

## BIOGRAPHICAL SKETCH

Name Moon, Jon Kenneth	Position Title President, MEI Research, Ltd
eRA Commons User Name jkmoon	

### Education / Training

Institution and Location	Degree	Year	Field of Study
Massachusetts Institute of Technology, Cambridge, MA	BS	1981	Mechanical Engineering
The University of Texas, Austin, TX	MS	1986	Biomedical Engineering
The University of Texas, Austin, TX	PhD	1991	Biomedical Engineering
United States Patent Office, Alexandria, VA	Registered Agent	2002	Patent Law

### A. Personal Statement

I am an expert on applications of engineering to physiologic measurement systems and mobile health (mHealth) technology. As President and founder of MEI Research, Ltd., I lead a successful company that provides engineering services and systems for mobile technologies and data management to support a wide range of research and commercial programs. Our company specializes in using mhealth technology to assist research on energy balance, ecological momentary assessment, context of activity and behavior management. I have extensive experience in design engineering to translate research concepts into commercial medical products reflected in nearly two decades of entrepreneurial experience, including founding and operating two start-up firms. I designed the indirect calorimeter and gas metrology laboratories in the USDA/ARS Children's Nutrition Research Center at Baylor College of Medicine. As a Fellow and volunteer of the Obesity Society, I served as a founding Councilor (2012-15) of the eHealth/mHealth Section. My research work spans mobile sensing, ophthalmology, exercise physiology, metabolic energy expenditure, artificial life support and a range of physiologic measurement systems.

### B. Professional Positions

- 2009 to Present :: President, MEI Research, Ltd., Edina, MN.
- 2004 to 2009 :: Co-founder and Chief Technology Officer, Devicix, LLC., Eden Prairie, MN.
- 2001 to 2004 :: Principal Scientist, Acist Medical Systems, Inc, Eden Prairie, MN.
- 1998 to 2001 :: Engineering Manager, Nemoto Medical US, Inc, Newport Beach, CA.
- 1996 to 1998 :: Special Research Fellow, Department of Anesthesiology, Kumamoto University School of Medicine, Kumamoto, Japan.
- 1992 to 1996 :: Instructor, Department of Pediatrics, Baylor College of Medicine, Houston, TX.
- 1986 to 1992 :: Electrical Engineer, Department of Pediatrics, Baylor College of Medicine, Houston, TX.
- 1981 to 1983 :: Marketing and Product Manager, Intermedics, Inc, Freeport, TX.

### Current Professional Societies and Service Activities

- Senior Member, Institute of Electrical and Electronic Engineers (IEEE)
- Fellow, The Obesity Society
- Member, Society for Behavioral Medicine
- Member, Biomedical Engineering Society and BMES Accreditation Activities Committee (2017 – 2021)
- ABET Engineering Accreditation Commission Program Evaluator (2008 – 2017)
- Industrial Advisory Board, Dept of Biomedical Engineering, University of Minnesota (2009 – 2017)
- City of Edina Water Quality Working Group (2011 – 2017) and election judge (2000 – 2017)
- National Science Foundation SBIR/STTR review panelist

### C. Contributions to Science and Engineering

1. I have been the Primary Investigator for several studies on mHealth systems to collect and synthesize data related to the treatment and prevention of chronic diseases. The PI on this project, Prof Huang, and I have collaborated for many years; two of our publications are below. My company has provided the key technologies for more than two dozen mHealth studies and to several companies. I have patented two systems related to collecting and synchronizing data with mobile devices with two patents pending. I regularly present invited lectures and workshops on mHealth technologies and behavioral applications.
  - a. Huang TTK, Wyka KE, Ferris EB, Gardner J, Evenson KR, et al. "The Physical Activity and Redesigned Community Spaces (PARCS) Study: Protocol of a natural experiment to investigate the

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- impact of citywide park redesign and renovation”, BMC Public Health 2016, DOI: [10.1186/s12889-016-3822-2](https://doi.org/10.1186/s12889-016-3822-2).
- b. Oreskovic ND, Huang TT, Moon J. “Integrating mHealth and systems science: A combination approach to prevent and treat chronic health conditions”, JMIR mHealth uHealth 2015;3(2):e62.
  - c. Casperson SL, Sieling J, Moon J, Johnson L, Roemmich J, Whigham L. “Usability of a mobile phone food record application by adolescents to digitally capture dietary intake in a free-living environment”, JMIR mHealth uHealth 2015;3(1):e30. PMID: 25775506
  - d. Bond DS, Thomas JG, Raynor HA, Moon J, Sieling J, Trautvetter J, Leblond T, Wing RR. “B-MOBILE - A Smartphone-Based Intervention to Reduce Sedentary Time in Overweight/Obese Individuals: A Within-Subjects Experimental Trial”, PLoS One. 9(6):e100821, 2014.
2. I pioneered multiple technical advances in measuring human energy expenditure with respiration calorimeters and ambulatory monitoring. Many of the whole-body respiration calorimeters in the USA have been built or remodeled to my concepts and rely on my company for top performance.
- a. Brychta R, Wohlert E, Moon J, Chen K. “[Energy expenditure: measurement of human metabolism](https://doi.org/10.1186/1548-7717-29-42)”, IEEE Eng Med Biol Mag, 29(1):42-7, 2010. PMID: 20176521
  - b. Chakravarthy M, Parsons S, Smith SR, Meyer C, Moon J, et al. “Effects of 13-Hour Hyperglucagonemia on Energy Expenditure and Hepatic Glucose Production in Humans”, Diabetes 2016 Oct; db160746. <https://doi.org/10.2337/db16-0746>
  - c. Moon JK, Vohra FA, Valerio Jimenez OS, Puyau MR, Butte NF. “[Closed-loop control of carbon dioxide concentration and pressure improves response of room respiration calorimeters](https://doi.org/10.1093/ajph/85.12.220)”, J Nutr 125: 220-228, 1995. PMID: 7861249
  - d. Moon JK, Jensen CL, Butte NF. “Fast response whole-body indirect calorimeters for infants”, J Appl Physiol 74(1): 476-484, 1993. PMID: 8444731
3. I invented and built several systems for extracorporeal life support and critical care therapies.
- a. Moon JK, Evey LW, Moon YS, Gest AL, Gomez MR and Wearden ME. “Nitric oxide supplied from a 10% source provides inhaled therapy without lowering inspired oxygen fraction”, Biomed Instr Tech 31(2): 164-8, 1997. PMID: 9099438
  - b. Moon JK, Gomez MR and Hansen TN. “A lung disease model to predict the efficacy of inhaled nitric oxide therapy”, Proc. 17<sup>th</sup> IEEE/EMBS, 6: 1531-1532, 1995.
  - c. Gomez MR, Moon JK, Moreno JA. “Delivery of inhaled nitric oxide from a 10% source by gas phase titration”, Proc. 17<sup>th</sup> IEEE/EMBS, 6(2):1675-1676, 1995.
  - d. Ao H, Tanimoto H, Yoshitake A, Moon JK, and Terasaki H. “Long-term mild hypothermia with extracorporeal lung and heart assist improves survival from prolonged cardiac arrest in dogs”, Resuscitation 48(2): 163-74, 2001. PMID: 11426478

**Complete bibliography of published work** [https://www.researchgate.net/profile/Jon\\_Moon3/contributions](https://www.researchgate.net/profile/Jon_Moon3/contributions)

### D. Supported Research

#### *Integrating Voluntary Geographic Information and Public Data*

Design manipulation tools to merge data from different resources and enable them to be easily explored, combined, and visualized by non-programmer users. This project will create a platform to combine and visualize data that will improve communication between researchers and policy makers.

Funding Source: NIH/NCI

SBIR Phase I / Contract

HHSN261201400034C

Role: Principal Investigator

Period: 2014 – 2015

#### *Location Initiated Individualized Texts for African American Adolescent Health (LIITA3H)*

Develop technologies and methods to deliver individualized food selection recommendations to adolescents when they arrive at an eating venue.

Funding Source: NIH/ NIMHD

STTR Phase I

1R41MD008840-01

Role: Co-Investigator

Period: 2014 – 2016

#### *Cross Platform Mobile EMA – supplement to Unified Platform for Managing Objective Behavioral Data*

Build a flexible EMA application for multiple smartphone operating systems controlled by a cloud system.

