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Kyle T. Rich

Technical Skills

Program.: MATLAB, Mathematica, Unix/Linux environment, LaTeX, Python*, R*, SAS* (* some experience)

Comput.: Quantitative acoustic characterization, numerical simulations, Monte Carlo methods, instrument control, signal analysis, data processing and visulization, mathematical and statistical modeling

Stats.: regression, uncertainty propagation, correlation, distribution (KS test), parametric (Kruskal-Wallis) and non-parametric analyses of variance (ANOVA) and covariance (ANCOVA)

Experience

2009 – 2016 **Biomedical Acoustics Laboratory**, *Graduate Research Assistant*, University of Cincinnati.

- Discovered primary mechanisms of ultrasound-enhanced skin permeability (sonophoresis)
- Developed theory, measurement and analysis techniques for standardized quantitative characterization of microbubble cavitation activity
- Developed signal processing algorithms (MATLAB and Python) for spectral analysis of measured acoustic emissions from microbubble cavitation
- Developed system and instrument control algorithms (MATLAB) for autonomous data acquisition
- Experience conducting data and statistical analyses (MATLAB and R)
- Experience with numerical, math. and stat. modeling and simulations (MATLAB and Mathematica)
- Experience presenting data-driven result to technical and non-technical audiences, and publishing results

2007 – 2008 **Solid State Physics Lab**, *Undergraduate Research Assistant*, Northern Kentucky Universtiy.

- Investigated the crystalline structure and electrical properties of bulk-produced CoFe(x)O(y) (cobalt ferrite) composites for potential pressure sensors applications

Education

2016 **Ph.D. candidate**, ***Biomedical Engineering***, University of Cincinnati, Cincinnati, OH.

2008 **Bachelor of Science (B.Sc.)**, ***Physics***, Northern Kentucky University, Highland Heights, KY.

Academic Honors & Awards

2013 Editorial Assistantship: Ultrasound in Medicine and Biology

2011, 12 National Science Foundation, IGERT Traineeship, Biomembrane Research

2010 American Institute of Physics, Physical Acoustics Summer School Scholarship

Teaching and Leadership Experience

2013 **University of Cincinnati Student Chapter of the Acoustical Society of America**.

- Representative to National Committee

2008, 09, 10 **Teaching Assistant**, *University of Cincinnati*.

- Modeling and Analysis of Systems (BME 306) and Biomedical Instrumentation (BME 310)

2008 **Undergraduate Mentor and Teaching Assistant**, *Northern Kentucky University*.

- Introduction to Physics (PHY 110)

2007 **Northern Kentucky University Physics Students Club**.

- Vice President