
Postdoc Position for Energy Harvesting Sensor Node

About ACTIVEcharge:

ACTIVEcharge LLC is a university startup (founder: Dr. Soobum Lee, Mechanical Engineering, UMBC) founded 2018, developing energy harvesters and autonomous/self-powering wind turbine monitoring system. Located in Washington D.C./Baltimore area, we are collaborating with multiple federal/state agencies, research labs, and industrial partners. ACTIVEcharge was selected as one of the Maryland future 20 startups by Maryland Governor Larry Hogan in 2020.

About the Position

University of Maryland Baltimore County (UMBC) and ACTIVEcharge LLC are seeking a postdoctoral researcher in the area of energy harvesting and power electronics. This position provides exciting opportunities to develop battery-free sensor nodes by utilizing wasted vibration and kinematic energy. Possible application includes wind turbine monitoring sensors, tire pressure monitoring sensors, and human/animal implantable sensors.

The ideal candidate will have a PhD, a strong background in power electronics, and most likely a degree in electrical engineering with understanding of electro-mechanical systems. The candidate must have experience in power management circuit design (impedance matching, charging, and integration with end application/sensor) and prototype fabrication for small scale (mW~W, mm~cm) energy harvesters as well as data acquisition (voltage, power). In addition, the candidate should have excellent communication (written and verbal English skill) and interpersonal skills and be a good team player.

This is a joint appointment by UMBC and ACTIVEcharge LLC, with the compensation of \$50,000/year plus health insurance. Position may be renewable after the first year. Application should be sent to contact@ACTIVEcharge.us with a cover letter and resume/CV. Questions can be sent to sblee@umbc.edu.

Job Descriptions includes:

1. Design/optimization power management circuit for small power electronics (energy harvesting)
2. Harvester prototyping and integration with power storage and end application (sensor)
3. Proposal development

Required Skills:

1. Circuit design tools: LTspice, PSIM, or EAGLE
2. Computer programming language (e.g. MATLAB, C++)

Desired Skills:

1. NI DAQ with LabView (function generation, data acquisition)
2. Experience with wireless transmission module (e.g. ZigBee) and vibration sensor (accelerometer)
3. Optimization: theoretical background or experience with software is a plus