

EDUCATION

University of California, Berkeley

- **Ph.D. in Mechanical Engineering** (GPA: 3.8/4) Dec 2011
Thesis: Thermal Energy Harvesting with Thermoelectrics for Self-powered Sensors: With Applications to Implantable Medical Devices, Body Sensor Networks and Aging in Place
 - Advisors: Prof. Paul K. Wright & Prof. James W. Evans
 - Major in Manufacturing, Minor in Bioengineering
- **Management of Technology Certificate**, Haas School of Business
- **M.S. in Mechanical Engineering** May 2009

Johns Hopkins University, Baltimore, MD

- **B.S. in Mechanical Engineering** (GPA: 3.5/4) May 2007
 - Minor in Entrepreneurship & Management

Honors

- Pi Tau Sigma Mechanical Eng. Honor Society, Tau Alpha Chapter
- John G. Maurer Fellowship, Chiang Fellowship in Manufacturing & Eng. 2007–2009

EXPERIENCE

Center for Information Tech. Research in the Interest of Society (CITRIS) @ UC Berkeley 9/2012–Present
Research & Development Manager, *Health Care Initiative*

- Managing & developing a diverse portfolio of multi-institutional (UC Berkeley, Davis Medical Center, Santa Cruz & Merced) and multi-disciplinary health care research projects focused on telemedicine, medical informatics, mobile devices and patient-centered design.
- Working with entrepreneurs in a start-up incubator, the Foundry, to raise seed-funding, develop collaborators and launch early-stage prototypes.
- Designed & deployed the operations, business model and marketing strategy for the Invention Lab, a new product design & prototyping facility used for education, research and start-ups.
- Led and coordinated various multi-disciplinary proposals with 5+ person teams on topics ranging from technology entrepreneurship to mobile health resulting in >\$300K of research funds.
- Expanding marketing efforts to improve the institute's visibility towards corporate sponsors and researchers. Developing new web strategy with leadership as part of rebranding efforts.

University of California, Berkeley**Post-doctoral Researcher, *Berkeley Manufacturing Institute, Dept. of Mechanical Engineering*** 2012

- Led a team of 10 researchers on projects in large-scale energy storage, energy harvesting, roll-to-roll and dispenser-printed manufacturing and piezoelectric cooling.
- Design & prototype heat sinks for LED cooling using low-noise piezo fans with Siemens AG.
- Designed and built a low-cost automated positioning system for high-throughput testing & data collection of piezo fan cooling using Arduinos, Java, servomotors and custom components.

Graduate Student Researcher, *Berkeley Manufacturing Institute, Dept. of Mechanical Engineering* 2007–2011

- Oversaw and led research projects on thermal energy harvesting, energy storage, printed manufacturing, composite materials synthesis, characterization and testing automation.
 - Managed & mentored over 6 undergraduates, 5 graduate students and a staff researcher.
- Designed, modeled, fabricated and tested the first dispenser-printed thermoelectric energy generators capable of providing $75\mu\text{W}/\text{cm}^2$ for a 20°C temperature difference.
 - Designed and built custom hardware & software for automated temperature-dependent solid-state materials characterization.
 - Integrated printed thermoelectric devices with dc-to-dc converters to charge printed batteries.
- Published design guidelines for thermoelectric devices for powering implantable medical devices.
- Selected for the "Cleantech to Market" program from the Energy Institute at Haas.
 - Collaborated in a high-functioning interdisciplinary team to perform market assessment, research analysis and commercialization pathways for a novel thermal energy technology.
- Presented research at conferences of ASME, BSN, BWRC, i4Energy and PowerMEMS.

National Institutes of Health, Bethesda, MD

Summer 2009

Researcher, *National Institutes of Biomedical Imaging and Bioengineering*

- Investigated skin and subcutaneous tissue temperatures to demonstrate the feasibility of thermal energy generation from the human body.
- Coordinated patient recruitment for clinical studies on brown-fat tissue.

Johns Hopkins University, Baltimore, MD

2005-2007

Research Assistant, *Depts. of Mechanical Eng., Electrical Eng. & Biomedical Eng.*

- Designed a polymer piezoelectric microphone for a novel high accuracy blood pressure measurement system. Lead team of 3 undergraduate research assistants on project.
- Designed and fabricated BioMEMS devices for lab-on-chip early cancer detection systems

Industrial Technology Research Institute, Hsin-Chu, Taiwan

Summer 2006

Engineering Intern, *Medical Electronics & Device Technology Center*

- Designed and prototyped hardware & software components of a medical device for uremia and kidney disease detection.

Microsoft Hong Kong, Ltd., Hong Kong, China

Summer 2005

Software Design Engineering Intern, Developer & Platform Group

- Developed web communities for local developers and academic institutions to extend Microsoft's local software and web development outreach.

ADDITIONAL INFORMATION

Technical skills:

CAD (Solidworks), FEA, Matlab, Labview, rapid prototyping, printed manufacturing, electronics & instrumentation, MS Office, Web dev (HTML5, PHP, JS, SQL), C++/Java (basic), Adobe CS

Language:

Mandarin

Interests:

Skiing/snowboarding, golf, cycling, culinary exploration, emerging technologies, traveling the world

Work Authorization:

US Citizen

SELECTED PUBLICATIONS

G. Kurillo, A. Chen, R. Bajcsy, J.J. Han (2013). "Evaluation of Upper Extremity Reachable Workspace Using Kinect Camera" Technology and Healthcare, *Accepted*.

D. Madan., Z. Wang, A. Chen, R.C. Juang, P.K. Wright, J.W. Evans (2012). "Enhanced Performance of Dispenser Printed MA n-type Bi₂Te₃ Composite Thermoelectric Generators" ACS Applied Materials and Interfaces, Vol. 4, pp. 6117-6124.

A. Chen, P.K. Wright (2012). "Medical Applications of Thermoelectrics" in Thermoelectric and its Energy Harvesting: Modules, Systems, and Applications in Thermoelectrics, vol. 2, no. 26, Edited by D.M. Rowe (Boca Raton, CRC Press), pp. 1-22.

Z. Wang, A. Chen, R. Winslow, D. Madan, R.C. Juang, M. Nill, J.W. Evans, P.K. Wright (2012). "Integration of dispenser-printed ultra-low-voltage thermoelectric and energy storage devices" Journal of Micromech. & Microeng., Vol. 22 (9), 094001.

D. Madan, A. Chen, R.C. Juang, P.K. Wright, J.W. Evans (2012). "Printed Se doped M.A. n-type Bi₂Te₃ Thick Film Thermoelectric Generators" Journal of Electronic Materials, DOI: 10.1007/s11664-011-1885-5.

A. Chen, D. Madan, P.K. Wright, J.W. Evans (2011). "Dispenser-printed Planar Thick-film Thermoelectric Generators" Journal of Micromech. & Microeng., Vol. 21 (10), 104006.

D. Madan, A. Chen, P.K. Wright, J.W. Evans (2011). "Dispenser Printed Composite Thermoelectric Thick Films for Thermoelectric Generator Applications" Journal of Applied Physics, Vol. 108, 034904.

P.K. Wright, D.A. Dornfeld, A. Chen, C.C. Ho, J.W. Evans (2010). "Dispenser Printing for Prototyping Microscale Devices" Transactions of NAMRI/SME, Vol. 38, pp. 555-561.

Patent

P.K. Wright, J.W. Evans, D. Madan, A. Chen, "Dispenser-Printed, Flexible Thermoelectric Energy Generators", June 14, 2013, 61/835,501 (Provisional)