

Nathan Jackson received his B.S.E degree (summa cum laude) in Bioengineering with an emphasis in Bioelectrical engineering from Arizona State University, in 2003. He continued his education by joining the doctoral program in the fall of that year as a research associate in the Neural Microsystems Lab, under the advisement of Dr. Jit Muthuswamy. He obtained his M.S. in passing in 2008. He plans to defend his dissertation in the summer of 2009. His research interests include fabrication of biomedical microdevices, BioMEMS, MEMS packaging, and design and fabrication of novel microelectrodes.

Nathan Jackson is a student member of IEEE, IMAPS, and is the current President of the student chapter of the International Microelectronics and Packaging Society (IMAPS) at Arizona State University.

### **Publications:**

1. N. Jackson, S. Anand, and J. Muthuswamy, "Encapsulation Materials for MEMS Moveable Microelectrode Device for Long-Term Implantation in the Brain," *Journal of Microelectromechanical Systems*, (Submitted)
2. N. Jackson and J. Muthuswamy, "Flexible Chip Scale Package and Interconnect for implantable MEMS Movable Microelectrode for the Brain," *Journal of Microelectromechanical Systems*, (Submitted)
3. N. Jackson and J. Muthuswamy, "Artificial dural sealant that allows multiple penetrations of long-term implantable brain probes," *Journal of Neuroscience Methods*, 2008. 171(1): 147-152.
4. J. Muthuswamy, M. Okandan, and N. Jackson, "Single neuronal recordings using surface micromachined polysilicon microelectrodes," *Journal of Neuroscience Methods*, 2005. 142(1): p. 45-54.

### **Conference Proceedings:**

N. Jackson and J. Muthuswamy, "Flexible Interconnect and Packaging for MEMS Moveable Neural Microelectrodes," in 41<sup>st</sup> annual International Microelectronics and Packaging Society Symposium. 2008. Providence, RI

M. Khraiche, B. Phillips, N. Jackson, J. Muthuswamy "Ultrasound Induced Increase in Excitability of Single Neurons," in 30<sup>th</sup> annual International Conference of the IEEE Engineering in Medicine and Biology Society. 2008. Vancouver, British Columbia, Canada.

N. Jackson, P. Stice, M. Okandan, J. Muthuswamy, "Long-term cortical recordings with microactuated microelectrodes," in 3<sup>rd</sup> annual international IEEE EMBS Conference on Neural Engineering. 2007. Kohala Coast, HI.

J. Muthuswamy, M. Okandan, A. Gilletti, M. Baker, T. Jain, N. Jackson, "Movable Microprobes for the Brain," 3<sup>rd</sup> annual International IEEE EMBS conference on Microtechnologies in Medicine and Biology, 2005. Kahuku, Oahu, HI.

### **Conference Abstracts:**

*1<sup>st</sup> author:*

1. "Moveable MEMS polysilicon microelectrodes for long-term single neuronal recordings" Neural Interfaces Conference, 2008.
2. "Flexible interconnect and packaging for MEMS moveable Neural Microelectrodes" Neural Interfaces Conference, 2008.
3. "Long-term cortical multi-unit recordings using MEMS based movable microelectrodes" Neuroscience, 2007.
4. "Flexible interconnect and packaging for moveable MEMS based microelectrodes" BMES, 2007.
5. "Electro-thermally actuated MEMS probes for long-term single neuronal recordings" BMES, 2007.
6. "Interconnects and Packaging for Microactuated Microprobes," Neural Interface Workshop, 2005.

*Co-Author:*

1. "Effects of high Frequency ultrasound on electrical excitability of developing single neurons" Neuroscience 2008.
2. "Glial scarring in response to moveable microimplants in the brain" Neuroscience, 2008.
3. "Assessing GFAP expressions around MEMS based movable microprobes in the brain" Neuroscience, 2007.
4. "Neural Microelectrode that move," Neuroscience, 2005.
5. Micro-Actuated Neural Probes for Single Neurons," Biomedical Engineering Research Conference, 2004.

### **Awards and Societies:**

2008- "Outstanding Paper (2<sup>nd</sup> place)" at the Annual International Microelectronics and Packaging Society (IMAPS), Nov. 2-6, Providence, RI.

2008- "Best Paper of Session" in the Biomedical Electronics session at the 41<sup>st</sup> Annual International Microelectronics and Packaging Society (IMAPS), Nov 2-6, Providence, RI.

2008- 1<sup>st</sup> place for Best Student Research Poster by the International Microelectronics and Packaging Society (IMAPS) titled "Novel flexible interconnect and packaging for MEMS-based moveable brain probes"

2007- Received the IEEE EMBS travel award at the 3<sup>rd</sup> International Conference on Neural Engineering of the IEEE Engineering in Medicine and Biology Society.

President and co-founder of IMAPS ASU Student Chapter 2006-2008

IEEE member 2005-2008

Honorable Mentions at BME Day 2003

**Membership in Societies:**

- 1) International Microelectronics and Packaging Society, Student Member 2005-present
- 2) IEEE Student Member 2005-present
- 3) Golden Key International Honour Society 2001
- 4) The National Society of Collegiate Scholars 2000