

## BRIAN R. SNIDER

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## ACADEMIC POSITIONS

### *George Fox University*

Associate Professor, Department of Electrical Engineering & Computer Science, 2021–present.

Assistant Professor, Department of Electrical Engineering & Computer Science, 2016–2021.

Adjunct Instructor, Department of Electrical Engineering & Computer Science, 2015–2016.

### *Oregon Health & Science University*

Graduate Research Assistant, Computer Science & Electrical Engineering Program, 2011–2020.

Senior Research Assistant, Department of Behavioral Neuroscience, 2011–2013.

Graduate Teaching Assistant, Department of Medical Informatics & Clinical Epidemiology, 2011.

## INDUSTRY POSITIONS

Chief Engineer, BioSpeech Inc., 2015–2017.

Data Warehouse Architect, George Fox University, 2015.

Senior Software Engineer, BioSpeech Inc., 2012–2015.

Production Engineer, Huron Consulting Group, 2008–2010.

Software and Systems Consultant, Various, 1997–2008.

## EDUCATION

Ph. D. Computer Science & Engineering, Oregon Health & Science University, 2020.

Dissertation Title: “Sleep Signal Processing for Disordered Breathing Event Detection and Severity Estimation.”

Advisor: Alexander Kain, Ph. D.

Committee: Xubo Song, Ph. D.; Peter Heeman, Ph. D.; Miranda M. Lim, M. D., Ph. D.; Meysam Asgari, Ph. D.

B. S. Computer & Information Science: Computer Science, George Fox University, 2008.

## RESEARCH INTERESTS

Machine Learning, Biomedical Engineering, Biological Signal Processing

## PEER-REVIEWED PUBLICATIONS

- SNIDER, B. R. (2020). “Sleep Signal Processing for Disordered Breathing Event Detection and Severity Estimation.” Oregon Health & Science University, Ph. D. dissertation.
- LOVELL, P., WIRTHLIN, M., KASER, T., BUCKNER, A., CARLETON, J., SNIDER, B. R., MCHUGH, A., TOLPYGO, A., MITRA, P., and MELLO, C. (2020). “ZEBrA—Zebra Finch Expression Brain Atlas: A Resource for Comparative Molecular Neuroanatomy and Brain Evolution Studies.” *Journal of Comparative Neurology*. 528(12), 2099–2131.
- NOEL, T. C. and SNIDER, B. R. (2019). “Utilizing Deep Neural Networks for Brain–Computer Interface-Based Prosthesis Control.” *Journal of Computing Sciences in Colleges*. 35(1), 93–101.
- ROHWEDDER, D. and SNIDER, B. R. (2018). “Plagiarism Detection Avoidance Methods and Countermeasures.” *Journal of Computing Sciences in Colleges*. 34(1), 255–261.
- SNIDER, B. R. and KAIN, A. (2017). “Estimation Of Localized Ideal Oximetry Sensor Lag Via Oxygen Desaturation–Disordered Breathing Event Cross-Correlation.” *SLEEP: Journal of Sleep and Sleep Disorders Research*. 40, A232.
- SNIDER, B. R. and KAIN, A. (2016). “Classification of Respiratory Effort and Disordered Breathing During Sleep from Audio and Pulse Oximetry Signals.” *Proceedings of The 41<sup>st</sup> IEEE International Conference on Acoustics, Speech, and Signal Processing*. 13, 588–602.
- SNIDER, B. R. and KAIN, A. (2013). “Automatic Classification of Breathing Sounds During Sleep.” *Proceedings of The 38<sup>th</sup> IEEE International Conference on Acoustics, Speech, and Signal Processing*. 5, 531–554.

## OTHER PUBLICATIONS

- SNIDER, B. R. and KAIN, A. (2012). “Adaptive Reduction of Additive Noise from Sleep Breathing Sounds.” *Oregon Health & Science University*. Technical Report CSLU-2012-001.
- SNIDER, B. R. (2009). “Core Developments on the Computing Front.” *George Fox University Undergraduate Academic Journal*. 2, 70–75.

## MANUSCRIPTS IN PREPARATION

- ORR, J. W., REAMY, J., NOEL, T. C. and SNIDER, B. R. “Convolutional Neural Networks for Yield Estimation from Vineyard Imagery.” *Computers and Electronics in Agriculture/Journal of Field Robotics*.
- SNIDER, B. R. and KAIN, A. “Automatic Rule-Based Polysomnography Event Scoring.” *Journal of Clinical Sleep Medicine*.
- SNIDER, B. R. and KAIN, A. “Hybrid CNN–LSTM-based Feature Learning for Polysomnography Event Scoring.” *SLEEP: Journal of Sleep and Sleep Disorders Research*.

## GRANTS & RESEARCH SUPPORT

- Jack P. Holman Endowment Fund (2022), Summer Research Grant.  
“Covert Audio in Adversarial Environments” (\$6,000).
- Oregon Innovation Council (2018–2019), High Impact Opportunity Project Grant.  
“Vineyard Robotics and Data Collection System” (\$64,500).
- National Institutes of Health (2017), PI: Connors, P. A. (BioSpeech).  
4R44DC015145-02: “Prosody Assessment Toolbox” (\$705,641).
- Oregon Science & Health University (2016), OHSU GSO Travel Grant (\$400).
- National Science Foundation (2016), NSF Travel Grant (\$500).
- National Institutes of Health (2016–2017), PI: Connors, P. A. (BioSpeech).  
1R44DC015145-01: “Prosody Assessment Toolbox” (\$224,044).

- Oregon Clinical and Translational Research Institute (2015–2016), PI: Hill, A. P. (OHSU).  
5-UL1-TR000128-10: “An Automated, Multi-modal Tool for Quantifying the Autism Phenotype” (\$75,000).
- National Institutes of Health (2013–2016), PI: Snider, B. R. (BioSpeech).  
1R43DA037588-01A1: “Screening for Sleep Disordered Breathing with Minimally Obtrusive Sensors” (\$234,295).
- National Institutes of Health (2012–2015), PI: Connors, P. A. (BioSpeech).  
5R44DC009515-03: “Computer-Based Auditory Skill-Building Program for Aural Rehabilitation” (\$463,990).
- National Institutes of Health (2012–2013), PI: Mello, C. V. (OHSU).  
5R24GM092842-03: “A Gene Expression Brain Atlas of the Zebra Finch” (\$385,000).
- National Institutes of Health (2011–2013), PI: Connors, P. A. (BioSpeech).  
1R43DC011706-01: “Computerized System for Phonemic Awareness Intervention” (\$216,403).

## PRESENTATIONS & INVITED TALKS

### *Artificial Intelligence*

- Oregon Academy of Science, Annual Meeting (2019). “Philosophical Challenges and Opportunities for the Mathematical Sciences.”
- Newberg Rotary, Newberg, Oregon (2018). “Artificial Intelligence.”
- George Fox University, Science & Religion Club (2017). “AI: A Gentle Introduction to the Singularity.”

### *Biomedical Computer Science & Engineering*

- Oregon Health & Science University, Ph. D. dissertation defense (2020). “Sleep Signal Processing for Disordered Breathing Event Detection and Severity Estimation.”
- Machine Learning for Health Workshop, Portland, Oregon (2020). “Deep Neural Networks for Disordered Breathing Event Detection and Severity Estimation.”
- Consortium for Computing Sciences in Colleges, Northwestern Regional Conference (2019). “Utilizing Deep Neural Networks for Brain–Computer Interface-Based Prosthesis Control.”
- Oregon Health & Science University, Ph. D. thesis proposal (2017). “Sleep Signal Processing for Disordered Breathing Event Detection and Severity Estimation.”
- Meeting of Associated Professional Sleep Societies, Boston, Massachusetts (2017). “Estimation of Localized Oximetry Sensor Lag Via Oxygen Desaturation–Disordered Breathing Event Cross-Correlation.”
- IEEE International Conference on Acoustics, Speech, and Signal Processing, Shanghai, China (2016). “Classification of Respiratory Effort and Disordered Breathing During Sleep from Audio and Pulse Oximetry Signals.”
- Oregon Health & Science University, CSLU Seminar (2014). “Feature Analysis of Polysomnography Signals.”
- Oregon Health & Science University, CSLU Seminar (2014). “Statistical Analysis of Clinical Polysomnography.”
- IEEE International Conference on Acoustics, Speech and Signal Processing, Vancouver, British Columbia, Canada (2013). “Automatic Classification of Breathing Sounds During Sleep.”
- Oregon Health & Science University, Ph. D. qualifying examination (2013). “Minimally-Obtrusive Respiratory Cycle Tracking for Assessing Sleep-Disordered Breathing Severity.”
- Oregon Health & Science University, CSLU Seminar (2012). “Tracking Breathing During Sleep.”
- Oregon Health & Science University, CSLU Seminar (2011). “Prediction of Sleep Breathing States From Acoustic Signals Using Hidden Markov Models.”

### *Miscellaneous*

- George Fox University, Fox at the Fireside (2020). “Navigating the Information Wilderness.”

Consortium for Computing Sciences in Colleges, Northwestern Regional Conference (2018). “Plagiarism Detection Avoidance Methods and Countermeasures.”

Oregon Academy of Science, Annual Meeting (2018). “A Deep Neural Network-Based Predictive Model of Undergraduate Student Retention.”

Ambleside of the Willamette Valley, Veteran’s Day Chapel (2018). “Finding Joy: Eric Liddell.”

## PROFESSIONAL ACTIVITIES & SERVICE

### *George Fox University*

Clerk, Full Faculty Senate, 2022–2023.

Faculty Senate, 2021–2023.

Chair, Undergraduate Curriculum Committee, 2020–2023.

Assessment Lead, Computer Science program, 2020–present.

General Education Revision Committee, 2020–2021.

IDEA Center Faculty Advisory Board, 2019–present.

Accessibility Ambassador, 2018–present.

Undergraduate Curriculum Committee, 2017–present.

Strategic Design Team 3: Student Retention and Career Placement, 2017–2018.

### *Consortium for Computing Sciences in Colleges*

Student Posters Chair, CCSC-NW 2019 Program Committee, 2019.

Northwestern Regional Representative, CCSC National Board, 2019.

Papers Chair, CCSC-NW 2018 Program Committee, 2018.

Associate Membership Secretary, CCSC National Board, 2016–2019.

Paper Reviewer, CCSC-NW Regional Conference, 2016–present.

Student Posters Chair, CCSC-NW 2016 Program Committee, 2016.

### *Memberships*

Association for Computing Machinery (ACM), 2016–present.

ACM Special Interest Group on Computer Science Education (SIGCSE), 2016–present.

Consortium for Computing Sciences in Colleges (CCSC), 2015–present.

Institute of Electrical and Electronics Engineers (IEEE), 2016–present.

## ADVISING

### *George Fox University: Richter Scholars*

Daniel Pauls, Autonomous Robot Algorithms for Viticulture Use Cases, 2021.

Jack Reamy, Deep Learning Prosthetic Control, 2020.

Daniel Rohwedder, Plagiarism Detection Avoidance Methods and Countermeasures, 2018.

Thomas Noel, Deep Learning for Brain–Computer Interface-Based Prosthesis Control, 2018.

Taylor Dawson, Deep Neural Network-Based Predictive Model of Undergraduate Student Retention, 2017.

*George Fox University: National Academy of Engineering Grand Challenges Scholars*

Joshua Sills, Reverse-Engineer the Brain, 2022.

Benjamin Toole, Reverse-Engineer the Brain, 2021.

Kimberly Horton, Provide Access to Clean Water/Advance Personalized Learning, 2021.

Benjamin Garcia, Reverse-Engineer the Brain, 2021.

Daniel Rohwedder, Secure Cyberspace, 2020.

Thomas Noel, Reverse-Engineer the Brain, 2020.

*George Fox University: Holman Research*

Evan Richards, Covert Audio for Adversarial Environments, 2022.

*George Fox University: Miscellaneous*

Jeremy Chambers, D. Min., Doctor of Business Administration dissertation committee, 2022–present.

Dissertation Title: “Acquisition Targeting: Modeling Small Business M&A with Machine Learning.”

TEACHING

*George Fox University*

CSIS 201 Introduction to Computer Science I

CSIS 202 Introduction to Computer Science II

CSIS 304 Web-Based Programming

CSIS 310 Data Structures

CSIS 314 Client–Server Systems

CSIS 321 Software Engineering

CSIS 330 Human–Computer Interactions

CSIS 344 Introduction to Data Science

CSIS 370 Object-Oriented Analysis & Design

CSIS 420 Structures of Programming Languages

CSIS 434 Parallel & Distributed Computing

CSIS 440 Artificial Intelligence

CSIS 460 Operating Systems

CSIS 475 Field Experience

CSIS 485 Big Data & Analytics

CSIS 490 Applied Software Development

CSIS 495 Biomedical Data Analysis

CSIS 495 Computational Modeling

CSIS 495 Educational Software, Solutions, & Methods

CSIS 495 Machine Learning

CSIS 495 Secure Human–Computer Interactions

CSIS 495 UI/UX Research

ENGR 381/382 Servant Engineering I/II

ENGR 481/482 Senior Design I/II

*Oregon Health & Science University*

BMI 540/640 Computer Science with Java Programming (graduate teaching assistant)

HONORS & AWARDS

*George Fox University*

Tenured Faculty, 2022.

Undergraduate Faculty Achievement Award for Teaching (nomination only), 2021.

Undergraduate Faculty Achievement Award for Teaching (nomination only), 2018.

*Oregon Health & Science University*

Exemplary Future Scientist Award (nomination only), OHSU Graduate Student Organization, 2016.

Mentor Award Certificate of Recognition, OHSU All-Hill Student Council, 2016.

*Huron Consulting Group*

Innovation Award, 2009.

Associate of the Quarter, 2008.

*United States Marine Corps*

Honorable Discharge, 2003.

Iraq Campaign Medal, 9<sup>th</sup> Communication Battalion, 2003.

Navy and Marine Corps Achievement Medal (gold star in lieu of 2<sup>nd</sup> award), 9<sup>th</sup> Communication Battalion, 2003.

Sea Service Deployment Ribbon (bronze star in lieu of 2<sup>nd</sup> award), 9<sup>th</sup> Communication Battalion, 2003.

Global War on Terrorism Expeditionary Medal, Command Element, 11<sup>th</sup> Marine Expeditionary Unit, 2003.

Humanitarian Service Medal, Command Element, 11<sup>th</sup> Marine Expeditionary Unit, 2002.

Presidential Unit Citation, Command Element, 11<sup>th</sup> Marine Expeditionary Unit, 2002.

Meritorious Unit Commendation, Command Element, 11<sup>th</sup> Marine Expeditionary Unit, 2002.

Navy and Marine Corps Achievement Medal, Command Element, 11<sup>th</sup> Marine Expeditionary Unit, 2002.

Certificate of Commendation, Command Element, 11<sup>th</sup> Marine Expeditionary Unit, 2002.

Sea Service Deployment Ribbon, Command Element, 11<sup>th</sup> Marine Expeditionary Unit, 2002.

National Defense Service Medal, Command Element, 11<sup>th</sup> Marine Expeditionary Unit, 2002.

Meritorious Promotion to Corporal, Command Element, 11<sup>th</sup> Marine Expeditionary Unit, 2001.

Marine Corps Association Certificate of Achievement, Marine Corps Communications-Electronics School, 2001.

Meritorious Mast, Marine Combat Training Battalion, School of Infantry, 2001.