Sean Robertson

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Education

2022-pres	Postdoctoral Fellow, University of Toronto, Canada
2016-2023	PhD Computer Science (convocation Nov. 2023), University of Toronto, Canada
2013-2015	MSc Computer Science, University of Toronto, Canada
2008-2013	Bachelor of Computer Science, Minor in Psychology, Hons., Co-op, University of Waterloo, Canada

Honours

2023-pres	Faculty Affiliate Researcher, Vector Institute
2022-2023	Postdoctoral Fellowship, Data Sciences Institute (DSI)
2018-2019,2021-2022	Postgraduate Affiliation, Vector Institute
2017-2020	Canadian Graduate Scholarship - Doctoral (CGS-D), Natural Sciences and Engineering Research Council of Canada (NSERC)
2016	Ontario Graduate Scholarship, Government of Ontario and the University of Toronto
2014-2015	Canadian Graduate Scholarship - Master's (CGS-M), Natural Sciences and Engineering Research Council of Canada (NSERC)
2013-2015	Wolfond Scholarship Program for Wireless Information Technology, University of Toronto
2011-2012	Undergraduate Student Research Award, NSERC

Research Interests and Experience

Current	Topics: Accent-robust speech recognition; ASR pre-training; low-resource ASR; evaluation.
PhD	Topics: Speech recognition; deep learning; multi-scale speech processing; digital signal processing; reinforcement learning; variational inference. Courses taken: Spoken Language Processing (A+); Information Visualization (A+); Learning Discrete Latent Structure (A+); and Numerical Methods for Optimization Problems (A+).

Master's	Topics: Computer-assisted pronunciation training; phonology; pedagogy; machine learning; experimental design; experimental statistics; and mobile human-computer interaction. Courses taken: Fundamentals of Cryptography (A+); Natural Language Computing (A+); Human-Computer Interaction (A+); and Computational Linguistics (A+).
Undergraduate	Research assistantships topics: probabilistic modeling; basic ("maker") circuit board design; digital signal processing; and concurrent database scaling.

Refereed Full Papers and Conference Proceedings

- **Robertson, S.,** Munteanu, C., Penn, G. (2020). *FAB: The French Absolute Beginner Corpus for Pronunciation Training.* Language Resources and Evaluation Conference (LREC). 6613-6620
- **Robertson, S.,** Penn, G., Wang, Y. (2019). *Improving Speech Recognition with Drop-in Replacements for f-bank Features.* Conference on Statistical Language And Speech Processing (SLSP). 210-222
- **Robertson, S.,** Munteanu, C., Penn, G. (2018). *Designing Pronunciation Learning Tools: The Case for Interactivity against Over-Engineering.* Conference on Human Factors in Computing Systems (CHI). 356:1-356:13.
- **Robertson, S.,** Munteanu, C., Penn, G. (2016). *Pronunciation Error Detection for New Language Learners.* Interspeech, 2691-2695.
- Rudzicz, F., Frydenlund, A., **Robertson, S.,** Thaine, P. (2016). *Acoustic-Articulatory Relationships and Inversion in Sum-Product and Deep-Belief Networks.* Speech Communication, 79, 61-73.

Workshop Proceedings and Non-Refereed Papers

- **Robertson, S.,** Penn, G., Wang, Y. (2019) *Exploring Spectro-Temporal Features in End-to-End Convolutional Neural Networks.* arXiv preprint, `arXiv:1901.00072`.
- **Robertson, S.,** Munteanu, C., Penn, G. (2016). *Language Learning Dialogue systems: Lessons in Proving Yourself.* Designing Speech and Multimodal Interactions for Mobile, Wearable, and Pervasive Applications, CHI.
- Minhas, U. F., Liu, R., Aboulnaga, A., Salem, K., Ng, J., **Robertson, S.** (2012). *Elastic Scale-Out for Partition-Based Database Systems.* IEEE 28th International Conference on Data Engineering Workshops (ICDEW), 281-288.

Teaching Experience

2014,2016-2019,2021-2022 Computational Linguistics - Teaching Assistant

Pre- and post-assignment tutorials; assignment revisions; marking; occasional stand-in teaching.

2022	Spoken Language Processing - Teaching Assistant Aided graduate students in research project formulation and evaluated their outcomes.
2020,2021	Natural Language Computing - Co-instructor Co-taught alongside Frank Rudzicz in both years, and with Serena Jeblee in the latter. In addition to lectures and managing TAs, rewrote whole assignment and some of the lecture content.
2014,2017	Introduction to Computer Science - Teaching Assistant Overseeing first-year labs.

Professional Experience

2022	Vector Institute Conversational AI Project Teaching Assistant.
2020	AI engineer for Sun Life Financial.
2014-2018	Contracted work for Speax Inc. Speech recognition software development for iOS; consultation. Appeared on CBC's The National.

Service

- Reviews for Journals:*Speech Communication* (2018-2019, 2021-2022)
- Reviews for Conferences:*CoNLL* (2023),*AISTATS* (2022-2023),*ICMI* (2021, 2022 - Best Reviewer Award),*INTERSPEECH* (2021-2023),*UIST* (2021),*CUI* (2021),*EMNLP* (2019),*CHI - LBW* (2018)

References

- Prof. Gerald Penn (current and past supervisor), Department of Computer Science, University of Toronto. gpenn@cs.toronto.edu
- Prof. Frank Rudzicz (committee member and CSC401 co-instructor), Department of Computer Science, University of Toronto. frank@spoclab.com
- Prof. Cosmin Munteanu (past supervisor), Department of Computer Science, University of Toronto. cosmin@taglab.ca