

# Khanjan Mehta

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Personal Website: <http://www.personal.psu.edu/krm209/blogs/home/>

**PROFESSIONAL INTERESTS:** International Social Entrepreneurship, Innovative System Integration, High-tech Entrepreneurship, Design for Extreme Affordability, Systems Thinking, Indigenous Knowledge, Social Networks, Educational Assessment, Relationships between Cellphones, Social Capital and Trust

I love connecting concepts, people, computers and devices. A basic philosophy behind my work is the convergence of disciplines, concepts, cultures, and countries to create a freer, friendlier, fairer and more sustainable planet. Towards that goal, I have built a strong entrepreneurial ecosystem in East Africa that includes several communities, government entities, UN agencies, industry partners, microenterprises, non-profits, community organizations, funding agencies and faith-based organizations.

## EDUCATION

2003	M.S. in Electrical Engineering, The Pennsylvania State University
2001	B.E. in Electronics Engineering, University of Mumbai, India
1998	Diploma in Industrial Electronics, MSBTE, Mumbai, India

## APPOINTMENTS

Since Jan 2011	Director, Humanitarian Engineering and Social Entrepreneurship (HESE) Program
Since Oct 2013	Assistant Professor, Engineering Design
2011-2012	Instructor, Engineering Design
2007-2010	Senior Research Associate, ECS, College of Engineering, Penn State Affiliate Faculty, SEDTAPP
2004 – 2006	Senior Research Support Associate, College of Engineering

## HONORS AND AWARDS

2013	W.K. Kellogg Foundation Engagement Award (Northeast Region), Association of Public and Land-Grant Universities (APLU)
2013	Community Engagement and Scholarship Award, Penn State University
2012	Engineering Diversity Award, Penn State University
2011	Outstanding Specialty Entrepreneurship Program Award, US Association for Small

	Business and Entrepreneurship (USASBE)
2010	HESE named one of 30 “Awesome Labs Across America” by Popular Mechanics
2010	Lawrence J. Perez Memorial Student Advocate Award, Penn State University
2009	Ideablob Innovation in Teaching Entrepreneurship Award, Advanta
2008	W. LaMarr Kopp International Achievement Award, Penn State
2006	One of two US delegates invited by UNESCO & Engineers for a Sustainable World to help establish an international ESW organization
2001	J N Tata Endowment Fellowship for the higher education of Indians

## Scholarship of Teaching and Learning

### Courses Taught

- WMNST 497A: Social Entrepreneurship in Tanzania (Course co-developer)
- EE403W: Electrical Engineering Capstone Design
- EE310: Electronic Circuit Design (Summer 2004; SRTEs: Course – 5.00; Instructor: 5.47)
- LabVIEW Basics I & II (non-credit 40-hour workshop)

### Courses and Curricula Developed

Developed a number of courses related to Humanitarian Engineering and Social Entrepreneurship. These courses offer an intense and rigorous integrated learning, research and entrepreneurial engagement experience. These courses are organized by way of the eplum model of student engagement that engages students and faculty in various formal and informal ways from the sub-credit to multi-credit level. For example, in Spring 2012, approximately 300 students across twelve different courses directly participated in several HESE ventures. Comprehensive assessment instruments that involve quantitative as well as qualitative methods (including on-the-ground observations) have been developed and employed in collaboration with the Leonhard Center. The instruments focus on global awareness and engagement, multi-disciplinary teamwork and entrepreneurial mindset development. They have moderately high reliability and validate the educational gains made by students on all three sub-scales in HESE classes.

### ENGR 451 [3]: Social Entrepreneurship

Website: <https://sites.google.com/site/edsgnsoceship/>

This course provides students a conceptual framework of social entrepreneurship in the global arena. It explores social challenges and solutions with a systems thinking approach. Students work in multi-disciplinary teams to develop business models and implementation strategies for real social ventures in the United States, Africa, South Asia and Central America.

### EDSGN 452 [2]: Projects in Humanitarian Engineering

Students undertake technology-based social entrepreneurial ventures in cooperation with partnering academic and community organizations. Students work in cross-functional teams on the various design, testing and commercialization / implementation aspects of their ventures.

### EDSGN 453 [1]: Design for Developing Communities

Website: <https://sites.google.com/site/edsgn497h/>

The Design for Developing Communities seminar course grounds students in EDSGN 452, BIOE 401, and other related courses in the basics of humanitarian design, user-centered design for extreme affordability, social entrepreneurship, systems thinking, travel and fieldwork, and related issues for technology-based social ventures in developing communities. An honors section of this class is also offered.

### **EDSGN 454 [0.5]: HESE Field Experience**

The HESE Field Experience is a hands-on integrated learning, research and entrepreneurial engagement experience for students that have been working on various HESE ventures in the Spring semester. Students travel to project site(s) for about three weeks in the Maymester to conduct field-testing of their technologies, test their preliminary business models, gather data for their research projects, etc.

### **ENGR 455 [3]: HESE Reflection and Research Dissemination**

Website: <https://sites.google.com/site/heserrd/home>

This course provides students an opportunity to reflect and build upon their experiences following travel to a partnering community to advance their HESE venture. There are three intertwined tracks in this course, focused on ethical decision-making, grassroots diplomacy, and research dissemination.

### **EDSGN 497EF: Sensor and Controller System Integration**

Website: [www.scsi.weebly.com](http://www.scsi.weebly.com)

This course promotes innovation and high-tech entrepreneurship by bringing together students from various disciplines across campus to rapidly integrate proof-of-concept systems for innovative products and services. The course has been offered five times with over 100 students from thirty six disciplines across eight colleges signing up for the course. Over ten entrepreneurial ventures that have received external seed funds owe their genesis to this course.

### **Co-Director, Global Health Scholars Program (GHSP) – Kenya, Hershey College of Medicine**

The focus of the Global Health Scholars Program (GHSP) is to produce measurable and sustainable improvements in the health of residents in a specific, underserved community. The program uses participatory and evidence-based approaches to develop, implement and evaluate health initiatives in the host community. This four-year program provides a structured and evaluated entrepreneurial engagement opportunity for students and faculty. I developed the Kenya site in 2011 and serve as the Co-Director along with Dr. Stephanie Ashbaugh, Resident Physician at the Hershey COM. Typically, 3-4 medicine students are accepted into the program every year after a very competitive review process. This is a for-credit academic effort for the medicine students and is also tied to their Medical Student Research (MSR) requirements.

### **Co-curricular and Extra-curricular Engagement Programs Developed**

- **(Annual) Invention 2 Venture workshop** [www.engr.psu.edu/i2v](http://www.engr.psu.edu/i2v): (Role: Host and Organizer): One day workshop on the basics of technology entrepreneurship hosted every year from 2007 – 2011. The mean attendance for the events is about 160 individuals and the budget varies between \$12,000 and \$24,000. Sponsors include various colleges, NCIIA, Ben Franklin Technology Partnerships, and RatnerPrestia.
- **Global Milking the Rhino - Innovative Solutions Showcase** <http://mtrsolutions.weebly.com/>: (Role: Originator and organizer) Student teams conceptualize innovative and sustainable solutions that leverage natural resources for self-determined development in Africa. Three-minute video pitches are refereed by an expert panel to win over \$4,500 in cash awards. Coordinated with faculty in the EDSGN 100 classes to integrate the competition in the class. Showcase held every year from 2009-2012.

### **Engaged Scholarship (Service)**

#### **Global HESE Ventures with Real-World Impact**

(All of these initiatives are venture frameworks rather than specific projects. In other words, they have sub-projects that are independent endeavors. E.g. Mashavu encapsulates all the primary health related

ventures, iSPACES encapsulates the science education and democratic design related ventures and so forth. The ventures are tightly integrated with HESE courses and the research agenda.)

- **Mashavu: Networked Health Solutions:** (Kenya, Role: PI; Ongoing) ([www.mashavu.com](http://www.mashavu.com)) Design and Commercialization of an appropriate telemedicine system in East Africa. Collaborators include Safaricom, United Nations Industrial Development Office (UNIDO) and Children and Youth Empowerment Center (CYEC), Kenya. Mashavu currently has six social franchisees in Central Kenya and has a completely sustainable technology and business model.
- **Affordable Greenhouses (Kenya, Rwanda, Cameroon, Sierra Leone):** (Role: PI; Ongoing): (<https://sites.google.com/site/affordablegreenhousedesign/home>) Affordable Greenhouses designed for small agro-enterprises and sustenance farmers to improve their livelihoods while reducing spoilage and furthering food security. The greenhouses have been licensed to a for-profit company called Mavuuno Greenhouses (<http://www.mavuunogreenhouses.com/>) based in Nairobi, Kenya for the East African Market and the Greenhouse Center in Cameroon. NDAs have been signed, or field-testing is in progress, in Sierra Leone and Madagascar.
- **EssentialDesign: Affordable Technologies** (Kenya, Role: PI; Ongoing) EssentialDesign projects focus on the development of affordable infrastructure technologies. These include projects related to housing, water and wastewater systems, energy, and agricultural systems. Current ventures focus on food value chains and include low-cost solar food dryers, domestic rainwater harvesting systems and ceramic water filters.
- **WishVast: Building Trust and Social Capital using Cellphones:** (Role: PI; Ongoing): (<http://sites.google.com/site/thewishvastproject/Home>) WishVast attempts to harness the pervasiveness of cellphones in developing countries to build trust and optimize resource utilization & supply chains to facilitate people to people trade with the ultimate goal of alleviating poverty. A variant of the WishVast system, PeopleFirst Tourism is currently being used by thousands of individuals across North Carolina, Brazil and Kenya. (<https://www.peoplefirsttourism.com/>)
- **iSPACES: Rethinking Science Education in Tanzania:** (Role: PI; Suspended): (<https://sites.google.com/site/psuispaces/>) The iSPACES venture, based in Tanzania, focuses on the development of a science education program based on the tenets of science, systems and entrepreneurship. An integral aspect of this program is the design of an affordable and sustainable Innovation Space where people from various walks of life can converge to rapidly prototype innovative products that meet their unique needs and preferences.
- **Prerana: Rural Supply Chains + Educational Systems to Empower Women (India)** (Role: PI; Suspended) Prerana leverages opportunities for social innovation that emerge at the dynamic intersection of informal education systems and rural supply chains in the developing world. This multi-level information and communication technology (ICT) platform can be used to facilitate iterative learning where the knowledge emanates from the participants and their indigenous ways of knowing and doing.
- **Wind powered energy production and enterprise setup** (2004-2007): (Role: PI) Designed an appropriate windmill based hybrid power system and proved business model to ensure economic sustainability. UNIDO subsequently built on this project and launched a major program called “Lighting Up Kenya” which has setup about 10 energy kiosks in Kenya.

## SELECTED GRANTS

(Grants under \$10,000 excluded)

**"HESE Affordable Greenhouses for Improved Livelihoods"** USAID Development Innovation Ventures (DIV) Program, \$600,000, Role: PI (Submitted)

**"iKARE: innovative Knowledge to Action, Resilience, and Entrepreneurship,"** USAID - HESN, Penn State Proposal was a Finalist (45/550 proposals); \$10,000,000, Role: Co-PI (Declined)

**"Sustainable Vision Connect,"** USAID - HESN, NCIIA-led Consortium Proposal was a Finalist (45/550 proposals); \$23,000,000; Role: Co-PI (Submitted)

**"Affordable Greenhouses: Improving Livelihoods while Fostering Food Security and Sustainability"**, EPA P3 Grant Program, Aug 2012 - Aug 2013, \$15,000, Role: PI (Credit: 100%)

**"Affordable Greenhouses: Means for Improved Livelihoods and Food Security"**, NCIIA Sustainable Vision Grant Program, Feb 2012 – Aug 2014, \$39,850, Role: PI (Credit: 100%)

**"The Secret Life of Public Spaces"**, Creative Campus Grant Initiative, Doris Duke Foundation, Jan 2011 - April 2012, \$251,000, Role: Co-Investigator (Interdisciplinary team with faculty from Architecture, Landscape Architecture, Engineering, Dance and Performing Arts) (Credit: 10%)

**"Mashavu: Networked Health Solutions for the Developing World"**, NCIIA Sustainable Vision Grant Program, Feb 2009 – Jan 2013, \$46,850, National Instruments Equipment Grant, \$10,000, Numerous small grants, Role: Principal Investigator (Credit: 100%)

**"Global Milking the Rhino - Innovative Solutions Showcase,"** August 2011- August 2013, Marjorie Grant Whiting Endowment, NCIIA, Johnson & Johnson, etc, \$30,000.00, Role: Principal Investigator (Credit: 100%)

**"Social Entrepreneurship Course Development"**, NCIIA Course Grant, Apr 2010 – Jun 2013, \$10,000 planning grant + \$29,000 Course Grant, Role: Principal Investigator (Credit: 100%)

**"Assessment of the eplum model of student engagement"**, Schreyer Institute for Teaching Excellence (SITE), Penn State, Jan 2009 – Aug 2010, \$15,709, Role: PI (Credit: 100%)

**"How Well-Networked Are Rural Women Agro-Entrepreneurs in Northern Tanzania? A Social Network Analysis Pilot Project"**, Social Science Research Institute, Penn State University, \$14,520, Role: Co-Investigator (PI: Ladi Semali, Education; Other Investigators: Audrey Maretzki, Jill Findeis) (Credit: 25%)

**"From Research Lab to Product: Lab Automation Course to Enable Rapid Product Development"**, NCIIA, Course and Program Development Grant to support "Sensor and Controller System Integration" Course, Oct 2006 – Apr 2009, \$25,000, Role: Principal Investigator (Credit: 100%)

**"Sensor and Controller System Integration"** course equipment grant, National Instruments, \$30,000 (equipment) in October 2006, \$15,000 in Sept 2012, Role: Principal Investigator (Credit: 100%)

**"Design and Construction of a Hybrid Energy System in Kenya: The Precursor to a Manufacturing Capability"**, National Collegiate Inventors and Innovators Alliance (NCIIA), Advanced E-Team grant, March 2006 – Sept 2007, \$12,000, Role: Principal Investigator (Credit: 100%)

## SELECTED CONTRACTS

**“Control software for the Fiber Instrument Feed for the Medium Resolution Spectroscope at the Hobby Eberly Telescope”**, Department of Astronomy and Astrophysics, Penn State University, 2005-2006, \$22,336, Role: Principal Investigator (Credit: 100%)

**“Roof Support Simulator for a long wall mine roof support control system”**, United Mining Equipment, 2005, \$4,000, Role: Principal Investigator (Credit: 100%)

**“Design of an ultra-low noise analog multiplexer and peak detector card for ultrasound transducers”**, SecondWave Systems, Ultran Group, 2004-2005, \$65,000, Role: Principal Investigator (Credit: 100%)

**“Spectrometer Data Acquisition and Analysis Suite to detect harmful bacteria in blood”**, APD Life Sciences, 2003, \$3,000, Role: Principal Investigator (Credit: 100%)

**“LabVIEW & FPGA Software Development for SmartResistor - Electronic Resistance Standard”**, Ohm Labs, 2002-2007, \$45,000, Role: Co-Investigator (Credit: 50%)

## PUBLICATIONS

### Books

**“The Kochia Chronicles: Systemic Challenges and the Foundations of Social Innovation”**: The Kochia Chronicles are a series of creative non-fiction stories (Avg Length: 10,000 words) about the inhabitants of Kochia, a rural area in western Kenya. These stories offer readers a glimpse of life, problems and innovations in developing communities in the backdrop of the rapidly evolving political, social, economic, technological and global context. They immerse readers in the intricacies and dynamic relationships between development, technology, business and everyday life while showcasing and celebrating the people’s ingenuity, innovation and resilience.

First Set (Focus on Systemic Challenges; 90,000 Words): Published August 2013

Second Set (Focus on Design and Business Strategy): Manuscript under Development

Third Set (Focus on Community Health Interventions): Field Research in Progress

Role: Sole Author for all the stories and books. Translators and sketch artists employed in Kenya.

### Careers in Social Innovation for STEM Professionals

This book provides a comprehensive overview of non-traditional career paths for STEM professionals that focus on social value creation. A significant portion of the book is devoted to 3-5 page profiles of individuals who are pursuing non-traditional career paths in a variety of organizations including, but not limited to, large non-profits, industry, startups, governments and the military. The book is slated for completion in July 2014.

Role: Sole Author and Editor. Three undergraduate students helping with data aggregation.

### Edited Volumes

David Uhler, Khanjan Mehta, Jennifer L. Wong (Eds.): Mobile Computing, Applications, and Services - 4th International Conference, MobiCASE 2012, Seattle, WA, USA, October 11-12, 2012. Revised Selected Papers. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering 110, Springer 2013, ISBN 978-3-642-36631-4

## Book Chapters

2. Mehta, K., "The Philosophy and Praxis of Convergence to Shape an Emergent High-Impact Learning Through Service Program", in *Convergence: Philosophies and Pedagogies for Developing the Next Generation of Humanitarian Engineers and Social Entrepreneurs*, Ed. T. Colledge, IJSLE & NCIIA, 2012, pp. 114-144

1. Morais, D. B., Heath, E., Tlhagale, M., Payton, F. C., Martin, K., Mehta, K., and Bass, J. "People-First Tourism," in Eduardo Fayos-solà (ed.) *Knowledge Management in Tourism: Policy and Governance Applications (Bridging Tourism Theory and Practice, Volume 4)*, Emerald Group Publishing Limited, pp.115-128

## Refereed Journal Articles

(\*: Undergraduate student supervised by candidate; \*\*Graduate student supervised by candidate)  
(Over 25 more journal articles are under development and are excluded from this list)

48. \*\*Freiberg, M., Onyango, N., Ashbaugh, S., Mehta, K., "**Chronic Diseases in Nyeri, Kenya: a Qualitative Study of Knowledge and Perceptions**" *Global health Science Practice* (In Preparation)

47. \*\*Irwin, T., Ashbaugh, S., Mehta, K., "**Knowledge and Perceptions of Diabetes among Community Health Workers in Nyeri, Kenya**" *Global health Science Practice* (In Preparation)

46. \*Riley, A., \*Krisher, S., Mehta, K., "**Potential Applications for a Breathalyzer in the Developing World Context**" (In Preparation)

45. \*Patil, R., Nassar, A., Mehta, K., "**From Products to Ensembles: Integrated Design Approach for Technology Ventures in Developing Countries**" *Journal of Engineering Design* (In Preparation)

44. \*Gilliam, J., Nassar, A., Mehta, K., "**Failure Modes of Agricultural Technology Ventures in Developing Countries**" (In Preparation)

43. \*\*Marinari, K., Erickson, J., Mehta, K., "**Legal Considerations for Technology Ventures in Developing Countries**" (In Preparation)

42. \*Carey, K., \*Kinney, J., Nassar, A., Mehta, K., "**Chang'aa Culture and Process: Detecting Contamination in a Killer Brew**" *Addiction* (Under Review)

41. \*Stokes, E., \*Lauff, C., \*Eldridge, E., Nassar, A., Mehta, K., "**Income Generation Activities of Rural Kenyan Women**" *Journal of Gender and Entrepreneurship* (Under Review)

40. \*Sundin, P., \*Callan, J., Mehta, K., "**Why do Entrepreneurial mHealth Ventures in the Developing World Fail to Scale?**" *Telemedicine and eHealth* (Under Review)

39. \*Patel, S., Mehta, K., "**Systems, Design, and Entrepreneurial Thinking: Comparative Frameworks**," *The Design Journal* (Under Review)

38. \*Ranslow, A., \*Crompton, D., Mehta, K., Butler, P., Adair, J., "**Empowering Community Health Workers**

- With Inkjet-Printed Diagnostic Test Strips,"** ASME Engineering for Global Development Review (Under Review)
37. \*Pustay, D., Munyua, P., Mehta, K., "**Strategies to Support Non-communicable Disease Interventions: A Case Study,**" Global Health Promotion (Under Review)
36. \*Baskaran, S., \*Chen, M., \*\*Mouakkad, S., Mehta, K., "**Indigenous Narratives on Innovation,**" Technovation (Under Review)
35. \*Zang, R., \*Robinson, M., \*Jeong, S., \*\*Suffian, S., Mehta, K., "**A Typology of Revenue Models for Community Health Worker Programs,**" Telemedicine and E-Health (Under Review)
34. \*Lissenden, J., \*Maley, S., Mehta, K., "**An Era of Appropriate Technology: Evolutions, Oversights and Opportunities,**" Journal of Humanitarian Engineering (Accepted pending revisions)
33. \*\*Hansen, K., \*\*Kim, J., \*\*Suffian, S., Mehta, K., "**Leveraging Informal Lending Mechanisms to Facilitate Technology Transfer and Microenterprises in Developing Countries,**" Technology in Society, (Under Review)
32. \*\*Suffian, S., \*\*Lackey, J., \*Dzombak, R., Mehta, K. "**Telemedicine for Preventive Healthcare: Lessons from a Pilot Study in Rural Kenya,**" Journal of Humanitarian Engineering (Under Review)
31. \*Dzombak, R., Butler, P., Mehta, K., "**An Example-Centric Tool for Context-Driven Design of Biomedical Devices,**" Advances in Engineering Education (Accepted pending revisions)
30. \*Dzombak, R., \*\*Mouakkad, S., Mehta, K., "**Motivations of Women Participating in a Technology-Based Social Entrepreneurship Program,**" Advances in Engineering Education (Accepted pending minor revisions)
29. Mehta, K., Zappe, S., Brannon, M., Zhao, Y., "**An Educational and Entrepreneurial Ecosystem to Actualize Technology-Based Social Ventures**", Special Issue of Advances in Engineering Education on Engineering Entrepreneurship Education (Accepted pending minor revisions)
28. \*Zankowski, J., \*Sun, Y., Nassar, A., Mehta, K., "**Gutter Design and Business Development for Domestic Rainwater Harvesting Systems**" International Journal for Service Learning in Engineering: Humanitarian Engineering and Social Entrepreneurship (Under Review)
27. \*Krisher, S., \*Riley, A., Mehta, K., "**Designing Breathalyser Technology For the Developing World: How A Single Breath Can Fight the Double Disease Burden,**" Journal of Medical Engineering and Technology, Vol. 38, No. 3: 156–163, April 2014
26. \*Patel, S., \*Maley, S., Mehta, K., "**Appropriate Technologies in the Globalized World: FAQs,**" IEEE Technology and Society Magazine, Vol. 33, No. 1, pp. 19 – 26, Spring 2014
25. Nyana, S., Mehta, K., Marezki, A., "**The Use of Social Media Technologies to Create, Preserve, and Disseminate Indigenous Knowledge and Skills to Communities in East Africa,**" International Journal of Communication, Vol 8, pp. 234-247, 2014



24. \*Dzombak, R., \*\*Mehta, C., Mehta, K., Bilen, S. **"The Relevance of Systems Thinking Tenets in the Quest for Multifinal Social Enterprises,"** Systemic Practice and Action Research, 2013
23. \*\*Suffian, S., \*De Reus, A., \*Eckard, C., \*Copley, A., Mehta, K., **"Agricultural Technology Commercialization: Stakeholders, Business Models and Abiotic Stressors: Part 2,"** International Journal of Social Entrepreneurship and Innovation, Vol. 2. No. 6, pp. 561 – 577, 2013
22. \*\*Suffian, S., \*De Reus, A., \*Eckard, C., \*Copley, A., Mehta, K., **"Agricultural Technology Commercialization: Stakeholders, Business Models and Abiotic Stressors: Part 1,"** International Journal of Social Entrepreneurship and Innovation, Vol. 2. No. 5, pp. 415 – 437, 2013
21. \*Henry, M., \*Maley, S., Mehta, K., **"Designing a Low-Cost Ceramic Water Filter Press,"** International Journal for Service Learning in Engineering: Humanitarian Engineering and Social Entrepreneurship, Vol 8, No. 1, pp. 62-77, 2013
20. \*Mathern, R., \*Schopman, S., \*Kalchthaler, K., Mehta, K., Butler, P., **"Design of Affordable and Ruggedized Biomedical Devices Using Virtual Instrumentation,"** Journal of Medical Engineering & Technology, Vol 37, No. 4, pp. 237-251, 2013
19. \*Schopman, S., \*Kalchthaler, K., \*Mathern, R., Mehta, K., Butler, P., **"Ruggedizing Biomedical Devices for Field-Testing in Resource-Constrained Environments: Context, Issues and Solutions,"** Journal of Humanitarian Engineering, Vol. 2, No. 1, pp. 17-25, 2013
18. Mehta, K., \*Dzombak, R., **"Ethical Decision-Making and Grassroots Diplomacy for Social Entrepreneurs: Concepts, Methodologies and Cases,"** International Journal of Social Entrepreneurship and Innovation, Vol. 2, No. 3, pp. 203 – 224, 2013
17. \*Dzombak, R., Mehta, K. **"Scholarly Advances in Humanitarian Engineering and Social Entrepreneurship: A Typology of Research Publications."** International Journal for Service Learning in Engineering: Humanitarian Engineering and Social Entrepreneurship, Special Edition, pp. 98-116, Fall 2013
16. \*Qin, R., \*Dzombak, R., \*Amin, R., Mehta, K., **"Reliability of a Telemedicine System Designed for Rural Kenya",** Journal of Primary Care and Community Health, Vol 4, No. 3, pp. 177-181, 2013
15. \*\*Francis, A., \*\*Nasser, A., Mehta, K., **"Are we formal yet? The evolving role of informal lending to support entrepreneurship and poverty alleviation in central Kenya,"** International Journal of Social Entrepreneurship and Innovation, Vol 2, No. 2, pp. 109-129, 2013
14. Mehta, K., Alter, T., Semali, L., Marezki, A., **"AcademIK Connections: Bringing Indigenous Knowledge and Perspectives into the Classroom,"** Journal of Community Engagement and Scholarship, Vol. 6, No. 2, pp. 83-91, 2013
13. \*Chen, S., \*Cheng, A., Mehta, K., **"A Review of Telemedicine Business Models",** Telemedicine and e-Health, Vol 19, No. 4, pp 287-297, 2013
12. \*\*Smith, S., \*\*Ludwig, T., Chinchilli, V., Mehta, K., Stoute, J., **"Use of Telemedicine to Diagnose Tinea in Kenyan Schoolchildren,"** Telemedicine and e-Health, Vol 19, No. 3, pp 166-168, 2013

11. **\*\*Buehler, B., \*Ruggiero, R., Mehta, K., "Empowering Community Health Workers with Technology Solutions"**, IEEE Technology & Society Magazine, Vol 32, No. 1, pp 44-52, 2013
10. **\*\*Sulewski, T., \*Dzombak, R., \*Bell, C., Mehta, K., "Systemic and Systematic Assessment Methodology for Technology-Based Social Enterprises"**, International Journal for Service Learning in Engineering: Humanitarian Engineering and Social Entrepreneurship, Volume 7, No. 2, 2012
9. Semali, L., Mehta, K., **"Science Education in Tanzania: Challenges and Policy Responses"**, International Journal of Educational Research, Vol 53, Pages 225-239, 2012
8. **\*Bell, C., \*Dzombak, R., \*\*Sulewski, T., Mehta, K., "Preparing and Complying with Institutional Review Board Protocols for Integrated Research and Entrepreneurship Ventures in Developing Countries"**, Journal of Ethics and Entrepreneurship, Vol. 2, No. 1, 2012
7. **\*Patel, S., Mehta, K., "Life's Principles as a guiding philosophy for Social Enterprises"**, Journal of Social Entrepreneurship, Vol. 2, No. 2, 2011
6. Mehta, K., Semali, L., Marezki, A., **"Trust, Cellphones, Social Networks and Agricultural Entrepreneurship in East Africa: A Dynamic Interdependence"**, African Journal of Food, Agriculture, Nutrition and Development, Vol. 11, No. 6, 2011
5. Mehta, K., Marezki, A., Semali, L., **"The Primacy of Trust in the Livelihoods and Social Networks of Women Agro-entrepreneurs in Northern Tanzania"**, African Journal of Food, Agriculture, Nutrition and Development, Vol. 11, No. 6, 2011
4. **\*Brown, A., \*Garguilo, S., Mehta, K., "The Relentless Pursuit of Financial Capital for Micro-enterprises: Importance of Trust and Social Capital"**. International Journal for Service Learning in Engineering, Vol. 6, No. 2), 2011, pp 78 - 97
3. **\*\*Mehta, C., Mehta, K., "A Design Space and Business Strategy Exploration Tool for Infrastructure-Based Ventures in Developing Communities"**, International Journal for Service Learning in Engineering, Vol. 6, No. 2, 2011
2. **\*Garguilo, S., \*Prindible, M., Okello, A., Mehta, K., "Labor hiring practices and produce supply chains in rural Kenya: the case for WishVast networking"**, International Journal for Service Learning in Engineering: Humanitarian Engineering and Social Entrepreneurship, Vol 5, No 1, 2010
1. **\*Fleishman, A., \*Wittig, J., \*Milnes, J., \*Baxter, A., \*Moreau, J., Mehta, K., "Validation Process for a Social Entrepreneurial Venture in Tanzania: A Case Study"**, International Journal for Service Learning in Engineering: Humanitarian Engineering and Social Entrepreneurship, Vol 5, No 1, 2010

### **Peer-Reviewed Conference Proceedings**

(\*: Undergraduate student supervised by candidate; \*\*Graduate student supervised by candidate)

35. \*Warkulwiz, G., \*Paul, L., Mehta, K., " **Efficacy of Brief Health Education Interactions in Busy Marketplaces,**" IEEE Global Humanitarian Technology Conference, San Jose, CA October 2014 (Under Review)
34. \*\*Trause, D., \*Peterson, S., \*Doty, N., \*Liguori, A., \*\*Holmes, K., Kanzleiter, L., Mehta, K., " **The Diverse Roles of Community Health Workers: Cues for Technology Innovations,**" Humanitarian Technology: Science, Systems and Global Impact Conference, Boston, May 2014
33. \*Paul, L., \*Warkulwiz, G., Nassar, A., Mehta, K., " **Importance of Interactive Small Group Discussions to Educate Community Health Workers,**" Humanitarian Technology: Science, Systems and Global Impact Conference, Boston, May 2014
32. \*\*Holmes, K., \*\*Suffian, A., \*\*Lackey, J., Mehta, K., " **Pilot Results of a Health Social Franchise in Kenya: Early Evidence of Sustainable Livelihood Creation,**" Humanitarian Technology: Science, Systems and Global Impact Conference, Boston, May 2014
31. \*Gilliam, J., Nassar, A., Mehta, K., " **Failure Modes for Agricultural Technology Ventures in Developing Countries,**" NCIIA Annual Meeting, San Jose, CA, March 2014
30. Brock, D., Steiner, S., Mehta, K., " **Harnessing the Power of Field-Validated Business Models to Achieve Social Impact in Technology-Based Social Ventures,**" USASBE Annual Conference, Forth Worth, TX, January 2014
29. \*\*Bajpai, K., Larson, J., Mehta, K., " **Like a Hustler: Aligning Intervention Design with Informal Labor Practices,**" Sixth International Conference on Information and Communication Technologies and Development (ICT4D), Cape Town, South Africa, December 2013
28. \*Ghen, M., \*Shovlin, A., Simpson, P., Mehta, K., " **Challenges to Medical Data Digitization in Low-Resource Contexts,**" IEEE Global Humanitarian Technology Conference, San Jose, CA October 2013
27. \*Johnstone, J., \*Bacik, B., \*Burke, S., Dzombak, R., Mehta, K., " **Design of a Low-Cost Dermoscope for Resource-Poor Settings,**" IEEE Global Humanitarian Technology Conference, San Jose, CA October 2013
26. \*Bement, S., Nassar, A., Mehta, K., " **The Feasibility of Rice Bags as a Low-Cost and Locally-Available Alternative to Greenhouse Glazing,**" IEEE Global Humanitarian Technology Conference, San Jose, CA October 2013
25. \*Zankowski, J., \*Sun, Y., \*Poon, C., \*Passauer, E., Nassar, A., Mehta, K., " **Gutter Design and Selection for Roof Rainwater Catchment Systems,**" IEEE Global Humanitarian Technology Conference, San Jose, CA October 2013
24. \*Dzombak, R., \*\*Mehta, C., Mehta, K., Bilen, S. " **The Praxis of Systems Thinking for Concurrent Design Space and Business Strategy Exploration,**" Global Humanitarian Engineering Conference, October 2013
23. \*Maley, S., \*Perez, A., \*Mehta, K., " **The Significance of Implementation Strategy for Scaling-Up Base of Pyramid Ventures,**" NCIIA Annual Meeting, Washington DC, March 2013

22. \*Copley, A., \*Eckard, C., \*DeReus, A., Mehta, K., **“Business Strategies for Agricultural Technology Commercialization,”** NCIIA Annual Meeting, Washington DC, March 2013
21. \*Pack, M., Mehta, K., **“Democratizing Design Through The Use of Lego-Inspired Universal Connectors,”** IEEE Global Humanitarian Technology Conference, Seattle, Washington, Oct 2012
20. \*Cheng, A., \*Sinha, A., \*\*Shen, J., \*\*Mouakkad, S., \*Joseph, L., Mehta, K., **“Opportunities for Social Innovation at the Intersection of ICT Education and Rural Supply Chains”** IEEE Global Humanitarian Technology Conference, Seattle, Washington, Oct 2012
19. \*Pack, M., Mehta, K., **“Design of Affordable Greenhouses for East Africa,”** IEEE Global Humanitarian Technology Conference, Seattle, Washington, Oct 2012
18. \*\*Hatzell, K., \*\*Hatzell, M., \*Pack, M., \*Hatzell, J., \*Patel, S., \*\*Sulewski, T., Freeman, A., Mehta, K., **“Overview of the First Year of an Innovative Science Education and Entrepreneurship Venture”**, American Society of Engineering Education (ASEE) Annual Conference, San Antonio, Texas, June 2012
17. \*Baskaran, S., \*\*Malekar, G., Mehta, K. **“The Global Jugaad Commons: Cross-pollinating Concepts across Cultures”**, NCIIA Annual Meeting, San Francisco, March 2012
16. \*Dzombak, R., Mehta, K., Butler, P., **“Design by Example: A Web-based Tool for Context-Driven Biomedical Device Design,”** NCIIA Annual Meeting, San Francisco, March 2012
15. \*\*Grzybowski, A., \*\*Mathias, B., Mehta, K., **“When Participatory Research and Business Strategy Collide: Lessons from Base-of-Pyramid Ventures,”** NCIIA Annual Conference, San Francisco, March 2012
14. \*\*Bajpai, K., Larson, J., Mehta, K., **“Transience, Mobile Telephony and Place Creation,”** M4D 2012 - 3rd International Conference on Mobile Communication for Development, New Delhi, January 2012
13. Mehta, K., Morais, D., Zappe, S., Brannon, M., Zhao, Y., **“Milking the Rhino - Innovative Solutions Showcase: Promoting ethics education, user-centered design and social entrepreneurship in the global context”**, Engineering Ethics Division, ASEE Annual Conference, June 2011
12. \*\*Mehta, C., Mehta, K., Colledge, T., **“The E-Spot Model for developing Business Strategies for Technology-based Ventures in Developing Communities”**, NCIIA Annual Conference, Alexandria, March 2011
11. Mehta, K., Semali, L., Fleishman, A., Marezki, A., **“Leveraging Indigenous Knowledge to foster Developmental Entrepreneurship”**, NCIIA Annual Conference, Alexandria, March 2011
10. \*Bell, C., \*Dzombak, R., \*\*Sulewski, T., Mehta, K., **“Institutional Review Board Compliance Issues on Research Aspects of International Entrepreneurial Ventures”**, NCIIA Annual Conference, Alexandria, March 2011
9. Mehta, K., Brannon, M., Zappe, S., Colledge, T., Zhao, Y., **“eplum Model of Student Engagement: Expanding non-travel based Global Awareness, Multi-disciplinary Teamwork and Entrepreneurial Mindset Development”**, International Division, ASEE Annual Conference, Louisville, Kentucky, June 2010

8. \*Stepler, R., \*Garguilo, S., Mehta, K., Bilen, S., **“Applying systems thinking for realizing the mission of technology-based social ventures in Africa”**, Systems Engineering Division, ASEE Annual Conference, Louisville, Kentucky, 2010
7. \*\*Turner, C., Mehta, K., **"Development of code of ethics for an entrepreneurial telemedicine venture in Africa"**, NCIIA Annual Meeting, San Francisco, March 2010
6. Mehta, K., Semali, L. **“WishVast: Buiding Trust and Social Capital using Cellphones”**, First International Symposium on Intelligent Mobile Technologies for Social Change (IMT4SC'09), Mragowo, Poland, October 2009
5. Mehta, K., Laliberte, N., Fleishman, A., Wittig, J., De Reus, L., Dowler, L., **"Multidisciplinary Social Entrepreneurship Education Model: If Capitalism, Socialism and Feminism in concert strive, will Social Entrepreneurship thrive?"**, NCIIA Annual Meeting, Washington DC, March 2009
4. Mehta, K., Semali, L., Marezki, A., Findeis, J., Kuldau, G., Willyerd, K., **"Cellphones and Social Networks: Defining new opportunities and discovering champions for entrepreneurial ventures in developing communities"**, NCIIA Annual Meeting, Washington DC, March 2009
3. Mehta, K., **“Riding in Dala-Dalas with Social Scientists”**, part of a panel with Delcore, H. (Panel Leader), Spears, L., *"Using Social Science to Unlock the Pan-Human Capacity for Innovation"*, NCIIA Annual Meeting, Washington DC, March 2009
2. Mehta, K., and Bilen, S., **“Championing High-Tech Renaissance: Sensor and Controller System Integration Course”** Entrepreneurship Division, American Society of Engineering Education (ASEE) Annual Conference, Pittsburgh, PA, 2008
1. Mehta, K., **“Lessons from the Field: Setting up a Windmill Based Business in Rural Kenya”**, NCIIA Annual Meeting, Dallas, TX, 2008

## **Schreyer Honors Thesis**

**Feasibility of Rice Bags as Low-Cost Substitutes for Greenhouse Glazing**, Shayne Bement, Engineering Science and Mechanics, 2014

**An Analysis of Entrepreneurial Health Ventures: Why Telemedicine and mHealth Pilots Fail to Scale?**, Phil Sundin, Industrial Engineering, 2014

**Customer Journey Mapping: A Business Development Tool for New Social Entrepreneurs**, Kathryn Ortbal, Social Entrepreneurship, 2014

**Universities as Epicenters of Social Innovation: Defining Roles and Pathways**, Sarina Katz, History, 2014

**Grassroots Diplomacy for Social Entrepreneurs**, Andrew Hinton, International Politics and History, 2013

**Design By Example: A Web-Based Tool for Context Driven Design of Biomedical Devices**, Rachel Dzombak, Bioengineering, 2012

**Design of Telemedicine Systems for Harsh Environments**, Alice Lee, Bioengineering, 2011

**Relationships between microfinance, solidarity groups, and informal lending in developing countries: the importance of trust and social capital and the WishVast potential**, Adam Brown, Finance, 2010

**Design of low-cost stethoscope for telemedicine applications in developing countries**, Katie Workinger, Electrical Engineering, 2009

## **Papers, Panels, Posters and Workshops (Abstracts refereed)**

Mehta, K., "**Career Pathways for STEM Professionals Interested in Social Value Creation**," NCIIA Annual Meeting, San Jose, CA, March 2014

Holmes, K., Nassar, A., Mehta, K., "**Social Entrepreneurship Fieldwork: Student self-reported outcomes**," NCIIA Annual Meeting, San Jose, CA, March 2014

"**The Gender Data: What are we going to do about it?**" Panel Discussion, NCIIA Annual Meeting, Washington DC, March 2013 (Lisa Getzler-Lynn, Nathalie Duval-Couetil)

Perez, A., Mehta, K., "**Can you Milk a Rhino?**" NCIIA Annual Meeting, Washington DC, March 2013 (Talk)

"**Business Plans for BoP – Dream or Reality?**" Panel Discussion, IEEE Global Humanitarian Technology Conference, Seattle, March 2012 (Marc van den Homberg, Gertjan Stam, Rashmir Balasubramaniam, Mitra Adron)

Dzombak, R., Butler, P., Mehta, K., "**A Structured Methodology for Context-Driven Design of Biomedical Devices**," BMES Annual Meeting, Hartford, CT, Oct 2011 (Poster)

Steiner, S., Mehta, K., Brock, D., "**The Role of Business Models in Developing Innovations that Sustain Social Impact**", US Association for Small Business and Entrepreneurship (USASBE) Annual Conference, Hilton Head Island, Jan 2011

"**Building Quality by Prioritizing the Needs and Expectations of Host Communities**" Council on International Educational Exchange (CIEE) Annual Conference, Philadelphia, November 2010 (Panel with Lynda Nyce, Anayeli Lopez, Thomas Meyers)

"**Is Social Entrepreneurship a Fad?**" Panel Discussion, Global Consortium of Entrepreneurship Centers (GCEC) Annual Conference, State College, October 2010 (Thomas Kruczek, Jeremy Seward, Peter Vandor)

Butler, P., Mehta, K., "**Multifaceted engineering education is facilitated by design of medical devices for Kenya**", Biomedical Engineering Society (BMES) Annual Fall Meeting, Austin, October 2010 (Poster)

Brown, A., Garguilo, S., Prindible, M., Mehta, K. "**Relationships between microfinance, solidarity groups, and informal lending: the importance of trust and social capital**", Entrepreneurship in Africa Conference, Syracuse University, April 1-3 2010

**"For Whose Benefit?"**, Panel Discussion, NCIIA Annual Meeting, San Francisco, March 2010 (Toby Cumberbatch, Jeff Brown, Joshua Pearce)

Semali, L., Mehta, K., **"Engaging diverse stakeholders to leverage indigenous knowledge in building a science curriculum: A participatory approach"** 54th Annual Conference of the Comparative and International Education Society, Chicago, IL, Feb 2010

Butler, P., Mehta, K., **"Humanitarian engineering motivates students to use computational methods in design: medical devices for Kenya"**, Biomedical Engineering Society (BMES) Annual Fall Meeting, Pittsburgh, October 2009 (Poster)

Workshop Host, **"Sensor and Controller System Integration: A new course to promote High-Tech Entrepreneurship"**, NCIIA Annual Meeting, Dallas, TX, March 2008

Panelist, **"Creating Social Entrepreneurship Networks"**, NCIIA Annual Meeting, Dallas, TX, March 2008 (Panel Leader: Nancy Clement, Other Panelists: Edward Coyle, Steve Nichols, Malu Roldan)

Panelist, **"Social Entrepreneurship – Experiential Models for Practice and Profit"**, United States Association for Small Business and Entrepreneurship (USASBE) Annual Conference, San Antonio, TX, January 2008. (Panel Leader: Phil Weilerstein, Other Panelists: Tom O'Neal, Robin Anderson)

## Other Creative Endeavors

- **AcademIK Connections Video Series:** <http://www.youtube.com/watch?v=LT2LFN-tYy4&list=PL61AFA3EF180F626C> (Role: Originator and Producer) Producing a series of thirteen video clips of 6-8 minutes each capturing compelling stories about the importance of indigenous knowledge in developing entrepreneurial solutions to address global challenges and foster self-determined development. The video clips form the nucleus for learning modules that bring these concepts into the classroom.
- **Social Entrepreneurship Class Video Clip Series:** A series of video clips as an educational tool in the EDSGN 451 Social Entrepreneurship Class. The video clips can be found at: <https://sites.google.com/site/edsgnsoceship/>

## Invited Talks

**"The Problem with the Potential Solution,"** 2013 Discovery-U: Where Genius meets Imagination, November 2013 (<https://www.youtube.com/watch?v=vYuckWTNsnw>) Transcript (Why Ideas Fail) published in The Penn Stater, Jan 2014

**"Sustainable Agriculture in Kenya - Mavuuno Greenhouses,"** Silver Spring GreenFest: From Awareness to Action for a Sustainable Future, Silver Spring, MD, Oct 2013

**"Transforming Community Health Workers from Volunteers to Entrepreneurs"** JHPIEGO Brown Bag Seminar. Baltimore + Streamed to Country Directors across 60+ countries, Sept 2013

**"The Kochia Chronicles: Double Disease Burden and Community Health Innovations"** Center for Biomedical Innovation and Design (CBID), Johns Hopkins University, Sept 2013

**"The Double Disease Burden and Community Health Innovations"** Center for Infectious Disease Dynamics (CIDD) Seminar, Penn State, Sept 2013

**"Humanitarian Engineering and Social Entrepreneurship,"** Cameroon Christian University, July 2013

**"Developing Educational and Entrepreneurial Ecosystems to Actualize Social Ventures in Developing Countries,"** Lunch Plenary Speaker, 2013 Engineering Sustainability Conference, Pittsburgh, April 2013

**"Leveraging University and External Resources to Build Lean and High-Impact Social Entrepreneurial Ecosystems",** 2013 OFC Innovation & Entrepreneurship Seminar, Atlanta, GA, April 2013

**"Cross Sector Collaboration to Promote Sustainable Development"** The United States-India Relationship in the 21st Century: Challenges for Strategic Leaders; Opportunities for Cross-Sector Collaboration to Promote Sustainable Development, Dickinson College, Carlisle, PA, March 2013

**"Choosing a Program: Structures and Partners,"** Sustainable Vision Connect 2013, NCIIA Annual Meeting, Washington DC, March 2013 (Unpanel with Carl Hammerdorfer)

**"Strengthening Humanitarian Ventures through Concurrent Research Initiatives"** Webinar on Engineering 4 Change, February 2013

**"Solar Stews and Digital Funerals: Stories from East Africa,"** Bluffton University Arts and Lecture Program, December 2012

**"Technology-Based Social Ventures in East Africa: Lessons from the Field,"** Ohio Northern University, December 2012

**"Introduction to Entrepreneurship and Private Sector Partnerships,"** Africa Collaboration Colloquium hosted by the Global Knowledge Initiative, Penn State University, August 2012

**"Student Engagement in Developing Countries: Practical Lessons, Tools, and Resources for Advisers,"** Advising for the Global Community, 10th Professional Development Conference on Academic Advising, October 2011

**"Humanitarian Engineering and Social Entrepreneurship Ventures in East Africa,"** Lecture Series - Countries of Focus: Kenya and Tanzania, Penn State New Kensington, October 2011

**"Diversifying Undergraduate Instruction: Exploring New Curricular Models for Global Engagement,"** Instructional Development Workshop, The Commission on Racial/Ethnic Diversity (CORED), Penn State, September 2011

**"Convergence and Emergence: Student Contributions to Academic Leadership,"** Academic Contributions to Student Leadership Development Conference, Penn State, Sept 2011



**"eplum Model of Student Engagement: Assessment Results,"** Schreyer Institute for Teaching Excellence, Penn State, April 2011

**"Humanitarian Engineering and Social Entrepreneurship,"** Nationally promoted Webinar, Design for the Majority Section, Industrial Design Society of America (IDSA), Feb 2011

**"Humanitarian Engineering and Social Entrepreneurship Program,"** National Engineers Week Celebrations, Philips Healthcare, Reedsville, Feb 2011

**"International Research + Entrepreneurship = Chaos in the Ivory Tower?"** Scholarship and Research Integrity (SARI) Brown Bag Series, Feb 2011

**"Behind the Scenes: HESE in Kenya",** Keynote Speech, International Education Week, Penn State University, November 2010 (Celebrating 100 years of internationalization at Penn State)

**"HESE at Penn State: Let's Collaborate!"** Union College, Schenectady, October 2010

**"Applying Technology in Developing Nations: A Multi-Year Program,"** Plenary Talk, Global Consortium of Entrepreneurship Centers (GCEC) Annual Conference, State College, PA, October 2010

**"Ethical Challenges in Research with Developing Communities,"** Scholarship and Research Integrity (SARI) Brown Bag Series, October 2010

**"Humanitarian Engineering,"** North Carolina State University, Raleigh, October 2010

**"Humanitarian Engineering and Social Entrepreneurship,"** ECE Colloquium, Villanova University, March 2010

**"Social Entrepreneurship and Integrated Engineering Design,"** Keynote Presentation, National Engineers Week 2010 Luncheon, Penn State Berks and Berks County Technical Societies, Feb 2010

**"Cellphones, Social Networks and Development: Stories from Africa,"** Annual General Meeting Presentation, United Nations Association of the United States of America, Centre County, Dec 2009

**"Mashavu: Networked Health Solutions for the Developing World,"** Keynote Speech, National Instruments Annual Conference, Austin, August 2009

**"Mashavu project and Social Entrepreneurship,"** Interview by Cornell E-Clips, March 2009

**"Humanitarian Engineering and Social Entrepreneurship: Opportunities for Bioengineers,"** Bioengineering Colloquium, Penn State University, January 2009

**"Social Entrepreneurship and Indigenous Knowledge",** Interinstitutional Consortium for Indigenous Knowledge (ICIK), Penn State University, October 2008

**"Social Entrepreneurship",** Eta Kappa Nu (HKN) Honor Society Annual Banquet, Penn State University, April 2008.

**“Energy Solutions for Developing Countries”**, Engineers for a Sustainable World (ESW) Annual Conference, Iowa City, Iowa, September 2006.

**“A Multidisciplinary Service-Learning Model applied in Kenya,”** Poster at Conference for Service Learning in Engineering, National Academy of Engineering (NAE), Washington DC, May 2006

**“How Practical Academic Learning in Community Service Overseas Reflects Our Global Interdependence”**, Roundtable at Schreyer Honors College, Penn State University, September 2006

### **Service to the University**

Co-Chair, Pathways Committee, Council on Engaged Scholarship, Penn State, 2013-2015

Co-Chair, Carnegie Elective Classification in Community Engagement Committee, Council on Engaged Scholarship, Penn State, 2013-2015

Member, Pilots Committee, Council on Engaged Scholarship, Penn State, 2013-2015

Member, Sustainable Communities Initiative, Penn State University, 2012-2015

Member, University Council on Engaged Scholarship, Penn State University, 2012-2014

Organizing Committee, Global Penn State Conference, October 2013

Chair of Identification Sub-Committee, Service Learning-Student Engagement Taskforce, Penn State, 2011-2012

Organizing Committee, Fulbright Global Food Security Conference, Penn State, March 2012

Member, Marjorie Grant Whiting Endowment for the Advancement of Indigenous Knowledge Advisory Committee, 2009-2012

Member, Fulbright Scholarship Committee, 2009, 2010, 2011, 2012

Chair, Data Analysis and Signal Conditioning Session, COE Research Symposium, 2009, 2010

### **Service to the Profession**

Associate Editor, IEEE Technology and Society Magazine

Contributing Editor, Engineering 4 Change

Program Committee, Mobile Communication for Development (M4D) Conference, Dakar, Senegal, April 2014

Program Committee, First International Symposium on Service Systems for Social Innovation, Warsaw, Poland, Sept 2014

Program Committee, Humanitarian Technology: Science, Systems and Global Impact, Boston, May 2014

Advisory Panel, Recognition and Mentoring Program, Institut Pertanian Bogor (RAMP-IPB), Indonesia

General Co-Chair, Fourth International Conference on Mobile Computing, Applications and Services (MobiCASE 2012), Seattle, October 2012 (Sponsored by IEEE and European Alliance for Innovation)

Program Committee, First International Symposium on Intelligent Mobile Technologies for Social Change (IMT4SC'09), Mragowo, Poland, October 2009

Reviewer for American Society for Engineering Education (ASEE) and National Collegiate Inventors and Innovators Alliance (NCIIA) Conference Publications

Reviewer for International Journal for Service Learning in Engineering, Annals of Bioengineering, IFAMR, Technology in Society, and several other journals

### **Selected other Entrepreneurial Teams Mentored**

- Team developing technologies to facilitate interaction in the classroom (multi-input system that can do various kinds of visualizations like word clouds, tickers, quizzes, etc). Technology development in progress.

- Team exploring the intersection of dance, public spaces and topography to develop an innovative embedded system that ultimately helps build trust and camaraderie in teams.
- POWER: Protection of Wrists through Exercise: Smartglove and exercise regimen that significantly reduces the chances of Carpal Tunnel problems. PATCI seed funding and provisional patent obtained.
- Trackit: Low-cost quick-start RFID tagging and database system. Alpha testing in progress.
- Briobody: (Value-added social network in the health and fitness sector) Voted Best Small Business Idea for April 2008 on Ideablob.com (+ \$10,000 award); Under pilot-testing at Kutztown University.
- Buzby Networks (Zigbee-based Real Time Locating System), Received seed funding from NCIIA Advanced E-Team grant, PATCI, Ben Franklin Technology Partnerships; Technology development in progress.
- BlueToe: Skiing Enhancement System, Global Idea to Product Competition, UT Austin, November 2007
- Mobile-to-Mobile Disaster Relief System, (In collaboration with Zhejiang University, Hangzhou, China), Entry for Mondialogo Engineering Award, May 2007
- Wind Energy Feasibility Assessment Tool, (In collaboration with Huazhong University of Science and Technology, Wuhan, China), Entry for Mondialogo Engineering Award, May 2007

## **SKILLS**

**Programming Languages:** LabVIEW (Expert), C / C++, Java, x86 / PIC processors, MATLAB, JavaScript

**Hardware Design:** Extensive hands-on experience in digital / mixed signal hardware design and troubleshooting, worked with a variety of FPGAs, microprocessors, microcontrollers & embedded systems. Familiar with VHDL, Verilog, SpecMan Elite, IBM Rulebase, OVL, MAGIC, HSpice, PSpice