Elijah D. Christensen

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Contact

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Education

Current

Ph.D. (2016 - present) Computational Neuroscience
University of Colorado - Aurora, CO

Research Advisor: Joel Zylberberg, Ph.D.

M.D. (2014 - present)
University of Colorado - Aurora, CO

2011

B.S. Bioengineering with Honors
University of Washington - Seattle, WA

Thesis: "Rapid prototyping silicon photonics for biosensing applications"

Research Advisor(s): Daniel Ratner, Ph.D. / Michael Hochberg, Ph.D

2008

A.S.
Olympic College - Bremerton, WA

Professional Experience

05/2014 - 12/2014 **Software Development Consultant** Eastern Cooperative Oncology Group, Boston, MA

Developed software libraries in Ruby for streamlining pathology specimen Extract-Transform-Load (ETL) operations.

10/2012 - 05/2014 **Software Developer / Systems Analyst** Northwestern University, Chicago, IL

Full-stack development web-based tools for tracking and managing pathology specimen workflows.

02/2012 - 10/2012 **Software Development Engineer in Test** Transaction Network Services, Seattle, WA

Developed tools and reporting for simulating large scale (approx. 1M devices) load testing of internal services. Automated workflows for testing Android app UI.

06/2011 - 02/2012 **Research Scientist** University of Washington, Seattle, WA

Developing algorithms to identify shockable hearth rhythms for use in Automated External Defibrillators (AED). Embedded circuit design and prototyping of consumer AED's.

Major Awards **National Defense Science and Engineering Graduate (NDSEG) Fellowship** **2019**

Publications

W. F. Kindel, **E. Christensen**, and J. Zylberberg. Using deep learning to reveal the neural code for images in primary visual cortex. *Journal of Vision*, 19(4):29–29, 04 2019. `http://dx.doi.org/10.1167/19.4.29`

E. Christensen, A. Abosch, J. A. Thompson, and J. Zylberberg. Inferring sleep stage from local field potentials recorded in the subthalamic nucleus of Parkinson's patients. *Journal of Sleep Research*, November 2018. `http://dx.doi.org/10.1111/jsr.12806`

J. T. Kirk, G. E. Fridley, J. W. Chamberlain, **E. Christensen**, M. Hochberg, and D. M. Ratner. Multiplexed inkjet functionalization of silicon photonic biosensors. *Lab on a chip*, 11(7):1372–1377, April 2011. `http://dx.doi.org/10.1039/C0LC00313A`

Patents

J. Zylberberg, **E. Christensen**, J. A. Thompson, and A. Abosch. Deep Brain Stimulation Using Artificial Neural Networks. *U.S. Provisional Patent Application No. 62/758,484*, filed 9/11/2018

Presentations

E. Christensen, A. Desai, T. Banack, J. Zylberberg, and N. Clendenen. Metabolomic Profiling Reveals Sex Differences and a Reduction in Metabolism after Remote Ischemic Preconditioning. In *Association of University Anesthesiologists*, May 2019

E. Christensen, A. Desai, T. Banack, J. Zylberberg, and N. Clendenen. Metabolomic Profiling Reveals Sex Differences and a Reduction in Metabolism after Remote Ischemic Preconditioning. In *International Anesthesia Research Society*, May 2019

E. Christensen, A. Abosch, J. A. Thompson, and J. Zylberberg. Inferring sleep stage from local field potentials recorded in the subthalamic nucleus of Parkinson's patients. In *CU-MSTP Annual Retreat*, March 2019

W. F. Kindel, **E. Christensen**, and J. Zylberberg. Using deep learning to reveal the neural code for images in primary visual cortex. In *Computational and Systems Neuroscience (CoSyNe)*, March 2018

E. Christensen. In *Summer Workshop on the Dynamic Brain*. Allen Institute for Brain Science, August 2017

E. Christensen and J. Zylberberg. Machine learning applications in neuroscience. In *MSTP Advanced Topics*. University of Colorado, February 2018

E. Christensen and M. Han. Role of rasal2 in the development of obesity. In *MSTP Advanced Topics*. University of Colorado, November 2016

E. Christensen and J. Hesselberth. Identifying -1 programmed ribosomal frameshifting genomic regions. In *MSTP Advanced Topics*. University of Colorado, September 2015

E. Christensen, B. Boyko, D. M. Ratner, and M. Hochberg. Silicon Photonics for Biosensing Applications. In *Mary Gates Research Symposium*. University of Washington, May 2011

C. Mount, **E. Christensen**, A. Leone, and P. Hiremath. Modular Healthcare Diagnostics for the Developing World. In *National Academy of Engineering Grand Challenges Summit*, Los Angeles, October 2010

E. Christensen, D. M. Ratner, and M. Hochberg. Rapid Prototyping Silicon Photonics for Biosensing Applications. In *University of Washington Summer Undergraduate Research Symposium*, Seattle, August 2010

K. Asplund, A. Leone, P. Hiremath, C. Mount, and **E. Christensen**. Transcutaneous Bilirubinome-

ter and Mobile EKG Diagnostics. In *National Academy of Engineering Grand Challenges Summit*, Seattle, April 2010

E. Christensen, M. Orellana, L. Pang, and N. Baliga. Evidence for Metabolic Coupling in Hypersaline Microbes. In *Institute for Systems Biology Poster Symposium*, Fremont, WA, August 2009

Minor Awards

1st Place, ATT Sponsored Mobile App Hackathon **2012**

Bioengineering Departmental Honors **2011**

Bioengineering Student Leadership Award **2011**
Awarded annually to a bioengineering senior(s) that exemplifies leadership in the department and their community.

"Finalist", University of Washington Global Social Entrepreneurship Competition **2010**
Business case competition with an emphasis on global health.

1st Place, National Academy of Engineering Grand Challenges Summit **2010**
Regional engineering design competition for undergraduates sponsored by the NAE.

Mary Gates Research Scholarship **2010**
Competitive scholarship for undergraduates engaged in research at the University of Washington, 168 awarded annually.

Hooked on Photonics Research Scholarship **2010**
Competitive scholarship for undergraduates conducting research in photonics, 10 awarded annually.

Leadership and Service

Treasurer, MSTP Student Council **2019 - 2020**

Executive Committee Policy Chair, MSTP Student Council **2019 - 2020**

Class representative, MSTP Student Council **2018 - present**

Conference Organizer, M.D./Ph.D. National Student Conference **2016 - 2017**

Class Student Speaker, Bioengineering Graduation Ceremony **2011**
Graduating BioE seniors are nominated to represent their graduating class and speak at the graduation ceremony; 1 chosen annually.

Bioengineering Honors Service Project **2011**

Teaching Assistant / Grader, University of Washington Dept. of Bioengineering **2011**

Bioengineering Highschool Education Outreach **2009 - 2011**
Education outreach project to engage local highschoolers and foster interest in STEM fields.

Project Lead / Co-Founder, Bioengineers Without Borders Student Organization **2009 - 2011**

Professional Affiliations

- Society for Neuroscience
- The American Association for the Advancement of Science
- The Association of American Medical Colleges
- Colorado Medical Society