

Michael Stephen Saxon

EDUCATION	<p>University of California, Santa Barbara <i>Ph.D.</i>, Computer Engineering <i>Advisor: William Yang Wang, Ph.D.</i></p> <p style="text-align: right;">Santa Barbara, CA <i>Starting Sep 2020</i></p> <p>Arizona State University <i>M.S.</i>, Computer Engineering: 3.91/4.0 Thesis topic—Characterizing Dysarthric Speech with Transfer Learning <i>Advisors: Visar Berisha, Ph.D. & Sethuraman Panchanathan, Ph.D.</i></p> <p style="text-align: right;">Tempe, AZ <i>Aug 2018 - May 2020</i></p> <p>Arizona State University <i>B.S.E.</i>, Electrical Engineering; <i>Minor</i>, Mathematics: 3.60/4.0 Honors Thesis—Using Goodness of Pronunciation Features for Spoken Nasality Prediction <i>Advisor: Visar Berisha, Ph.D.</i></p> <p style="text-align: right;">Tempe, AZ <i>Aug 2014 - Aug 2018</i></p>
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RESEARCH INTERESTS	Natural language understanding; speech processing, synthesis, and recognition; representation learning; semi-supervised learning; assistive technologies; semantic data mining; AI governance
INTERNATIONAL CONFERENCE PUBLICATIONS	<p>S. Choudhary, J. Mckenna, M. Saxon, G. Strimel, A. Mouchtaris, “Semantic Complexity in End-to-End Spoken Language Understanding,” Interspeech 2020, Shanghai, CN, 2020, <i>Accepted</i>.</p> <p>M. Moore, P. Papreja, M. Saxon, V. Berisha, S. Panchanathan, “UncommonVoice: A Crowdsourced Dataset of Dysphonic Speech,” Interspeech 2020, Shanghai, CN, 2020, <i>Accepted</i>.</p> <p>M. Moore, M. Saxon, H. Venkateswara, V. Berisha, S. Panchanathan, “Say what? A dataset for exploring the error patterns that two ASR engines make,” Interspeech 2019, Graz, AT, 2019, pp. 2528-2532.</p> <p>M. Saxon, J. Liss, V. Berisha, “Objective Measures of Plosive Nasalization in Hypernasal Speech,” 2019 IEEE International Conference on Acoustics, Speech, and Signal Processing, Brighton, UK, 2019, pp. 6520-6524.</p> <p>T. Houghton, M. Saxon, Z. Song, H. Nyugen, H. Jiang and H. Yu, “2D Grating Pitch Mapping of a through Silicon Via (TSV) and Solder Ball Interconnect Region Using Laser Diffraction” 2016 IEEE 66th Electronic Components and Technology Conference (ECTC), Las Vegas, NV, 2016, pp. 2222-2227. (Texas Instruments Best Student Interactive Paper Award)</p>
PREPRINTS	M. Saxon , A. Tripathi, Y. Jiao, J. Liss, V. Berisha, “Robust Estimation of Hypernasality in Dysarthria,” (<i>Under Review, IEEE Trans. on Audio, Speech, and Language Processing</i>) arXiv:1911.11360
WORKSHOP PRESENTATIONS	<p>M. Saxon, J. Liss, V. Berisha, “A new model for objective estimation of hypernasality from dysarthric speech,” Workshop on Signal Analytics for Motor Speech (SAMS), Motor Speech Conference 2020, Santa Barbara, CA, February 2020. (<i>Accepted</i>)</p> <p>M. Saxon, S. Bhandari, L. Ruskin, G. Honda, “Word Pair Convolutional Model for Happy Moment Classification,” 2nd Workshop on Affective Content Analysis, AAAI 2019, Honolulu, HI, 2019, pp. 111-119. (Workshop Oral; Runner up model in CL-Aff Shared task, 2nd place out of 47 submitted runs)</p> <p>B. Gupta, M. Saxon, T. McDaniel, S. Panchanathan, “Chat-Box: Proposing a Mood Analyzer for Individuals with Social Interaction Disabilities,” International Conference on Human-Computer Interaction, Las Vegas, NV, 2018, pp. 394-401.</p>

EMPLOYMENT SUMMARY	Applied Science Intern , (Alexa Edge ML/Hybrid Science) Pittsburgh, PA Rejoined same team from 2019, producing Interspeech contribution from last summer's work, further research into end-to-end SLU.	Amazon <i>Jan 2020 - Present</i>
	Applied Science Intern , (Alexa Edge ML/Hybrid Science) Pittsburgh, PA Oversaw a research project integrating neural end-to-end spoken language understanding for intent classification for Alexa. Experimented with developing novel semi-supervised label projection methods to generate sequential labels from full-sequence class labels. Developed architectures for "semantic endpointing," stopping the forward pass once enough information has been heard.	Amazon <i>May 2019 - Aug 2019</i>
	Research Engineer Intern Scottsdale, AZ Integrated cloud-based ASR and developed in-house ASR models for integration in a clinical speech assessment product. Explored the design of deployable ASR systems robust to quality reduction under dysarthria.	Aural Analytics <i>Dec 2018 - Apr 2019</i>
	Graduate Research Assistant Tempe, AZ Joint funding from PIs Berisha and Panchanathan (See Publications)	Arizona State University <i>Aug 2018 - Dec 2019</i>
REU Participant Tempe, AZ NSF Center for Efficient Vehicles and Sustainable Transportation Systems: Created data acquisition code for synchronous collection of LiDAR and camera image data in C++ with a corresponding video reconstruction code for part of my Senior Design project. Assisting in the development of neural network architectures for processing LiDAR data, evaluation methodologies, and principled pre-processing for LiDAR input to neural networks.	NSF EV-STS @ Arizona State University <i>Oct 2017 - May 2018</i>	
Embedded Software Engineering Intern Scottsdale, AZ Software-level testing for an FQT release of the HOOK3 Combat Survival Radio; Preparing reports on problems detected during testing and closing PRs; Agile development team	General Dynamics Mission Systems <i>May 2017 - Jul 2017</i>	
Undergraduate Researcher Tempe, AZ Developing software for networked embedded systems; Writing pathfinding algorithms for autonomous drones in Python; Utilizing machine learning to build data analysis models	The Luminosity Lab @ Arizona State University <i>Aug 2016 - May 2018</i>	
Tutor Tempe, AZ Working in the Engineering Tutoring Center; Explaining concepts for freshman and sophomore level math, science, and electrical engineering classes to students who need help; Answering questions and giving homework help	Engineering Tutoring Center @ Arizona State University <i>Sep 2015 - Sep 2016</i>	
RESEARCH EXCHANGE	Hiroshima University Pose estimation models for Affective Computing with Dr. Toru Tamaki's group, funding provided by Center for Cognitive Ubiquitous Computing.	<i>May 2018 - Jul 2018</i>
SELECTED COURSEWORK	Fundamentals of Statistical Learning—Multimedia Deep Learning—Information Theory—Random Signal Theory—Digital Image/Video Processing and Compression—Speech and Audio Processing and Perception—Syntax—Semantics—Numerical Computing—Foundations of Algorithms	

MISCELLANEOUS **Awards**—National Science Foundation (NSF) Graduate Research Fellowship Program (2020)

Software Proficiencies—Python (Pytorch, Numpy, SciPy, Tensorflow, AllenNLP), BASH, C/C++, OpenCV, Kaldi, MATLAB, Linux, Verilog

Professional Societies—IEEE (Student Member), AAAI (Student Member)

Service—Reviewer, IEEE GlobalSIP 2019, IEEE ICASSP 2020

Scholarships—ASU Presidential Scholarship - Full Tuition; ASU SMECA (Science, Math, and Engineering Competition Award) - \$20,000; Texas Instruments Scholar Award - \$2,750; W.L. Gore Undergraduate Scholarship - \$3,000; Westwood High School Outstanding Graduate - \$3,000

Honor Societies—Phi Kappa Phi, IEEE/Eta Kappa Nu
