Chris Tanner

Harvard University
Institute for Applied Computational Science
Allston, MA, USA
✉ christanner@g.harvard.edu
🖥 chriswtanner.com

Research interests

My research is within natural language processing and machine learning, with a focus on discourse, semantics, and understanding.

Education

2019	**Ph.D. Computer Science**, Brown University	
Adviser	Eugene Charniak	
Ph.D. Thesis	Cross-Document Coreference Resolution for Entities and Events	

2009	**M.S. Computer Science**, UCLA
Adviser	Michael Dyer
M.S. Thesis	An Exploration of Animats-Based Evolution and Communication

2006	**B.S. Computer Science**, Florida Institute of Technology
	B.S. Applied Mathematics, Florida Institute of Technology

Staff Appointments

2019 –   **Harvard University**, *Lecturer*.
Teach graduate courses in natural language processing, deep learning, and data science. Advise Master's thesis research and undergraduates. The Capstone Research course involves directing 40-students on team-based, real-world projects for industry organizations.

2009 – 2012   **MIT Lincoln Laboratory**, *Associate Staff Researcher*.
Within the Human Language Technology group, my research included machine translation, named entity recognition, topic modelling, entity disambiguation, face recognition, and streaming algorithms.

Internships

2017   **Spotify**, *Research Intern*.
Project: Natural language understanding / slot-filling and intent classification

2015   **IBM Watson**, *Research Intern*.
Project: Question-answering and learning-to-rank

2013	**Johns Hopkins University's HLTCOE**, *Research Intern*.
	Project: Automatic query generation and document linking
	Mentors: Mark Dredze and Ben van Durme
2008	**MIT Lincoln Laboratory**, *Research Intern*.
	Project: highly-efficient pattern matching and artificial computer-user simulation
Summer 2007	**Google**, *Software Engineer*.
	Project: automated software testing for Google Picasa (became Google Photos)
Spring 2007	**National Security Agency (NSA)**, *Mathematics Intern*.
	Project: error-correcting codes (abstract algebra and dynamics))
2006	**National Security Agency (NSA)**, *Research Intern*.
	Project: active learning for speech recognition
2004 – 2006	**Florida Institute of Technology**, *Undergraduate Researcher*.
	Project: hierarchical user-based models for personalized information retrieval
2004 – 2005	**Florida Institute of Technology + NASA**, *Undergraduate Researcher*.
	Project: anomaly detection for space shuttle valves

Publications

Brown University	**Chris Tanner** *Toward Featureless Event Coreference Resolution via Conjoined Convolutional Neural Networks. In Brown University Computer Science Dissertations.* 2019.
NAACL	**Chris Tanner** and Eugene Charniak. *A Hybrid Generative/Discriminative Approach to Citation Prediction* An Investigation of Hierarchical Query Sequence Structure.In Proceedings of the Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), pages 75–83, 2015
NIST	**Chris Tanner**, Stephen Chen, Byron Wallace, and Eugene Charniak. *Discriminative Approaches to Citation Evidence Linking and Discourse Prediction* Text Analysis Conference (TAC) Workshop (NIST). 2014
UCLA	**Chris Tanner** *An Exploration of Animats-Based Evolution and Communication. In University of California at Los Angeles Computer Science Master's Thesis.* 2009.

In Progress

In Submission	Alessandro Stolfo, **Chris Tanner**, Vikram Gupta and Mrinmaya Sachan. *An Unsupervised Model for Coreference using Contextualized Representations and Distant Supervision from Linguistic Rules*. 2021.
In Progress	Mingyue Wei and **Chris Tanner**. *End-to-end Entity Linking*. 2021.
In Progress	Will Fried, Jessica Wijaya, Shucheng Yan, Yixuan Di, Zona Kostic, Andy Terrel, and **Chris Tanner**. *End-to-end Entity Linking*. 2021.

In Progress	Ali Hindy, Thomas Fouts, and **Chris Tanner**. *The Efficacy of Multi-modalities for Novice Learners of American Sign Language*. 2021.
In Progress	Thomas Fouts, Ali Hindy, and **Chris Tanner**. *The SignBank Corpus*. 2021.
In Progress	Thomas Fouts, Ali Hindy, and **Chris Tanner**. *An Effective EMG-based Harness for Sign Language*. 2021.

Invited Talks

This list does not include conference talks, guest lectures, or job-interview talks.

1. *Advice for the Teaching-Track Faculty Job Market.* Alum Panel. Brown University. September 2021.
2. *Deep Learning with Attention.* AI Speaker Series. Keystone Strategy. May 2021.
3. *Hard NLP Tasks: Determining who is who and what is what.* Applied Computation Seminar Series. Harvard University. April 2021.
4. *Language Models and Beyond.* ComputeFest 2021. Harvard University. January 22, 2021.
5. *Cross-document Event Coreference Resolution.* Computer Science Seminar. Florida Institute of Technology. November 20, 2020.
6. *Challenges in Natural Language Processing.* Open Data Science Conference (ODSC). May 19, 2020.
7. *Sequential Data* ComputeFest 2020. Harvard University. January 23, 2020.
8. *Research and Development Meets IT* RDMeetsIT Panel, by Mercedes Benz. MIT Media Lab. October 27, 2019.
9. *The Job Market* PhD Alumni Panel. Brown University. September 27, 2019.

Teaching

Harvard University

Fall 2021	Deep Learning for Natural Language Processing (Graduate).
	Topics: LSTMs, Transformers, Machine Translation, Coreference Resolution, etc
	Role: Instructor. Enrollment: 50
Fall 2021	Applied Computational Science Research Capstone (Graduate).
	Details: Design machine learning projects with industry partners; lead teams of Master's students toward solutions
	Role: Instructor. Enrollment: 32
Spring 2021	Advanced Data Science (Graduate and Undergraduate).
	Topics: CNNs, LSTMs, VAEs, Transformers, GANs, Reinforcement Learning
	Role: Co-instructor. Enrollment: 240
Spring 2021	Applied Computational Science Research Capstone (Graduate).
	Details: Design machine learning projects with industry partners; lead teams of Master's students toward solutions
	Role: Instructor. Enrollment: 16

Fall 2020	Introduction to Data Science (Graduate and Undergraduate). Topics: Regression, Inference, EDA, Visualization, Trees, Boosting, Neural Networks Role: Co-instructor. Enrollment: 390
Fall 2020	Applied Computational Science Research Capstone (Graduate). Details: Design machine learning projects with industry partners; lead teams of Master's students toward solutions Role: Instructor. Enrollment: 40
Spring 2020	Advanced Data Science (Graduate and Undergraduate). Topics: CNNs, LSTMs, VAEs, Transformers, GANs, Reinforcement Learning Role: Co-nstructor. Enrollment: 230
Spring 2020	Data Science Research Capstone (Graduate). Details: Design machine learning projects with industry partners; lead teams of Master's students toward solutions Role: Instructor. Enrollment: 8
Fall 2019	Introduction to Data Science (Graduate and Undergraduate). Topics: Regression, Inference, EDA, Visualization, Trees, Boosting, Neural Networks Role: Co-instructor. Enrollment: 380
Fall 2019	Applied Computational Science Research Capstone (Graduate). Details: Design machine learning projects with industry partners; lead teams of Master's students toward solutions Role: Co-instructor. Enrollment: 32

Brown University

Fall 2018	Introduction to Computation for Humanities and Social Sciences (Undergraduate). Topics: data types, functions, data structures, text analysis, APIs, visualizations Role: Instructor. Enrollment: 27
Fall 2014	Introduction to Computational Linguistics (Undergraduate). Topics: Tagging, Parsing, Machine Translation, Topic Modelling Role: Teaching Assistant. Enrollment: 45

UCLA

Spring 2007	Assembly Language (Undergraduate). Role: Teaching Assistant. Enrollment: 60
Winter 2007	Artificial Intelligence (Graduate and Undergraduate). Role: Teaching Assistant. Enrollment: 40

Florida Institute of Technology

Fall 2006   Data Structures and Algorithms (Undergraduate).
Role: Teaching Assistant.   Enrollment: 45

Advising & Thesis Committees

Harvard University – Master's Thesis

2021 - 2022   Anita Mahinpei. *Automated Data Visualization Captioning.*
2021 - 2022   Xiaohan Yang. *Active Learning for Coreference Resolution.*
2021 - 2022   Xin Zeng. *Joint Coreference Resolution for Entities and Events.*
2021 - 2022   Jack Scudder. *Commonsense-driven Adversarial Attacks in NLP.*
2020 - 2021   Mingyue Wei. *End-to-end Entity Linking with Coherence.*

ETH Zurich – Master's Thesis (co-advised)

2021 - 2022   Yoel Zweig. *Automatic Grammar Correction.*
2020 - 2021   Alessandro Stolfo. *Active Learning for Coreference Resolution.*

Harvard University – Independent Study

Summer 2021   Sun Jie. *Inducting Commonsense into Coreference Resolution.*
Summer 2021   Xavier Evans. *Inducting Commonsense into Coreference Resolution.*
Spring 2021   Ning Hua (exchange from Smith College). *Joint Coreference Resolution for Entities and Events.*
Spring 2020   Brendan Falk. *Extracting People-Organisation Relations from Documents for more Accurate Person Entity Disambiguation*

Brown University – Undergraduates (mentoring)

2017 – 2018   Zhenhao (Andrew) Hou. *Cross-document Event Coreference Resolution*
2015 – 2017   Qiheng (Sergio) Chen. *Cross-document Event Coreference Resolution*

High school

2020 – 2021   Ali Hindy and Thomas Fouts. *Automated American Sign Language Translation from hand-built sensors.*

Service

2020 –   Coach of *Harvard's ICPC Programming Team*
January 2021   Speaker and host of *Harvard's ComputeFest, Language Models: n-grams to Transformers*
January 2021   Reviewer of Harvard Graduate Student applications
January 2020   Speaker and host of *Harvard's ComputeFest, Sequential Data Day*

January 2020   Reviewer of Harvard Graduate Student applications
2017 –   Reviewer for ACL, NAACL, EMNLP

Recent Awards

2020   Coach of Harvard's ICPC Programming Team, which placed 2nd in the USA
2020   Harvard Certificate of Teaching Excellence
2019   Harvard Certificate of Teaching Excellence
2018   ACL Top Reviewer

Software Fluency

Primary   Python (2015 –), JAVA (2002 – 2015)
Frameworks   PyTorch, TensorFlow, Keras, Theano (2015)
Past   C++, C, Objective-C (iOS development), IBM Info Sphere, Haskell, LISP, Ada, *Basic, Eggplant, FORTRAN, Ruby, Perl, MATLAB, Mathematica, Maple, R