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EDUCATION

Doctor of Philosophy, Bioengineering, Dr. Richard A. Normann, advisor 2004
University of Utah
Salt Lake City, UT 84112

Bachelor of Science, Biomedical Engineering, Dr. J. Thomas Mortimer, advisor 1999
Case Western Reserve University
Cleveland, OH 44106

EMPLOYMENT

Academic

Postdoctoral Fellow
Neural Engineering Laboratory, Dr. Daryl R. Kipke, advisor 2004-present
Biomedical Engineering Department &
Kresge Hearing Research Institute
University of Michigan
Ann Arbor, MI 48109

Graduate Research Assistant, Dr. Richard A. Normann, advisor 1999-2004
Bioengineering Department
University of Utah
Salt Lake City, UT 84112

Undergraduate Research Assistant, Dr. John S. Stahl, advisor 1998-1999
Neurology Department
Case Western Reserve University
Cleveland, OH 44106

Industrial

Cooperative Engineer, James A. Molnar, supervisor 1997-1999
Invacare Corporation
Elyria, OH 44035

RESEARCH FUNDING

1. Individual **National Research Service Award** “*Limits of Multi-Tetrode Intracortical Microstimulation*” (2005-2007): Awarded through the National Institute on Deafness and other Communication Disorders. F32 DC7797
2. Institutional **National Research Service Award** (2004-2006). Hearing, Balance, and the Chemical Senses Postdoctoral Training Grant awarded through the Kresge Hearing Research Institute, University of Michigan, and the National Institute on Deafness and other Communication Disorders. 2T32DC000011-26
3. Individual **National Research Service Award** “*Spatio-temporal responses of olfactory bulb neurons.*” (2002-2004): Awarded through the National Institute on Deafness and other Communication Disorders. 5 F31 DC5520
4. Institutional **Whitaker Foundation** Fellowship (1999-2000): Awarded through the University of Utah and the Whitaker Foundation.

BIBLIOGRAPHY

Publications: **Articles in Refereed Journals**

1. **Lehmkuhle, M.J., and D.R. Kipke.** “Neuromodulation of the ventromedial hypothalamus of the rat through deep brain stimulation”. *In Preparation*.
2. **Lehmkuhle, M.J., Butson, C.R. and D.R. Kipke.** “Auditory-like behavior in deaf rats through intracortical microstimulation of auditory cortex.” *In Preparation*.
3. **Lehmkuhle, M.J., Normann, R.A., and E.M. Maynard.** “Synchronous activity between single-units projecting to non-neighboring glomeruli during discrimination of enantiomer odorants.” *Submitted 2006*.
4. **Lehmkuhle, M.J., Normann, R.A., and E.M. Maynard.** “Trial-by-trial discrimination of enantiomer odorants by neural ensembles in mammalian olfactory bulb.” *J Neurophysiol.* 95:1369-1379 (2006).
5. **Lehmkuhle, M.J., Normann, R.A., and E.M. Maynard.** “High-resolution analysis of the spatio-temporal activity patterns in rat olfactory bulb evoked by enantiomer odors.” *Chemical Senses.* 28(6):499-508 (2003).
6. **Stahl, J. S., Lehmkuhle, M., Wu, K., Burke, B., Saghafi, D., and S. Pesh-Imam.** “Prospects for treating acquired pendular nystagmus with servo-controlled optics.” *Invest Ophthalmol Vis Sci.* 41(5): 1084-90 (2000).

Publications: **Abstracts**

1. **Lehmkuhle, M.J., and D.R. Kipke.** “Neuromodulation of the ventromedial hypothalamus of the rat through deep brain stimulation”. *Soc. Neurosci. Abs.*, 2006.
2. **Lehmkuhle, M.J., and D.R. Kipke.** “Long-term neuromodulation of the ventromedial hypothalamus effects weight gain in the rat”. *Biomed. Engin. Soc. Abs.*, 2006.

3. **Lehmkuhle, M.J., and D.R. Kipke.** "Neuromodulation of the ventromedial hypothalamus of the rat through deep brain stimulation effects animal weight". *Neural Interfaces Workshop*, 2006.
4. **Lehmkuhle, M.J., Butson, C.R., McIntyre, C.C., and D.R. Kipke.** "Volume of cortical activation as a function of electrical stimulation configuration, duration, and amplitude in auditory cortex." *International Workshop on Neural Interface Technologies and Applications Abs.*, 2006
5. **Lehmkuhle, M.J., Vetter, R.J., Parikh, H., Carrier, J.C., and D.R. Kipke.** "Implantable Neural Interfaces for Characterizing Population Responses to Odorants and Electrical Stimuli in the Nurse Shark, *Ginglymostoma cirratum*." *AChemS Abs.*, 2006.
6. **Lehmkuhle, M.J., Butson, C.R., McIntyre, C.C., and D.R. Kipke.** "Volume of cortical activation as a function of electrical stimulation configuration in auditory cortex." *Soc. Neurosci. Abs.* 519.14, 2005.
7. **Lehmkuhle, M.J., Maynard, E.M., and R.A. Normann.** "Spatio-temporal firing rate interactions amongst an ensemble of mitral/tufted cells may subserve odorant discriminations." *AChemS Abs.* 26.6, 2004.
8. **Lehmkuhle, M.J., Maynard, E.M., and R.A. Normann.** "Odor Evoked Synchrony of Mitral Cells in Rats." *Soc. Neurosci. Abs.* 340.6, 2003.
9. **Lehmkuhle, M.J., Branner, A., Normann, R.A., and E.M. Maynard.** "Pair-wise Correlation of Rat Olfactory Bulb Neurons from Simultaneous Multielectrode Recordings." *Soc. Neurosci. Abs.* 561.4, 2002.
10. **Lehmkuhle, M.J., Normann, R.A., and Maynard E.M.** "Distribution of Correlated Activity in the Olfactory Bulb of Rats from Simultaneous Multielectrode Recordings." *AChemS Abs.* 24. 321. 2002.
11. **Clark, G.C., Smeal, R.M., Kim, Y.T., Lehmkuhle, M.J., Leung, B.K., Manwaring, M.E., Manyam, S.C., Palfreyman, M.T., Wen, X., and Zhang, N.** "Neural Interfaces Laboratory II. Selective Activation of Small-Diameter Axons in Frog Sciatic Nerve." *Soc. Neurosci Abs.* 23.50, 2001.
12. **Lehmkuhle, M.J., Maynard, E.M., Normann, R.A., and Lasater, E.M.** "Multielectrode recordings from olfactory bulb of rats." *Soc. Neurosci. Abs.* 26(2): 594.9. 2000.

TEACHING

Teaching Courses

1. **Neural Engineering** (Fall 2005), Biomedical Engineering Department, University of Michigan.

Teaching Assistantships

1. **Anatomy** (Spring 2001), Anatomy Department, University of Utah.
2. **Techniques and Measurements Laboratory I** (Fall 2001), Bioengineering Department, University of Utah.
3. **Snow and Avalanche Mechanics** (Spring 2003), Geography Dept, Univ. of Utah

PATENTS

1. M.J. Lehmkuhle, co-inventor; Case Western Reserve University, assignee. *Acquired Pendular Nystagmus Treatment Device*. U.S. Patent 6,467,905.

HONORS & AWARDS

1. Individual **National Research Service Award** “*Limits of Multi-Tetrode Intracortical Microstimulation*” (2005-2007): Awarded through the National Institute on Deafness and other Communication Disorders. F32 DC7797 \$92,272.
2. Institutional **National Research Service Award** (2004-2006). Hearing, Balance, and the Chemical Senses Postdoctoral Training Grant awarded through the Kresge Hearing Research Institute, University of Michigan, and the National Institute on Deafness and other Communication Disorders. 2T32DC000011-26 \$57,332.
3. Individual **National Research Service Award** “*Spatio-temporal responses of olfactory bulb neurons.*” (2002-2004): Awarded through the National Institute on Deafness and other Communication Disorders. \$51,300.
4. **Whitaker Foundation** Research Fellowship (1999-2000): Awarded through the Bioengineering Department, University of Utah. \$7,500.
5. **First Place**, Undergraduate Student Design Competition, 20th Annual International Conference of the IEEE-EMBS, Hong Kong (1998)
6. **First Place**, Undergraduate Student Design Competition, NE Region of the Ohio Professional Engineers’ Society (1998)
7. **First Place**, Undergraduate Student Design Competition, Case Western Reserve University (1998)
8. **Outstanding Achievement**, Undergraduate Student Design Competition, Biomedical Engineering Society (1998)
9. **Herbert E. Horn ’23 Scholarship** recipient, Herbert E. Horn ’23 Foundation, Case Alumni Association (1994-1999)

PROFESSIONAL SOCIETY MEMBERSHIP

1. Society for Neuroscience (SFN)
2. Association for Chemoreception Sciences (AChemS)
3. Institute of Electrical and Electronics Engineers’ – Engineering in Medicine and Biology Society (IEEE-EMBS)
4. Association for Research in Otolaryngology (ARO)