Logan Born
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Education

Doctor of Philosophy, Computing Science — Ongoing
Simon Fraser University, Burnaby, BC, Canada

Master of Science, Computing Science — 2018
Simon Fraser University, Burnaby, BC, Canada
Cumulative GPA: 4.2 (4.33 point scale)
Senior Supervisor: Anoop Sarkar
Thesis title: *Properties of Prefix Lexicalized Synchronous Grammars*

Bachelor of Science, Computer Science, Minor in Linguistics — 2016
University of Calgary, Calgary, AB, Canada
Cumulative GPA: 3.985 (4 point scale)

Teaching and Research Interests

- My interests broadly include applications of natural language processing to the digital humanities, formal language theory, and natural language syntax.
- I am currently part of an interdisciplinary team using techniques from computational linguistics to assist with understanding ancient Near Eastern scripts including proto-Elamite and proto-cuneiform.

Publications

Born, Logan, Kate Kelley, Nishant Kambhatla, Carolyn Chen, and Anoop Sarkar. 2019. Sign clustering and topic extraction in proto-Elamite. In *Proceedings of the Third Joint SIGHUM Workshop on Computational Linguistics for Cultural Heritage, Social Sciences, Humanities and Literature (LaTeCH-ClfL-2019)* 122–132. Minneapolis, Minnesota, USA.

Han, Chung-hye, Sara Williamson, **Logan Born**, and Anoop Sarkar. 2018. An analysis of clausal coordination using synchronous tree adjoining grammar. In *Journal of Logic and Computation* 29(1):91–123. DOI: https://doi.org/10.1093/logcom/exy031

Born, Logan. 2018. *Properties of Prefix Lexicalized Synchronous Grammars.* M.Sc. Thesis, Simon Fraser University.

Born, Logan and Anoop Sarkar. 2018. Prefix lexicalization of synchronous CFGs using synchronous TAG. In *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics* 1:1160–1170. Melbourne, Australia.

Other Presentations

Born, Logan and Anoop Sarkar. 2018. A weight-preserving lexicalization for weighted synchronous context-free grammars. 9th International Workshop on Weighted Automata: Theory and Applications (WATA 2018). Leipzig, Germany.

Han, Chung-hye and Anoop Sarkar. 2017. Coordination in TAG without the Conjoin Operation. 13th International Workshop on Tree-Adjoining Grammar and Related Formalisms. Umeå, Sweden. **Presented on behalf of Anoop Sarkar.**

Other Research Experience

Data Exploration for Undeciphered Ancient Near Eastern Scripts Ongoing
As part of an interdisciplinary team of archaeologists and computer scientists, I am using techniques from natural language processing to advance our understanding of tablets written in undeciphered scripts including proto-Elamite and proto-cuneiform.

SFU TAG Reading Group 2016–2017
As part of an interdisciplinary linguistics/computer science reading group, I completed research into modeling linguistic phenomena with lexicalized synchronous tree-adjoining grammars. We developed a novel approach to modeling the syntax and semantics of sentences with coordination.

Topics in Quantum Computing 2015
As part of a combined graduate-undergraduate course in quantum computing, I completed both independent and group research into the error-tolerance of amplitude amplification and related search-based quantum algorithms.

Formal Properties of Tree Tuple Multi-Component Tree Adjoining Grammars 2015
Research funded by an NSERC USRA grant, supervised by Dr. Peter Høyer, University of Calgary. We investigated whether all tree-tuple multicomponent tree adjoining languages are semilinear, and looked for normal forms and pumping algorithms for this class of languages.

Undergraduate Research Projects 2012–2016
At an undergraduate level I have investigated the syntax of split constitutents in Old English; historical phonology with an emphasis on Proto-Germanic prosody (tonal accents, syllable cut, and stød); syntactic and semantic changes in the development of Proto-Anatolian out of Proto-Indo-Hittite; and the historiography of markedness and well-formedness in linguistics.

Teaching Experience

Teaching Assistant, Simon Fraser University

CMPT 353 – Computational Data Science	Fall 2019
CMPT 225 – Data Structures and Programming	Fall 2019
CMPT 127 – Computing Laboratory	Summer 2018
CMPT 120 – Introduction to Computing Science and Programming I	Fall 2017
CMPT 225 – Data Structures and Programming	Fall 2017
CMPT 383 – Comparative Programming Languages	Summer 2017

Honours, Awards, and Grants

SFU Computing Science Travel Award	2018
SFU CMPT Graduate Fellowship	2016
NSERC Canada Graduate Scholoarship-Master's (CGS-M)	2016
NSERC Undergraduate Student Research Award (USRA)	2015
Don S. Bidulock Scholarship in Computer Science	2015
University of Calgary Undergraduate Merit Award	2015
Louise McKinney Post-Secondary Scholarship	2013, 2014, 2015
John D. Petrie Memorial Undergraduate Bursary	2014
University of Calgary Senate Bursary	2013
President's Admission Scholarship, University of Calgary	2012
Margaret and Ted Newall Bursary	2012
Alexander Rutherford Scholarship	2012
Governor General's Academic Medal (Bronze)	2012

Volunteer Experience

Simon Fraser Museum of Archaeology and Ethnology

Research Associate	Fall 2019
Project Manager, Archive Digitization and Cataloguing	2017 – 2018

Language Competence

English (native), French (read, write, speak), Japanese (basic reading and writing)