	OPEN	
11:00am	<b>Sustainable Development by Technology Seeding</b> Alexander Moseson, Drexel University; Lewis Lama, Viterbo University; James Tangorra, Drexel University	134
11:20am	<b>Rattan for Sustainable Economic Development: A case study of expanding rattan's design potential through technology innovation</b> Leroy Hurt, Northcentral University	168
11:40am	<b>Real-World Deployment of a Locally-Developed Tilt and Moisture Sensor for Landslide Monitoring in the Philippines</b> Joel Joseph Jr Marciano, University of the Philippines; Mark Albert Zarco; Marc Talampas; Sandra Catane	148
12:10pm	OPEN	

<b>10:00 AM- 12:00 PM</b>	<b>PANEL</b> <b>Smart Grid Projects Panel Session</b> <b>Madison Ballroom – 2<sup>nd</sup> Floor</b> Panelists TBA
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<b>10:00 AM- 12:00 PM</b>	<b>INNOVATION TRACK</b> <b>Paper Presentations- 3<sup>rd</sup> Floor - South Room</b> <b>Chair – Soon Wan</b>	<b>Paper</b>
10:00am	<b>Crossing the real chasm in technical development work - the community chasm</b> S. Revi Sterling, John Bennett, ATLAS Institute, University of Colorado	<b>20</b>
10:20am	<b>OPEN</b>	
10:40pm	<b>OPEN</b>	
11:00am	<b>Alkali-Activated Cement for Equitable Slum Improvement in Mumbai, India</b> Alexander Moseson, Michel Barsoum, Drexel University	<b>133</b>
11:20am	<b>A Novel technology based framework to address Global Humanitarian issues</b> Sampathkumar Veeraraghavan, Brahmam Innovations Lab; Preethi Krishnaswamy, NCSU	<b>151</b>
11:40am	<b>Real-World Deployment of a Locally-Developed Tilt and Moisture Sensor for Landslide Monitoring in the Philippines</b> Joel Joseph Jr Marciano, University of the Philippines; Mark Albert Zarco; Marc Talampas; Sandra Catane	<b>148</b>

<b>10:00 AM- 12:00 PM</b>	<b>HEALTH/CONNECTIVITY TRACK</b> <b>Paper Presentations- 3rd Floor - North Room</b> <b>Chair – Martin Murillo</b>	<b>Paper</b>
10:00am	<b>Resilient &amp; Pragmatic Health IT for Perilous Times</b> Sabatini Monatesti, IEEE; Stephen Beller, NHDS	<b>13</b>
10:20am	<b>Cloud Computing: Future Prospect For E-Health</b> Sunil Chowdhary Chowdhary, Amity University	<b>2</b>
10:40pm	<b>Developing Telehealth in Rural America: The Wyoming Network for Telehealth (Field Experience)</b> Rex Gantenbein, Barbara Robinson, Robert Wolverton, Jennifer Earls, University of Wyoming	<b>18</b>
11:00am	<b>RFID and Mobile Communications for Rural eHealth</b> Stanley Chia, Vodafone; Ali Zalzal, Hikma Group; Laura Zalzal, Academy of Economic Studies, Romania; Ali Karimi, Trans Technology Group	<b>30</b>
11:20am	<b>A Framework for Case-based Community Health Information Systems</b> Brian DeRenzi, University of Washington; Clayton Sims, Jonathan Jackson, Dimagi; Gaetano Borriello, University of Washington; Neal Lesh, Dimagi	<b>40</b>
11:40am	<b>Application of wireless sensor nodes to a delay-tolerant health and environmental data communication system in remote communities</b> Martin Murillo, IEEE HTC; Mozafar Aukin, IDRC	<b>74</b>

<b>10:00 AM- 12:00 PM</b>	<b>INNOVATION TRACK Paper Presentations- B Level – Federal Room Chair – Soon Wan</b>	<b>Paper</b>
10:00am	<b>Modeling the Diffusion of Innovations for Extended Reach to ICT and Mobile Technologies</b> Mariana Dahan, Randeep Sudan, The World Bank	<b>155</b>
10:20am	<b>Wi-Pie: Energy Harvesting in Mobile Electronic Devices</b> Guru Karthik Balasubramanian, Shivaraman Shankar, Aditya Venkat Subramanyan, SRM University	<b>61</b>
10:40pm	<b>Avoiding the 30-Pound Paperweight: Success Via Contextually Appropriate Technologies</b> Thomas Witherspoon, Ears To Our World; Ed Harris, Oklahoma State University; Heather Pittillo, Ears To Our World	<b>179</b>
11:00am	<b>Using Solar Robotic Technology to Detect Lethal and Toxic Chemicals</b> Iem Heng, Andy Zhang, Ali Harb, CUNY	<b>75</b>
11:20am	<b>Speech Therapy and Assessment via Multimedia for Cleft Patients</b> Behram Sethna, Keyur Dhaky, Mehernosh Bulsara, Tata Consultancy Services	<b>85</b>
11:40am	<b>Impact of Low-Cost, On-Demand, Information Access in a Remote Villages</b> Clifford Schmidt, Literacy Bridge; Trina Gorman, Innovations for Poverty Action; Michael Gary, University of New South Wales; Andrew Bayor, Literacy Bridge	<b>163</b>

<b>10:00 AM- 12:00 PM</b>	<b>X-Track Paper Presentations- 3rd Floor - East Room Sponsored by Engineering For Change (E4C) Chair – Ted Weiler</b>	<b>Paper</b>
10:00 - 11:00am	OPEN	
11:00 am - 12:00pm	OPEN	

<b>10:00 AM - 12:00 PM</b>	<b>Forum Space- 3<sup>rd</sup> Floor – West Room Chair – Ted Weiler</b>
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<b>12:00 - 1:00 PM</b>	<b>Lunch (Box lunches, topic tables) Courtyard Ballroom – B Level</b>
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<b>1:00 - 3:20 PM</b>	<b>POSTERS Poster Presentations - Courtyard Ballroom – B Level</b>	<b>Paper</b>
1:00pm	<b>Securing Crisis Map Technology in Conflict Zones</b> George Chamales, Rogue Genius; Rob Baker	<b>66</b>
1:20pm	<b>Community Based Google Mapping as a Tool for Disaster Management</b> Annie George, BEDROC	<b>101</b>
1:40pm	<b>Statistically Modeling the Effectiveness of Disaster Information in Social Media</b> Joy Zhang, Jean Stamberger, Carnegie Mellon Silicon Valley	<b>131</b>

2:00pm	<b>Rain-Induced Disaster Alarm System using Microwave and Acoustic Sensing</b> Jane Louie Zamora, Retcher Hans Ching, Gemalyn Abrajano, AdMU; Gregory Tangonan, Ateneo Innovation Center; Nathaniel Joseph Libatique, Ma. Leonora Guico, AdMU; Ronald Lamac, Japan Radio Co., Ltd.	<b>146</b>
2:20pm	OPEN	
2:40pm	OPEN	
3:00pm	OPEN	

<b>1:00 - 3:00 PM</b>	<b>PANEL</b> <b>Entrepreneurial/Funding</b> <b>Madison Ballroom – 2<sup>nd</sup> Floor</b>	
	Vajra Allan, Project Manager, Washington Global Health Fund Rashmir Balasubramaniam, Founder and CEO, Nsansa John Beale, Director, Strategic Development Village Reach Brian Howe, Vox Legal, Founder, Hub Seattle	

<b>1:00 - 3:20 PM</b>	<b>DISASTER TRACK</b> <b>Paper Presentations- 3rd Floor South Room</b> <b>Chair – Joe Decuir</b>	<b>Paper</b>
1:00pm	<b>The Need for Warehouse Information in a Disaster Recovery Communication System</b> Edward Sobanski, Barbara Nicolai, Purdue Calumet	<b>41</b>
1:20pm	<b>Mobility of a Disaster Recovery Communication System</b> Edward Sobanski, Barbara Nicolai, Purdue Calumet	<b>39</b>
1:40pm	<b>Prototyping and Evaluation of a Computerized Emergency Management System Based on an Ontological Inference Design</b> Yasir Javed, Tony Norris, Massey University, New Zealand	<b>71</b>
2:00pm	<b>The Evolution of Incident Area Networks for Disaster Communications: Case Studies, Technologies and Lessons Learned</b> Catherine Nelson, Cisco Tactical Operations; Jean Stamberger, Carnegie Mellon Silicon Valley; Brian Steckler, Naval Postgraduate School	<b>124</b>
2:20pm	<b>User Experience for Creating and Supporting Episodic Communities</b> Ted Selker, Jean Stamberger, Carnegie Mellon Silicon Valley	<b>130</b>
2:40pm	<b>Disaster and Emergency Warning Network (DEWN) Harnessing Cellular Technologies for Early Warning Dissemination</b> Dileeka Dias, University of Moratuwa; Lanka Wijesinghe, Prasanga Siriwardena, Dialog-University of Moratuwa Mobile Communications Research Laboratory; Harsha Purasinghe, Microimage (Pvt.); Sameera Wijerathna, Dialog Axiata	<b>52</b>
3:00pm	OPEN	

<b>1:00 - 3:20 PM</b>	<b>EDUCATION TRACK Paper Presentations- B Level – Federal Room Chair – Ed Perkins</b>	<b>Paper</b>
1:00pm	<b>DEVELOP: Preparing Students and Young Professionals for Humanitarian Challenges through STEM Education and Training with NASA’s DEVELOP Program: Expanding Humanitarian Assistance through Educational Technology</b> Katrina Laygo	<b>189</b>
1:20pm	<b>IEEE-Based Implementation of Engineering Projects in Community Service</b> Kapil Dandekar, Drexel University; Saurabh Sinha; Nana-Ampofo Ampofo-Anti, University of Cape Town	<b>59</b>
1:40pm	<b>Human face of Technology &amp; Deployment, A case of Adult Literacy Program</b> Behram Sethna, Narayana Mandaleeka, Mir Ali, Tata Consultancy Services	<b>82</b>
2:00pm	<b>Empowering Humanitarian Challenges Through Technology – A Case Study in eLearning</b> Sridhar Chimalakonda, IIT-Hyderabad	<b>158</b>
2:20pm	<b>Education Technology for the Developing World</b> Beverly Woolf, Ivon Arroyo, University of Massachusetts; Imran Zaulkernan, American University of Sharjah, UAE	<b>167</b>
2:40pm	<b>Project HOPE Clinical (Biomedical) Engineering Program – Experiences and Initiatives</b> Chris Riha, Carilion Clinic; Roger Dzwonczyk, The Ohio State University	<b>15</b>
3:00pm	<b>Catalyzing Connected Learning Through Standards</b> Tyde Richards; Avron Barr, LETSI.org	<b>147</b>

<b>1:00 - 3:20 PM</b>	<b>HEALTH/CONNECTIVITY TRACK Paper Presentations- 3rd Floor - North Room Chair – Martin Murillo</b>	<b>Paper</b>
1:00pm	<b>A low cost connectivity solution for rural mobile telemedicine</b> Sasi Meethal, Jyothish Jolisa, CDAC	<b>80,174</b>
1:20pm	<b>OPEN</b>	
1:40pm	<b>Software Extensibility Strategies for Health and Demographic Systems in Low-Income Countries</b> Brian Hartsock, University of Southern Maine	<b>114</b>
2:00pm	<b>OPEN</b>	
2:20pm	<b>MIS to assist Community Health Upliftment</b> Keyur Dhaky, Mehernosh Bulsara, Behram Sethna, Tata Consultancy Services Ltd.	<b>86</b>
2:40pm	<b>Design for sustainability: Rural connectivity with Village Operators</b> Kobus Roux, Mario Marais, CSIR Meraka Institute	<b>93</b>
3:00pm	<b>Smart Traffic Controller using Wireless Sensor Network for Dynamic Traffic Routing and Over Speed Detection</b> Vineeth Mohan, Rajesh Kannan Megalingam, Rizwin Shooja, Paul Leons, Ajay Mohanan, Amrita University	<b>102</b>

<b>1:00 - 3:20 PM</b>	<b>X-Track Paper Presentations- 3rd Floor - East Room Sponsored by Engineering For Change (E4C) Chair – Ted Weiler</b>	<b>Paper</b>
1:00 – 2:00pm	<b>Boeing Initiatives</b> Kayode T Ariwodola, Pazion T Cherinet, Boeing	
2:00 – 2:20pm	OPEN	
2:20 – 3:00pm	<b>Imagine Cup</b> Suzi LeVine, Director of Academic Programs for Microsoft Lisa Harper, Imagine Cup Competition	

<b>1:00 - 3:20 PM</b>	<b>Forum Space- 3<sup>rd</sup> Floor – West Room Chair – Ted Weiler</b>
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<b>3:20 – 3:30 PM</b>	<b>Networking Afternoon Break</b>
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<b>3:30 – 5:00 PM</b>	<b>CLOSING PLENARY SESSION Courtyard Ballroom – B Level</b>
<b>3:30 – 4:00 PM</b>	<b>KEYNOTE</b> Mike North, Ph.D.m, Executive Director, <a href="http://reallocate.org">reallocate.org</a>
<b>4:00 – 4:30 PM</b>	<b>Closing Speaker</b> <b>Future of Humanitarian Technology</b> Gordon Day, IEEE 2012 President