

Curriculum Vitae

ROBERTO REIF

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EDUCATION

- Ph.D. BOSTON UNIVERSITY, Boston, MA** **2003-2008**
Biomedical Engineering, GPA: 3.71 / 4.0
- Developed an optical biopsy technique for non-invasive detection of dysplasia based on UV-VIS-NIR light reflectance with a high accuracy rate
 - Designed mathematical methods and Monte Carlo simulations with Matlab to model the interactions of light with a scattering and absorbing medium
 - Performed experiments in biological tissue phantoms and *in vivo*
 - Worked with a method of optical pharmacokinetics for the measurement of chemotherapy drugs in brain tissues
- B.S. UNIVERSIDAD SIMON BOLIVAR, Caracas, Venezuela** **1995-2000**
Electronics Engineering, GPA: 4.1 / 5.0, Honors on Thesis

EXPERIENCE

- Gait Lab, Spaulding Rehabilitation Hospital, Boston, MA** **2002-2003**
Research Associate Consultant
- Tested electronic knee prosthetic devices on human patients
 - Implemented Matlab computer algorithms for collection and analysis of biomechanical data
 - Planned and coordinated experimental protocols
 - Worked with EMG, accelerometers and oxygen consumption systems
- NeuroMetrix, Inc, Waltham, MA** **2000-2001**
Design Engineer / Intern
- Developed medical devices to measure nerve conduction for real-time diagnosis
 - Pioneered the development of a low noise neuromuscular signal emulator with dynamic signal conditioning
 - Implemented hardware designs and firmware systems using C
 - Improved the power consumption of a medical device by 50% and reduce its cost by 25%

SKILLS

- Proficient in Matlab, C and Microsoft Office
- Fluent in Spanish

AWARDS

- **Winner** – \$50K Boston University Business Concept Competition **2008**
- **GenSSIS Award** – B.U. Science and Engineering Research Symposium **2007**
- **Best Poster Award** – O.S.A. Biomedical Optics Topical Meeting **2006**
- **Winner** – \$1K Boston University Business Concept Competition **2005**
- **NRSA Pre-Doctoral Fellowship** – National Cancer Institute **2005-2008**
- **Dean's Fellowship** – Boston University College of Engineering **2003-2004**

LEADERSHIP ACTIVITIES

- President of the Boston University Biotechnology Association **2004-2005**
- Chair of the Boston University Technology Entrepreneurship Night **2003-2006**

PUBLICATIONS

- Reif R., Amoroso M. S., Calabro K. W., A'Amar O., Singh S. K. and Bigio I. J., "Analysis of changes in reflectance measurements on biological tissues subjected to different probe pressures," J. Biomed. Opt. 13(1), 010502 (2008)
- Reif R., A'Amar O. and Bigio I. J., "Analytical model of light reflectance for extraction of the optical properties in small volumes of turbid media," Appl. Opt. 46 (29), 7317-7328 (2007)
- Reif R., Wang M., Joshi S., A'Amar O. and Bigio I. J., "Optical method for real-time monitoring of drug concentrations facilitates the development of novel methods for drug delivery to brain tissue," J. Biomed. Opt. 12 (3), 034036 (2007)
- Reif R. and Bigio I. J., "Absorption and scattering depth profile reconstruction in turbid media based on spectroscopy measurements," Proc. SPIE 6446, 644605 (2007)

POSTERS AND PRESENTATIONS

- Reif R., Gitin Y., Rodríguez-Díaz E., Atkinson C., A'Amar O., Singh S. K. and Bigio I. J., "Analysis of particle size distributions from spectral reflectance measurements on small tissue volumes," OSA Biomedical Optics, St. Petersburg, FL (2008) – Poster Presentation
- Reif R., A'Amar O. and Bigio I. J., "Reflectance model that extracts the optical properties in small superficial volumes of turbid media," Engineering Conferences International Advance in Optics for Biotechnology, Medicine and Surgery, Naples, FL (2007) – Poster Presentation
- Reif R., A'Amar O. and Bigio I. J., "Design and development of a model that extracts the optical properties in small volumes of superficial turbid media based on reflectance measurements," Boston University Research Symposium, Boston, MA (2007) – Poster Presentation (*CenSSIS Award Recipient*)
- Reif R. and Bigio I. J., "Absorption and scattering depth profile reconstruction in turbid media based on spectroscopy measurements," Photonics West, San José, CA (2007) – Oral Presentation
- Reif R. and Bigio I. J., "Fiber probes for the measurement of the absorption coefficient in small volumes: a Monte Carlo analysis", OSA Biomedical Optics, Ft. Lauderdale, FL (2006) – Poster Presentation (*Best Poster Award*)
- Reif R. and Bigio I. J., "Optical fiber geometries for measurement of drug concentration depth profiles in layered tissue," Engineering Conferences International Advances in Optics for Biotechnology, Medicine and Surgery, Copper Mountain, CO (2005) – Poster Presentation

OTHER INTERESTS

- P. F. Chang's Rock and Roll Arizona Marathon, Phoenix, AZ **2007**
- Indoor Rock Climbing