

Sensimetrics Corporation

Biographical Sketch of Raymond L. Goldsworthy

Position: Research Scientist

EDUCATION

| <u>INSTITUTION</u> | <u>DEGREE</u> | <u>YEAR</u> | <u>FIELD OF STUDY</u> |
|--|---------------|-------------|------------------------------|
| University of Kentucky, Lexington, KY | BS | 1997 | Physics |
| Harvard University and Massachusetts Institute of Technology Cambridge, MA | Ph.D | 2005 | Health Sciences & Technology |

PROJECT EXPERIENCE

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| 1998 – 2005 | Ph.D. Thesis investigating noise reduction algorithms for cochlear implant users. Developed multiple microphone signal processing strategy. Developed novel metric for predicting the speech reception of cochlear implant users. Conducted evaluations of signal processing strategies that clearly show speech reception benefits in the presence of background noise for cochlear implant users. |
| Sept., 2004 – Jan., 2005 | Conducted Phase 1 SBIR research for the design, implementation, and evaluation of dual-channel noise reduction systems for cochlear implant users. |
| Feb., 2005 – June, 2005 | Research fellow at Cooperative Research Centre for Cochlear Implant and Hearing Aid Innovation. Implemented noise reduction algorithm on research processor for cochlear implant research. |
| June, 2005 – Current | Principle investigator of Phase 2 SBIR research focusing on signal processing development for cochlear implants. |

ONGOING RESEARCH SUPPORT

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| 1 R43 DC007034-02 NIDCD “Noise Reduction for Cochlear Implants” | Principal Investigator Ray Goldsworthy, Ph.D. The aim of the project is to develop and assess noise reduction algorithms for cochlear implants. | Dates Awarded August, 2006 – August, 2008 |
| 1-R01-DC007152-01 A2 NIH/NIDCD “Models of Speech Intelligibility” | Principal Investigator Louis Braidia, Ph.D. Our long-term goal is to develop improved hearing aids for people suffering from sensorineural hearing impairments. A principle aim is to develop models for quantifying the effects of hearing loss on speech reception. | Dates Awarded August, 2006 – August, 2011 |

RESEARCH INTERESTS

Signal processing to improve perception for the hearing impaired with special emphasis on cochlear implant populations. Noise reduction algorithms inspired by normal hearing auditory functions. Speech reception and psychoacoustic modeling of hearing impairment as tools for optimizing signal processing. Cortical plasticity and rehabilitation techniques for the hearing impaired.

Peer-reviewed scientific articles:

Goldsworthy, R.L. and Greenberg, J.E., (2004). “Analysis of speech-based Speech Transmission Index methods with implications for non-linear operations,” *J. Acoust. Soc. Am.* 116(6), 3679-3689.
Goldsworthy, R.L., Greenberg, J.E., and Braidia, L.D. (submitted: March, 2006). “Predicting the effect of acoustic degradation and spectral subtraction processing on speech reception by cochlear implant users,” *J. Acoust. Soc. Am.* (submitted).