DeVry University Online Student Branch, IEEE Columbus Section, PACE, and PES

Present

Humanitarian Engineering Outreach (Haiti, Colombia, Tanzania, USA, and Zambia

Dr. Paul R. Berger

Thursday, October 22, 2020, 7:00 pm CT (8:00 pm ET)

To join: https://ieeemeetings.webex.com/ieeemeetings/j.php?MTID=m8cefbc72b6c4c03a414631b56e3a2087
Meeting number: 130 702 6405
Password: IEEE
Join by phone: 1- 415-655-0002 or toll free: 1-855-282-6330 **Access code: 130 702 6405**

Abstract

During my talk, I will share with you past successes and obstacles, as well as upcoming challenges with current/new humanitarian engineering projects. After a 6-year presence in Haiti, installing solar power at remote schools under an alternative Spring Break, Ohio State students through Solar Education and Outreach (SolarEO) were without a solar-powered humanitarian engineering opportunity. After 3-years and tremendous effort and planning, two new humanitarian engineering projects emerged: (1) Solar Engineering Service-Learning in Tanzania, with Ohio State students; and (2) Towards a Smart Village through solar-powered desalinization for the indigenous Wayúu peoples living in the Guajira peninsula desert, with Universidad del Norte in Barranquilla, Colombia. The first iteration of the Tanzania project was successfully completed at an Arusha orphanage in May 2019, and the pandemic blocked our trip in May 2020 to power the orphanage's new farm. The Colombia project is moving along with most parts having arrived, but the pandemic is delaying its assembly, testing and move to the final site location. A new humanitarian engineering project, The Urban Garden at Milo-Grogan, has now begun, targeted to provide fresh produce and local stakeholder jobs in Columbus' Milo-Grogan food desert. Student volunteers are being assembled for the design, build and installation of a control system to remotely run LED grow lights and hydroponics pumps. Lastly, a new project in Zambia is being proposed by our team with IEEE Smart Village that seeks to transcend past projects. Instead of just providing solar-powered electricity, what value-added benefit can be gained by using that electricity to drive a sustainable business? If this project takes flight, I will again be seeking local area students to design, build and test a low-cost solution to remotely evaluating gemstone quality.

Speaker's Bio

Paul R. Berger (S'84 M'91 SM'97 F'11) is a Professor in Electrical & Computer Engineering at Ohio State University and Physics (by Courtesy). He is also a Distinguished Visiting Professor at Tampere University in Finland. He received the B.S.E. in engineering physics, and the M.S.E. and Ph.D. (1990) in electrical engineering, respectively, all from the University of Michigan, Ann Arbor. Currently, Dr. Berger is actively working on quantum tunneling devices, printable semiconductor devices & circuits for IoT, bioelectronics,

novel devices, novel semiconductors and applied physics.

Formerly, he worked at Bell Laboratories, Murray Hill, NJ (1990-'92) and taught at the University of Delaware in Electrical and Computer Engineering (1992-2000). In 1999, Prof. Berger took a sabbatical leave while working first at the Max-Planck Institute for Polymer Research, Mainz, Germany and then moved on to Cambridge Display Technology, Ltd., Cambridge, United Kingdom. In 2008, Prof. Berger spent an extended sabbatical leave at IMEC (Interuniversity Microelectronics Center) in Leuven, Belgium while appointed as a Visiting Professor in the Department of Metallurgy and Materials Engineering, Katholieke Universiteit Leuven, Belgium. Prof. Berger was also a Finnish Distinguished Professor (FiDiPro) at Tampere University of Technology (2014-2019), and he continues as a Fulbright-Nokia Distinguished Chair in Information and Communications Technologies (2020-2022) with the newly merged Tampere University.

He has authored over 240 refereed publications and presentations with another ~100 plenary, keynote, invited talks, 5 book sections and been issued 25 patents with 3 more pending from 60+ disclosures with a Google Scholar H-index of 35. Some notable recognitions for Dr. Berger were an NSF CAREER Award (1996), a DARPA ULTRA Sustained Excellence Award (1998), Lumley Research Awards (2006, 2011), a Faculty Diversity Excellence Award (2009) and Outstanding Engineering Educator for State of Ohio (2014). He has been on the Program and Advisory Committees of numerous conferences, including the IEDM, DRC, ISDRS, EDTM and IFETC meetings. He will be hosting the IFETC in '21 as General Chair. He currently is the Chair of the Columbus IEEE EDS/Photonics Chapter and Faculty Advisor to Ohio State's IEEE Student Chapter. In addition, he is an elected member-at-large to the IEEE EDS Board of Governors (19'-21'), where he is also Vice President of Strategic Directions (20'-21') and a member of the EDS Finance Committee.

He is an IEEE EDS Fellow (2011) and Distinguished Lecturer (since 2011), as well as a Senior member of the Optical Society of America. He has received $9.9M in USA funding as lead PI, with an additional $26M as Co-PI in USA and €8.8M in funding through his Finnish partnerships. Altogether, he has received ~$47.5M in research funding.