

Chris Andrews

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Education:

Ph.D. Candidate in Biomedical Engineering
B.S. in Biomedical Engineering, *cum laude*, May 2007

Washington University in St. Louis
Washington University in St. Louis

Summary:

My thesis research focused on clinical applications of electrocardiographic imaging (ECGI), a technique now commercially available through CardioInsight, a Medtronic company. I performed clinical imaging studies using ECGI and complementary imaging techniques to study human cardiac electrophysiology, contraction, and scar. I worked with patients undergoing cardiac resynchronization therapy (CRT) and patients with hereditary arrhythmias such as arrhythmogenic right ventricular cardiomyopathy. I have several years of neuroscience research experience. I have extensive MATLAB experience and am comfortable using web- and browser-related technologies and programming languages.

Post-Graduate Research Experience:

Ph.D. Thesis Dissertation, Rudy Lab, Washington University in St. Louis Aug 2009-Present
Noninvasively image epicardial voltages in human subjects using novel technology called electrocardiographic imaging (ECGI). Research projects incorporate additional imaging techniques including: CT, MRI, echocardiography, and SPECT. Familiar with clinical practices of cardiac electrophysiology. Observed clinical procedures including CRT device implantation and AF ablation.

Programmer Analyst, Center for Memory and Brain, Boston University Sep 2007-Jul 2009
Created software to accelerate the pace of neuroscience research. Wrote data acquisition and analysis code for research ranging in scale from single-neuron recordings to whole-brain imaging. Studied activity of rat hippocampal neurons during spatial navigation and REM sleep.

Undergraduate Research Experience:

Thoroughman Lab, Washington University in St. Louis Jun 2006-Aug 2007
Recruited and studied human volunteers in motor skill learning experiment. Investigated learning during two-dimensional reaching tasks in the presence of programmable mechanical force fields. Analyzed data using state-space model of motor learning.

Burkhalter Lab, Washington University in St. Louis Apr 2006-Aug 2007
Analyzed mouse visual cortex neuronal firing patterns in response to visual stimuli. Fit experimental data with polynomial functions for quantitative comparison of neuronal populations. Compared response times of different brain regions to visual stimuli.

Gillis Lab, University of Missouri-Columbia Summer 2005
Built a computer-controlled peristaltic pump for controlling flow of cells over micropatterned electrodes during high-throughput electrophysiological recordings. Designed and fabricated elastomer stamps for microcontact printing of cell adhesion molecules for synapse studies.

Peer-Reviewed Publications:

Andrews CM, Singh GK, Cupps BP, Pasque MK, and Rudy Y. "Excitation and Contraction of the Failing Heart in situ and Effects of Cardiac Resynchronization Therapy." *Circulation Arrhythmia and Electrophysiology*. In Submission.

Andrews CM, Srinivasan NT, Rosmini S, Bulluck H, Orini M, Jenkins S, Pantazis A, McKenna WJ, Moon JC, Lambiase PD, and Rudy Y. "Electrical and Structural Substrate of Arrhythmogenic Right Ventricular Cardiomyopathy Using Noninvasive Electrocardiographic Imaging and Late Gadolinium Magnetic Resonance Imaging." *Circulation Arrhythmia and Electrophysiology*. 2017 (10): e005105.

Marrus SB, **Andrews CM**, Cooper DH, Faddis MN, and Rudy Y. 2012. "Repolarization Changes Underlying Long-Term Cardiac Memory Due to Right Ventricular Pacing: Noninvasive Mapping with Electrocardiographic Imaging." *Circulation Arrhythmia and Electrophysiology* 5 (4): 773–81.

Brandon MP, Bogaard AR, **Andrews CM**, and Hasselmo ME. 2012. "Head Direction Cells in the Postsubiculum Do Not Show Replay of Prior Waking Sequences During Sleep." *Hippocampus* 22 (3): 604–18.