David Schwartz

Machine Learning (ML) Engineer (Intern), Garmin Intl., Inc.
Graduate Research Assistant, The University of Arizona
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EDUCATION		
	University of Arizona, Tucson, AZ	**Aug. 2017 - Present; GPA: 3.8/4.0**
	Ph.D. in Electrical and Computer Engineering	
	University of Arizona, Tucson, AZ	**Aug. 2015 - May 2017; GPA: 3.7/4.0**
	M.S. in Electrical and Computer Engineering	
	University of Arizona, Tucson, AZ	**Aug. 2010 - May 2015; GPA: 3.2/4.0**
	B.S. in Electrical and Computer Engineering	
	B.S. in Mathematics	

EXPERIENCE

Machine Learning Engineer Intern, Garmin (Aug. 2022 - Present)
Development of efficient and scalable ML training and inference systems for embedded and online Garmin fitness, marine, and animal products

Graduate Research Assistant, Univ. of Arizona (Aug. 2018 - Present)
Research in machine learning, investigating information theoretic limits on learning and memory in neural networks and implementing learning systems in applications to cancer detection from coherence tomography and cybersecurity (Supervisor: Dr. Gregory Ditzler)

Graduate Teaching Assistant, Univ. of Arizona (Aug. 2017 - May 2018)
Assisted Garrett Vanhoy in teaching, leading review sessions, and grading for ECE 275: Computer programming with engineering applications

Graduate Research Assistant, Univ. of Arizona (Aug. 2015 - May 2017)
Research on information theory, coding theory, detection and estimation, investigated coding and information theoretic properties of neural codes utilized in spatial navigation tasks (Supervisor: Dr. O. Ozan Koyluoglu)

Graduate Teaching Assistant, Univ. of Arizona (Aug. 2015 - May 2016)
Assisted Dr. Ali Bilgin and Dr. Siyang Cao in teaching, writing assigments, and grading for the Matlab component of ECE 310: Applications of Engineering Mathematics

Computer Engineering Intern, Univ. of Arizona (Jul. 2014 - Aug. 2015)
Developed 10GbE transceivers to safely transport measurements acquired by muon detectors at the large hadron collider and verified that designs consistently met specified power and latency constraints (Supervisor: Dr. Ken Johns)

Undergraduate Research Assistant, Univ. of Arizona, (Jan. 2012 - Jan. 2015
Implemented and tested an ultra low power (on the order of μWatts) activity driven forest fire monitor in FPGA fabric employing a globally asynchronous, locally synchronous, multi-clock architecture (Supervisor: Dr. Roman Lysecky)

Mathematics Tutor, Univ. of Arizona, (Sep. 2011 - May 2012)
Assisted students in learning mathematical concepts in one-on-one and group review sessions (Supervisor: Melissa Williams)

RELEVANT COURSEWORK

M.S. and Ph.D.: Information Theory, Random Processes, Detection and Estimation Theory, Digital Signal Processing, Channel Coding, Quantitative Modeling of Biological Systems, Machine Learning, Topics in Network Information Theory, Advanced Statistical Regression Analysis, Mathematical Neuroscience, Codes on Graphs, Big Data and Neural Computing
B.S.: Design of Complex Computer Systems, Principles of AI, Automatic Control, Complexity Theory, Computational Techniques, Microprocessor Organization, Object Oriented Software Design, Fundamentals of Computer Architecture, Signals and Systems, Electronic Circuits, Circuit Theory, Topological Spaces, Real Analysis I, Real Analysis II, Complex Variables, Advanced Applied Analysis, Abstract Algebra I, Abstract Algebra II

HONORS and AWARDS

Graduate Tuition Scholarship at The University of Arizona
Won 'Most Robust Design' award for Senior Design Project at The University of Arizona (2015)
Won 'Fastest Processor' award in ECE-369 (Fundamentals of Computer Architecture) Final Competition (2012)

PUBLICATIONS
· D. Schwartz and G. Ditzler, "On Reducing Adversarial Vulnerability with Data Dependent Stochastic Resonance," 2022 IEEE Symposium Series on Computational Intelligence (SSCI), Singapore, Singapore, 2022, pp. 1334-1341.
· D. Schwartz, N. Thurston, T. Sawyer, G. Ditzler, J. Barton, "Ovarian cancer detection using optical coherence tomography and convolutional neural networks." Neural Computing and Applications (2022): 1-11.
· D. Schwartz, G. Ditzler, "Bolstering Adversarial Robustness with Latent Disparity Regularization." In 2021 International Joint Conference on Neural Networks (IJCNN), pp. 1-8. IEEE, 2021.
· D. Schwartz, O. O. Koyluoglu, "On the organization of grid and place cells: Neural denoising via subspace learning." Neural computation 31, no. 8 (2019): 1519-1550.
· Z. Liang, D. Schwartz, G. Ditzler, O. O. Koyluglu "The impact of encoding–decoding schemes and weight normalization in spiking neural networks." Neural Networks 108 (2018): 365-378.
· D. Schwartz, O. O. Koyluoglu, "Neural noise improves path representation in a simulated network of grid, place, and time cells." Cosyne, February, no. III-42 in Cosyne abstracts (2017).
· M.J. Ragone, S. Gianelli, D. Schwartz, L. Su, O.O. Koyluoglu, J.-M. Fellous, "The role of hippocampal replay in a computational model of path learning" Program No. 263.14. 2016 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2016.
· D. Schwartz, O.O. Koyluoglu, "A hybrid code from grid and place cells" Program No. 183.26. 2016 Neuroscience Meeting Planner. San Diego, CA: Society for Neuroscience, 2016
· T. Pifer, D. Schwartz, R. Lysecky, C. Seo, and B. P. Zeigler, "Discrete event system specification, synthesis, and optimization of low-power FPGA-based embedded systems." In 2013 International Conference on Field-Programmable Technology (FPT), pp. 98-105. IEEE, 2013.

SKILLS
Programming Languages: Python, Matlab, C, C++, Java, Ruby, Verilog, VHDL
Other Computer Tools: Latex, Unix, Xilinx ISE, XPS, Vivado, Synplify

OUTREACH and SERVICE
Judged at SARSEF science fair in Tucson in 2016, 2017, 2018, and 2019
Reviewed for IEEE Transactions on Neural Networks and Learning Systems (2022)
Reviewed for Neural Networks (2021)
Reviewed for IEEE Transactions on Neural Networks and Learning Systems (2021)
Reviewed for International Joint Conference on Neural Networks (2021)
Reviewed for IEEE Transactions on Neural Networks and Learning Systems (2019)
Reviewed for IEEE ICC'17 (International Conference on Communications 2017)