

SUMMARY

Entrepreneurial biomedical engineer with a background in neuroprosthetics and implantable electrode systems. Interested in improving the treatment of chronic conditions through the development and improvement of medical devices. First-hand experience as a user of medical devices for diabetes treatment for over twenty years, including insulin pumps and continuous glucose monitors.

EXPERIENCE

Laboratory of Neural Prosthetic Research Aug 2011 - present
Illinois Institute of Technology - Chicago, IL
Graduate Research Assistant

- Designed, developed, and tested peripheral nerve interface devices.
 - Microwire electrodes
 - Wireless power & telemetry systems
 - Non-hermetic silicone encapsulation
- Directed an interdisciplinary team to assess nerve damage due to implantation of interface devices with different sizes and physical configurations.
 - Multiple chronic (14 month & 10 week) in-vivo implantation trials.
- Designed an instrument for the insertion of neuroprosthetic brain implants.
- Performed analysis of leakage current in neural recording and stimulation electrode arrays.

Biosensors Laboratory Jan 2010 - Apr 2011
Michigan Technological University - Houghton, MI
Undergraduate Research Assistant

- Developed passive, wireless sensors based on magnetoelastic materials.
- Performed small-scale automated milling tasks using G-code.
- Designed, outfitted, and constructed an in-lab wood shop.

Douglas Scientific Dec 2009 - Jan 2010
Alexandria, MN Jul 2009 - Aug 2009
Engineering Intern

- Performed optimization testing on high-throughput microfluid (DNA) processing instruments.
- Developed a method for embedding reaction chemicals into microfluid wells.
- Wrote technical manuals for the assembly & use of microfluid instruments.

EDUCATION

PhD, Biomedical Engineering Aug 2011 - Present
Illinois Institute of Technology - Chicago, IL

BS, Biomedical Engineering Aug 2007 - May 2011
Michigan Technological University - Houghton, MI

SKILLS

Programming & Computer Software

- Modeling & design software - Unigraphics NX, AutoCAD
- Proficient in the use of MS Office
- MATLAB programming & simulation language
- HTML, CSS, JavaScript, PHP for scripting and web development

Laboratory Skills

- Experienced in the use of animal models for in-vivo trials.
 - Surgical implantation, explantation, and tissue harvesting procedures.
 - Chronic electrical and behavioral testing.
 - Immunohistochemistry and other tissue analysis methods.
- Electronics analysis instruments, including function generators, oscilloscopes, impedance analyzers, etc.
- Electrode analysis techniques, including cyclic voltammetry and charge injection capacity measurements.
- Practical experience in machine, electronics, and woodworking shops.
 - Wiring, soldering, and use of various power tools.

OTHER

Publications

- Co-author of 8 published scientific articles.
- Presenter at 7 international biomedical engineering conferences.

Awards

- Michigan Technological University Scholar of Excellence (4-year scholarship)
- Marshall H. and Nellie Alworth Memorial Fund (4-year scholarship)
- Wells Fargo & NFIB Young Entrepreneur Foundation Award
- National Merit Scholarship Corporation Commended Scholar

Entrepreneurship

Created and operate a worldwide player ranking and event management system for a competitive tabletop game. Aug 2017 - present

- Database management (13,000+ entries)
- Customer service (100+ users per day)
- International relations (used in over 20 countries on five continents)

Operated a custom drum company with online and local sales. 2006 - 2008