

## CURRICULUM VITAE

### RESEARCH INTERESTS

- Cardiac Electrophysiology
- Computational Electrophysiology
- Scientific Computing & Visualization
- Bioelectric Signal Processing
- Cardiac Device & Diagnostics
- Point of Care Health Care

### EDUCATION

**Ph.D.** in Bioengineering, University of Utah, 2015

Advisor: Robert S. MacLeod

Committee Members: Alexey Zaitsev, Edward Hsu, Edward DiBella, Scott Youngquist

Dissertation: *Bioelectric Source Characterization of Acute Myocardial Ischemia*

**M.S.** in Computer Science & Engineering, University of Notre Dame, 2005

Advisor: Jesus A. Izaguirre

Dissertation: *Using Design Patterns in Scientific Applications*

**B.S.** in Computer Engineering Technology, Andrews University, 2000

### PROFESSIONAL EXPERIENCE

#### RESEARCH EXPERIENCE

**Postdoctoral Scientist**, Fall 2015 - present

Efimov Lab, George Washington University

**Research Assistant**, Fall 2007 - Summer 2015

Scientific Computing & Imaging Institute, University of Utah

Cardiovascular Research & Training Institute, University of Utah

## TEACHING EXPERIENCE

**Teaching Assistant**, Spring 2009

Systems Physiology, Biomedical Engineering Department, University of Utah

**Mentor**, Spring 2011

Undergraduate Senior Project, Biomedical Engineering Department, University of Utah

## INDUSTRY EXPERIENCE

**Engineer**, Sep 2000 - July 2002

**Business Analyst**, Aug 2002 - July 2004

**Intellectual Property Manager**, Aug 2004 - Jun 2007

Whirlpool Corporation, Benton Harbor, Michigan

## PUBLICATIONS

### BOOKS

- Using Design Patterns in Scientific Applications - A Case Study in CompuCell3D. VDM Verlag Dr. Muller, 2007 (ISBN: 978-3-8364-3563-5)

### JOURNALS

- C.R. Gloschat, A.C. Koppel, **K. K. Aras**, J.A. Brennan, K. M. Holzem, I.R. Efimov. Arrhythmogenic and metabolic remodeling of failing human heart. *Journal of Physiology*. 2016 March
- **K. K. Aras**, B. M. Burton, D. J. Swenson and R.S. MacLeod. Spatial Organization of Acute Myocardial Ischemia. *Journal of Electrocardiology* 2016 Feb
- **K. K. Aras**, W. Good, J. Tate, B. M. Burton, D. Brooks, J. Coll-Font, O. Doessel, W. Schulze, D. Potyagaylo, L. Wang, P. Van Dam and R.S. MacLeod. Experimental Data and Geometric Analysis Repository - EDGAR, *Journal of Electrocardiology* 2015 Nov-Dec; 48(6):975-81
- **K. K. Aras**, B. M. Burton, D. J. Swenson and R. S. MacLeod. Epicardial Sensitivity of Electrical Markers to Acute Myocardial Ischemia, *Journal of Electrocardiology* 2014 Nov-Dec ; 47(6):836-841
- T. Cickovski, **K. K. Aras**, M. Swat, R. M. H. Merks, T. Glimm, M.S. Alber, J. A. Glazier, S. A. Newman, J. A. Izaguirre. From Genes To Organisms Via The Cell: A Problem Solving Environment for Multicellular Development, *Computing in Science and Engineering*, 2007;9(4):50-60

## CONFERENCES

- J. Tate, T. Pilcher, **K. K. Aras**, B. M. Burton and R. S. MacLeod. Verification of a Defibrillation Simulation Using Internal Electric Fields in a Human Shaped Phantom. *Computers in Cardiology 2010*, pages 689-692
- **K. K. Aras**, S. Shome, D.J. Swenson, J. G. Stinstra and R. S. MacLeod. Electrocardiographic Response of the Heart to Myocardial Ischemia. In A. Murray, editor, *Computers in Cardiology 2009*, pages 105-108, 2009
- D. J. Swenson, J. G. Stinstra, B. M. Burton, **K. K. Aras** and R. S. MacLeod. Wave Equation Based Interpolation on Volumetric Cardiac Electric Potentials. In A. Murray, editor, *Computers in Cardiology 2009*, pages 217-220, 2009
- D. J. Swenson, J. G. Stinstra, B. M. Burton, **K. K. Aras** and R. S. MacLeod. Evaluating the Effects of Border Zone Approximations with Subject Specific Ischemia Models. *World Congress on Medical Physiology and Biomedical Engineering*, volume 25/IV, pages 1680-1683, Heidelberg, 2009. Springer.

## ABSTRACTS

- K. K. Aras, B. M. Burton, D. J. Swenson and R. S. MacLeod. Spatio-Temporal Evolution of Acute Myocardial Ischemia, Utah Biomedical Engineering Conference, Salt Lake City, 2012
- K. K. Aras, D. J. Swenson and R. S. MacLeod. Origin of Electrical Myocardial Response to Acute Ischemia is not limited to Sub-endocardium. *International Society of Computerized Electrocardiology*, San Jose, 2011

## INVITED TALKS

- Epicardial Sensitivity of Electrical Markers to Acute Myocardial Ischemia. *International Society of Computerized Electrocardiology*, Atlantic Beach, Florida, 2014
- Spatio-Temporal Evolution of Acute Myocardial Ischemia. *International Congress on Electrocardiology*, Glasgow, Scotland, 2013
- Heterogeneous Myocardial Electrographic Response During Ischemia, Park City, Utah, 2010
- Electrographic Response of the Heart to Myocardial Ischemia, Park City, Utah, 2009

## HONORS & AWARDS

- Jos Willems Young Investigator Recipient, International Society for Computerized Electrocardiology (ISCE), 2014
- Young Investigator competition finalist, International Congress on Electrocardiology (ICE), 2013
- University of Utah, Biomedical Engineering Department Scholarship, 2007-2014
- Andrews University, Computer Science Department Scholarship, 1998-2000

## COMMUNITY SERVICE ACTIVITIES

- Transporter for Meals on Wheels, Salt Lake City, Utah, 2007-2009
- Volunteer for Habit for Humanity & United Way, Benton Harbor, Michigan, 2004-2006

## REFERENCES

Available upon request