

Daniel M. Olds

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EDUCATION

Sept 2023 - Present PhD Computer Science at **University of Oregon**
June 2021 MS Computer Science at **Washington State University**
May 2017 BA Philosophy, Minor Logic at **University of California, Berkeley**

WORK EXPERIENCE

Graduate Researcher June 2023 - Present

University of Oregon

- Researcher in Daniel Lowd’s Machine Learning group
- Member of NSF AI Institute for Education (INVITE)
- Research Interests: Neurosymbolic AI, integration of generative models with symbolic systems, cognitive modeling

Principal Investigator/Research Engineer June 2021 - April 2022

Quadralynx Inc.

- Developed wearable biofeedback prototype for startup with Phase I NSF SBIR grant funding
- Wrote C++ embedded code for Arduino based data acquisition system with multiple sensors
- Wrote BLE protocol using C++ and Python
- Wrote entire data pipeline in Python for multiple sensors using multithreading
- Designed signal processing algorithms and real-time feedback system based upon analytical solutions
- Performed empirical tests and wrote software tests for debugging
- Worked with Linux and Git
- Developed system for real-time signal analysis for adults with Parkinson’s

Computer Science Tutor August 2019 - May 2020

Washington State University

- Tutored non-English speaking computer science graduate students at the Learning Resource Centre, as well as through Zoom
- Course material focused on the theory of algorithms and graduate level algorithm design

Lab Manager - Speech and Language Lab June 2017 - January 2019

Washington State University

- Lab research focuses on language development, language use, behavioral measures and natural language processing
- Analysed large sets of corpus-based language data in R and MATLAB to contribute to multiple publications (listed below)
- Significantly contributed to a research paper selected for an NIH grant

SKILLS

Programming Python, C, C++, R, SQL, MATLAB, MIPS, \LaTeX
Tools Scikit-learn, Pandas, Keras, TensorFlow, NumPy, Weka, Arduino, Praat, iGraph, Linux, Git
Interpersonal Communication, Collaborative, Independent Thinking, Problem-Solving, Reliable

AWARDS & CERTIFICATES

- 2021 **NSF SBIR/STTR Phase I Grant**, *Principal Investigator*
- 2019 **R01 NIH Grant**, *participant in publication selected for clinical trials*
- 2012 **Congressional Service Award, Bronze Level**, *The United States Congress*
- 2012 **The President's Volunteer Service Award**, *The President of the United States*
- 2012 **Certificate of National Service**, *AmeriCorps NCCC - Southeast*
- Dec 2012 **Graduate Certification**, *AmeriCorps NCCC - Southeast*
- Dec 2011 **Graduate Certification**, *National Outdoor Leadership School - Patagonia*

PROJECTS

Neuro-Symbolic Computing August 2020 - December 2020

- The relationship between logic and connectionist networks is explored through the scope of the logical satisfiability problem
- Designed and implemented a Convolutional Neural Network classifier for 'difficult' propositional satisfiability problems, and achieved a successful level of accuracy
- This project investigated the thinking systems of the mind (logic) and their relation to neural architecture of the brain (connectionist networks) according to literature in neuro-symbolic computation

Analysis of the Nematode Worm Neural Network January 2020 - May 2020

- Implemented discrete and continuous core-periphery detection algorithms and compared the results with various centrality measures to evaluate their effectiveness
- Core-periphery structures offer insight into core groups and peripheral groups of a network structure
- Proposed biological interpretation of core-periphery structures in the nematode worm network

Generative Adversarial Networks for Cybersecurity Netflow Data August 2019 - December 2019

- Helped to design and implement a GAN model using Python
- Applied our model to cybersecurity data, and successfully generated synthetic malware samples
- This is motivated by the lack of labeled cybersecurity data

PUBLICATIONS

Peter, B., Potter, N., Davis, J., Donenfeld-Peled, I., Finestack, L., Stoel-Gammon, C., ..., Olds, D., Vandam, M. (2019). Toward a paradigm shift from deficit-based to proactive speech and language treatment: Randomized pilot trial of the Babble Boot Camp in infants with classic galactosemia. *F1000Research*, 8(271). doi: 10.12688/f1000research.18062.1

Vandam, M., Palma, P. D., Soderstrom, M., Casillas, M., Cristia, A., Bergelson, E., ..., Olds D., Macwhinney, B. (2019). Daylong acoustic recordings of family and child speech using the HomeBank database. *The Journal of the Acoustical Society of America*, 145(3), 1729–1729. doi: 10.1121/1.5101352

Vandam, M., Wolfenstein, K., Campanella, S., Olds, D., Palma, P. D. (2019). Syllable production in hard-of-hearing pre-schoolers. *The Journal of the Acoustical Society of America*, 145(3), 1764–1764. doi: 10.1121/1.5101460

Vandam, M., Campanella, S., Wolfenstein, K., Palma, P. D., Olds, D. (2019). Preschoolers initiate more conversations than their parents. *The Journal of the Acoustical Society of America*, 145(3), 1764–1764. doi: 10.1121/1.5101458

Vandam, M., Anderst, J., Olds, D., Saur, A., Palma, P. D. (2018). C Linguistic type-frequency in preschool boys and girls with and without hearing loss. *The Journal of the Acoustical Society of America*, *143*(3), 1821–1821. doi: 10.1121/1.5035979

Vandam, M., Saur, A., Anderst, J., Olds, D., Palma, P. D. (2018). The influence of siblings on toddlers' mean length of utterance. *The Journal of the Acoustical Society of America*, *143*(3), 1971–1971. doi: 10.1121/1.5036495

Vandam, M., Heid, H., James, S., Schraven, S., Driscoll, D., Hardie, A., ..., Olds, D. (2017). Daylong acoustic amplitude from the perspective of young children with and without hearing loss. *The Journal of the Acoustical Society of America*, *142*(4), 2641–2641. doi: 10.1121/1.5014683