Kathleen Fraser

CONTACT INFORMATION	Språkbanken, Department of Swedish University of Gothenburg Box 200 405 30 Gothenburg, Sweden	+46 070 234 9157 kathleen.fraser@gu.se `www.cs.toronto.edu/~kfraser` Citizenship: Canadian

EDUCATION

University of Toronto

Ph.D. in Computer Science (2011–2016)

Thesis: Automatic text and speech processing for the detection of dementia
Advisors: Graeme Hirst and Jed Meltzer
External examiner: Brian Roark

Dalhousie University

Master of Computer Science (2008–2011)

Thesis: Projected Barzilai-Borwein method with infeasible iterates for nonnegative image deconvolution
Advisors: Dirk Arnold and Graham Dellaire

St. Francis Xavier University

B.Sc. in Physics (Honours) (2003–2007)

Thesis: Correlating local structure and local dynamics in a glass-forming liquid
Advisor: Peter Poole

PROFESSIONAL APPOINTMENTS

2017–present: Post-doctoral researcher, University of Gothenburg

Research topic: Linguistic and extra-linguistic markers of mild and subjective cognitive impairment. This work involves building models to predict cognitive status from multi-modal information sources, including speech, eye-movements, MRI images, and neuropsychological test scores.

REFEREED PUBLICATIONS

Kathleen C. Fraser, Kristina Lundholm Fors, Dimitrios Kokkinakis, and Arto Nordlund (2017). An analysis of eye-movements during reading for the detection of mild cognitive impairment. In *Proceedings of the 2017 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Copenhagen, Denmark, pp. 1027-1037.

Karine Marcotte, Naida L. Graham, Kathleen C. Fraser, Jed A. Meltzer, David Tang-Wai, Morris Freedman, Carol Leonard, Sandra E. Black, and Elizabeth Rochon (2017). White matter disruption and connected speech in non-fluent and semantic variants of primary progressive aphasia. *Dementia and Geriatric Cognitive Disorders Extra*.

Luke Zhou, Kathleen C. Fraser, Frank Rudzicz (2016). Speech recognition in Alzheimer's disease and in its assessment. In *Proceedings of INTERSPEECH*, San Francisco, California, pp. 1948–1952.

Kathleen C. Fraser, Frank Rudzicz, and Graeme Hirst (2016). Detecting late-life depression in Alzheimer's disease through analysis of speech and language. In *Proceedings of the 3rd Workshop on Computational Linguistics and Clinical Psychology (CLPysch)*, San Diego, California, pp. 1–11.

Kathleen C. Fraser and Graeme Hirst (2016). Detecting semantic changes in Alzheimer's disease with vector space models. In *Proceedings of the 1st Workshop on Resources and processing of*

linguistic and extra-linguistic data from people with various forms of cognitive/psychiatric impairments (RaPID), Portoroz, Slovenia, pp. 1–8.

Kathleen C. Fraser, Jed A. Meltzer, and Frank Rudzicz (2015). Linguistic features identify Alzheimer's disease in narrative speech. *Journal of Alzheimer's Disease* 49, pp. 407–422.

Maria Yancheva, Kathleen C. Fraser, and Frank Rudzicz (2015). Using linguistic features longitudinally to predict clinical scores for Alzheimer's disease and related dementias. In *Proceedings of the 6th Workshop on Speech and Language Processing for Assistive Technologies (SLPAT2015)*, Dresden, Germany, pp. 134–138.

Kathleen C. Fraser, Naama Ben-David, Graeme Hirst, Naida L. Graham, and Elizabeth Rochon (2015). Sentence segmentation of aphasic speech. In *Proceedings of the 2015 Conference of the North American Chapter of the Association for Computational Linguistics – Human Language Technologies (NAACL-HLT-2015)*, Denver, Colorado, pp. 862–871.

Kathleen C. Fraser, Jed A. Meltzer, Naida L. Graham, Carol Leonard, Graeme Hirst, Sandra E. Black, and Elizabeth Rochon (2014). Automated classification of primary progressive aphasia subtypes from narrative speech transcripts. *Cortex* 55, pp. 43–60.

Kathleen C. Fraser, Graeme Hirst, Jed A. Meltzer, Jennifer E. Mack, and Cynthia K. Thompson (2014). Using statistical parsing to detect agrammatic aphasia. In *Proceedings of the 2014 Workshop on Biomedical Natural Language Processing (BioNLP)*, Baltimore, Maryland, pp. 134–142. **Featured Presentation**

Kathleen C. Fraser, Graeme Hirst, Naida L. Graham, Jed A. Meltzer, Sandra E. Black, and Elizabeth Rochon (2014). Comparison of different feature sets for identification of variants in progressive aphasia. In *Proceedings of the 1st Workshop on Computational Linguistics and Clinical Psychology (CLPsych)*, Baltimore, Maryland, pp. 17–26.

Kathleen Fraser, Dirk V. Arnold, and Graham Dellaire (2014). Projected Barzilai-Borwein method with infeasible iterates for nonnegative least-squares image deblurring. In *Proceedings of the Eleventh Conference on Computer and Robot Vision (CRV 2014)*, Montreal, Canada, pp. 189–194.

Kathleen C. Fraser, Frank Rudzicz, and Elizabeth Rochon (2013). Using text and acoustic features to diagnose progressive aphasia and its subtypes. In *Proceedings of INTERSPEECH*, Lyon, France, pp. 2177–2181. **ISCA Best Student Paper Award**

Kathleen C. Fraser, Frank Rudzicz, Naida Graham, and Elizabeth Rochon (2013). Automatic speech recognition in the diagnosis of primary progressive aphasia. In *Proceedings of the Fourth Workshop on Speech and Language Processing for Assistive Technologies (SLPAT2013)*, Grenoble, France, pp. 47–54.

PRIZES AND AWARDS	Governor General's Academic Gold Medal 2017
	Baycrest Annual "Research in Print" Award 2015
	Toronto Rehabilitation Institute Communication Team "Team Excellence" Award 2013
	NSERC Alexander Graham Bell Canada Graduate Scholarship (CGS-D) 2013
	International Speech Communication Association (ISCA) Travel Grant 2013
	Google Canada Anita Borg Memorial Scholarship 2011
	NSERC Alexander Graham Bell Canada Graduate Scholarship (CGS-M) 2010
	Dalhousie Faculty of Computer Science Scholarship 2009
	Dr. M. S. Gautam Prize for Fourth Year Physics 2007
	David Davis Prize for Third Year Physics 2006
	Charles Jordan Prize for Second Year Physics 2005
	NSERC Undergraduate Summer Research Award (USRA) 2005, 2006
	StFX University Council for Research Grant 2004

StFX President's Scholarship 2003 (renewed in 2004, 2005, 2006)

TEACHING EXPERIENCE	**2016: Course Instructor, University of Toronto**

Course instructor for an introductory Python course for students in the sciences. Responsibilities include planning the lectures, assignments, labs, and tests, delivering the lectures, managing the teaching assistants who provide support for the grading and lab supervision, maintaining the course website, and submitting the final course grades.

2015: Undergraduate Research Showcase Assistant, University of Toronto

Helped develop two assignments for attendees of the showcase, as well as marked and provided detailed, formative feedback on those assignments.

2013–2014: Career Mentorship Program Assistant, University of Toronto

Provided support for the new reflective writing component of the program.

2012–2014: Lead Writing TA for Computer Science, University of Toronto

Worked with instructors to help incorporate more writing in CS courses, and trained TAs to grade and respond to the students' written work.

2011–2013: Teaching Assistant, University of Toronto

Computational Linguistics (1 semester)
Introduction to Computer Science (1 semester)
Introduction to Computer Programming for Engineers (1 semester)

2009–2011: Teaching Assistant, Dalhousie University

Computer Science I (3 semesters)
Computer Science II (3 semesters)
Computer Science III (1 semester)

2006: Marking Assistant, St. Francis Xavier University

Introduction to Calculus (1 semester)

ENTREPRENEURIAL EXPERIENCE

2015–present: Co-founder of Winterlight Labs, Inc.

I created this company with three of my research collaborators, with the goal of translating our academic research into a commercial product that could be used to help identify and track symptoms of dementia. In September 2016 we closed a seed round with life science investment firm Novatio Ventures, and have also been awarded grants from the University of Toronto Banting & Best Centre for Innovation and Entrepreneurship, the Canadian national research network AGE-WELL, and the Ontario Brain Institute. Winterlight Labs is currently running pilot studies in partnership with a number of national retirement residences and home-care providers, to validate a language-based tablet assessment of cognition and language.

STUDENT CO-SUPERVISION

Ellen Korcovelos (Sept 2016–Feb 2017, co-supervised by Graeme Hirst)

Visiting Fulbright Scholar
Topic: Machine learning classification for the differential diagnosis of dementia and aphasia

Luke Zhou (May–Aug 2015, co-supervised by Frank Rudzicz)

Undergraduate research assistant
Topic: Improving automatic speech recognition for people with Alzheimer's disease through acoustic and language model adaptation

Naama Ben-David (March–May 2014, co-supervised by Graeme Hirst)

Undergraduate research assistant
Topic: Sentence segmentation of automatically recognized transcripts from aphasic speakers

PROFESSIONAL SERVICE

Reviewer for *International Journal of Speech-Language Pathology* (2017)

Program Committee for the 2017 Workshop on Computational Linguistics and Clinical Psychology (CLPsych '17)
Reviewer for *Journal of Medical Internet Research* (2017)
Reviewer for *Neuropsychiatric Disease and Treatment* (2017)
Reviewer for *Biomedical Signal Processing and Control* (2016)
Reviewer for *Journal of Alzheimer's Disease* (2014)
Program Committee for the 2014 Workshop on Speech and Language Processing for Assistive Technologies (SLPAT'14)
Reviewer for *Cortex* (2013)

UNIVERSITY AND DEPARTMENTAL ACTIVITIES

Panellist at Graduate Orientation, 2016
Invited speaker at the Department of Speech-Language Pathology Research Colloquium, 2015
Presenter at the Accessibility Innovation Showcase, 2015
Presenter at Research in Action Showcase 2013, 2015
Co-creator and leader of training workshop for new teaching assistants in the Department of Computer Science, 2012–2014
Organizer of Grad Visit Day for the Computational Linguistics group 2013, 2014
Presenter at Grade 11 Visit Day (high school outreach initiative) 2013
Presenter at Toronto Rehab Research Day 2012, 2013
Presenter at Artificial Intelligence Day 2012
Mentor at Graduate Orientation Week 2012
Secretary of the Dalhousie Women in Technology Society 2010–2011
Co-creator and organizer of *Girls Talk Tech* networking event series 2010-2011
Secretary of the Physics Society 2006–2007

OTHER ACTIVITIES

Guest speaker at the University of Gothenburg, Sweden, March 2016
Guest speaker at the University São Paulo, Brazil, February 2016
Invited participant in MIT Rising Stars in EECS Workshop 2015
Participant in the Grace Hopper Celebration of Women in Computing 2011
Participant in the SWAP Work Exchange Program (Scotland) 2007–2008

REFERENCES

Available upon request.