

Siddharth Biswal

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Professional Experience

- 08/2022 – Present **Applied Scientist**, AMAZON, Boston, USA.
- 07/2020 – 07/2022 **Senior Machine Learning Researcher**, IQVIA, Cambridge, USA.
- 05/2019 – 12/2019 **Machine Learning Research Intern**, IQVIA, Cambridge, USA.
- 05/2018 – 08/2018 **Machine Learning Research Intern**, IBM RESEARCH, Cambridge, USA.
- 08/2016 – 05/2020 **Graduate Research Assistant**, GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, USA, Working in SunLab, Supervised by Prof. Jimeng Sun.
- 02/2014 – 06/2016 **Data Engineer**, MASSACHUSETTS GENERAL HOSPITAL, Boston, USA, Supervised by Dr. M. Brandon Westover and Dr. Eric Rosenthal.

Education

- 08/2016-05/2022 **Ph.D.**, *Georgia Institute of Technology, Atlanta, USA*, School of Computer Science, College of Computing, Computer Science.
- 08/2012–12/2013 **Master's of Science**, *Georgia Institute of Technology, Atlanta, USA*, Bioinformatics.
- 08/2008–04/2012 **Bachelor's of Science**, *National Institute of Technology, Rourkela, India*.

Programming Skills

- Languages Python, Java, Julia, C++
- Deep Learning PyTorch, TensorFlow, Keras, MXNet, Jax
- Data Science Library NumPy, SciPy, Pandas, Scikit-Learn, Ray-tune, Tesseract
- Systems Docker, Kubernetes, Hadoop, Spark, AWS, Elasticsearch
- Web Programming Flask(Python), Django, Javascript, d3.js, Node.js

Research Publications

- MLHC 2022 **Siddharth Biswal**, Peiye Zhuang, Ayis Pyrros, Nasir Siddiqui, Sanmi Koyejo, Jimeng Sun [EMIXER: End-to-end Multimodal X-ray Generation via Self-supervision](#)
- MLHC 2021 **Siddharth Biswal**, Soumya Ghosh, Jon Duke, Bradley Malin, Walter Stewart, Cao Xiao, Jimeng Sun [EVA: Generating Longitudinal Electronic Health Records Using Conditional Variational Autoencoders](#)
- WWW 2020 **Siddharth Biswal**, Cao Xiao, Lucas Glass, Brandon Westover, Jimeng Sun [CLARA: Clinical Report Auto-completion](#)
- AAAI 2020 **Siddharth Biswal**, Cao Xiao, Lucas Glass, Elizabeth Milkovits, Jimeng Sun [Doctor2Vec: Dynamic Doctor Representation Learning for Clinical Trial Recruitment](#)
- AAAI 2020 Limeng Cui, **Siddharth Biswal**, Lucas Glass, Greg Lever, Jimeng Sun, Cao Xiao [CONAN: Complementary Pattern Augmentation for Rare Disease Detection](#)

- MLHC 2019 **Siddharth Biswal**, Cao Xiao, M Brandon Westover, Jimeng Sun. [EEG2Text: Learning to Write Medical Reports from EEG Recording](#)
- JAMIA 2018 **Siddharth Biswal**, Haoqi Sun, Balaji Goparaju, M Brandon Westover, Jimeng Sun, Matt T Bianchi [Expert-level sleep scoring with deep neural networks](#)
- KDD 2018 Yanbo Xu, **Siddharth Biswal**, Shriprasad R Deshpande, Kevin O Maher, Jimeng Sun [RAIM: Recurrent Attentive and Intensive Model of Multimodal Patient Monitoring Data](#)
- IEEE Transactions on Biomedical Engineering 2018 Sunil Belur Nagaraj, Lauren M. McClain, Emily J. Boyle, David W. Zhou, Sowmya M. Ramaswamy, **Siddharth Biswal**, Oluwaseun Akeju, Patrick L. Purdon, M. Brandon Westover. [Electroencephalogram Based Detection of Deep Sedation in ICU Patients Using Atomic Decomposition](#)
- MLHC 2017 Edward Choi, **Siddharth Biswal**, Bradley Malin, Jon Duke, Walter F. Stewart, Jimeng Sun [Generating Multi-label Discrete Patient Records using Generative Adversarial Networks](#)
- Journal of Clinical Neurophysiology 2017 J.A. Kim, E.S. Rosenthal, **Siddharth Biswal**, S. Zafar, A.V. Shenoy, K.L. O'Connor, S.C. Beчек, J. Valdery Moura, M.M. Shafi, A.B. Patel, S.S. Cash, M.B. Westover [Epileptiform abnormalities predict delayed cerebral ischemia in subarachnoid hemorrhage](#)
- Journal of Clinical Neurophysiology 2016 Ellis Wickersham, Nicholas Gaspard, Sahar Zafar, Valdery J. Moura, **Siddharth Biswal**, Sophia Beчек, Kathryn O'Connor, Eris S. Rosenthal, M. Brandon Westover. [Automation of Classical QEEG Trending Methods for Early DCI](#)
- Critical Care Medicine 2016 Sunil Belur Naharaj, Lauren McClain, David Zhou, **Siddharth Biswal**, Eris S. Rosenthal, Patrick Purdon, M. Brandon Westover. [Automatic Classification of Sedation Levels in ICU Patients Using Heart Rate Variability](#)
- IEEE EMBC 2016 Sunil Naharaj, Ramaswamy S, **Siddharth Biswal**, Lauren McClain, Eris S. Rosenthal, Patrick Purdon, M. Brandon Westover. [Heart rate variability as a biomarker for sedation depth estimation in ICU patients](#)
- IEEE EMBC 2015 **Siddharth Biswal**, Zarina Nip, Junior Moura, Matt Bianchi, Eric Rosenthal, M. Brandon Westover, [Automated information extraction from free-text EEG reports](#)

Workshops and Pre-prints

- Arxiv Preprint **Siddharth Biswal**, Josh Kulas, Haoqi Sun, Balaji Goparaju, M. Brandon Westover, Matt Bianchi, Jimeng Sun [SLEEPNET: Automatic Annotation System for Sleep Study using Deep Neural Networks](#)
- NeurIPS ML4H Workshop, 2018 **Siddharth Biswal**, M. Brandon Westover, Jimeng Sun [Predicting Electroencephalogram Impressions using Deep Neural Networks](#)

Honors and Awards

- December 2019 **AAAI Travel Scholarship**, GEORGIA INSTITUTE OF TECHNOLOGY.
- January 2017 **2nd place in Bloomberg Coding Challenge**, *Built an automated trading bot which had to make a decision for each input to sell or buy*, GEORGIA INSTITUTE OF TECHNOLOGY.
- September 2013 **1st place in eBay Hackathon**, *Built an web application for detecting fraudulent items being uploaded to eBay*, GEORGIA INSTITUTE OF TECHNOLOGY.

April 2012 **Top Rank in Undergraduate Studies(1/50)**, NATIONAL INSTITUTE OF TECHNOLOGY.

Projects

Georgia Institute of Technology	Development of an optimization framework to discover hierarchical structure in sequential data
Georgia Institute of Technology	Compositional visual question answering method using dynamic memory networks
Mass General Hospital	Designing and developing data visualization portal for viewing waveforms and vital sign data from multiple sources in ICUs at MGH
Mass General Hospital	Automated detection of Ventilator Associated Events using physiologic signal
Harvard Medical School	Cortical reactivation of memory-related gamma activity in human NREM sleep
Independent	Classification challenge to classify HTML documents are sponsored or not(Kaggle Dato Challenge)
Independent	Predict demographics of users based on the behavioral data of mobile usage
Independent	Development of Real time Dashboard showing different metrics from Physiologic signals
Mass General Hospital	Development of EEG-report searching portal using ElasticSearch

Work Permit

Current work permit	Permanent citizenship USA (Green card)
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