



Tom Effland

Contact

✉ teffland@cs.columbia.edu teffland.github.io  [teffland](#)  [tomeffland](#)

Technical Interests

Natural language processing, machine learning, semi-supervised and active learning, grounded knowledge discovery, intelligent assistance, decision support systems.

Education

Columbia University, New York, New York USA

Ph.D., Computer Science, Expected Summer, 2022 (currently ABD)

M.Phil., Computer Science, December, 2018

M.S., Computer Science, December, 2016

Research Area: Information Extraction, Natural Language Processing, Machine Learning

Advisers: Prof. Michael Collins, Prof. Daniel Hsu

University at Buffalo, The State University of New York, Buffalo, New York USA

B.S., Applied Mathematics, Honors, May, 2015

Minors in Computer Science and Statistics, (*GPA: 3.99/4.0*)

Professional Experience

Stealth Startup, New York, New York, USA

Co-founder and CTO

January 2022 - Present

- Implementing a sophisticated machine reading system for a complex and valuable legaltech / fintech application from the ground up
- Secured pre-seed funding by top VCs and angels in the space

Instabeat, Inc., San Francisco, California, USA

Technical Consultant

June, 2018 - September 2018

- Designed, developed, and deployed machine learning pipeline for supporting app technology

NYC Department of Health and Mental Hygiene, New York, New York, USA

Technical Consultant

January, 2016 - January, 2018

- Designed and developed social media analysis machine learning pipeline for automatically detecting possible foodborne illness outbreaks, supporting epidemiologist investigations

TextIQ, Inc., New York, New York USA

Research Intern

June, 2016 - August, 2016

- Researched novel techniques for natural language interfaces, semantic parsing, and question answering over structured knowledge sources
- Implemented a system for automatically building question answering chatbots from scratch for new structured data sources

Research Experience

Columbia University, New York, New York USA

Graduate Research Assistant

September, 2017 - Present

Department of Computer Science

- Researching statistical methods for semi-supervised learning of structured prediction models (named entity taggers and syntactic dependency parsers) with weak constraints
- *Project Adviser:* Prof. Michael Collins

Graduate Research Assistant

August, 2015 - July, 2017

Department of Computer Science

- Researched principled methods and strategies for extraction of actionable information from rare events on social media
- Collaborated with NYC Department of Health to identify foodborne illness outbreaks from Yelp and Twitter to facilitate targeted investigation of restaurants
- *Project Advisers:* Prof. Luis Gravano and Prof. Daniel Hsu

University of Illinois at Urbana-Champaign, Urbana, Illinois USA

Research Assistant

June, 2014 - August, 2014

Passionate on Parallel NSF-Supported REU, Parallel Computing Institute

- Researched techniques for using Hadoop to automatically parallelize scientific codes
- Parallelized atmospheric science pollution simulation research software with MPI
- *Project Advisers:* Prof. Nicole Riemer, Prof. Matthew West

University at Buffalo, The State University of New York, Buffalo, New York USA

Independent Honors Research

August, 2014 - April, 2015

Department of Computer Science

- Won 1st place in ACM SIGCSE Undergraduate Student Research Competition Grand Finals
- Researched and developed context-focused web crawling framework for extracting similar content from heterogeneous seed domains
- Specific application was retrieval of university course descriptions given only domain names
- *Project Adviser:* Prof. Bina Ramamurthy

NASA Europa Challenge Team Member, iGlobe project

March, 2014 - May, 2014

Department of Computer Science

- Won 2nd place University Project in international software competition
- Researched and coordinated implementation of weather API interface layer into iGlobe
- *Project Adviser:* Prof. Varun Chandola

Research Assistant

January, 2013 - May, 2014

Department of Computer Science, Department of Mathematics

URGE to Compute NSF-Supported REU

- Developed scalable, accurate, and secure matching algorithms for fingerprints
- Researched machine learning and error correcting code applications to secure fingerprint matching
- *Project Advisers:* Prof. Atri Rudra, Prof. John Ringland

Journal Publications

T. Effland and Michael Collins. Partially Supervised Named Entity Recognition via the Expected Entity Ratio Loss. *Transactions of the Association for Computational Linguistics (TACL)*, December 2021

T. Effland, Anna Lawson, Sharon Balter, Katelynn Devinney, Vasuhda Reddy, Luis Gravano, Daniel Hsu. Discovering Foodborne Illness in Online Restaurant Reviews. *Journal of the American Medical Informatics Association*, Volume 25, Issue 12, 1 December 2018, Pages 1586 - 1592, <https://doi.org/10.1093/jamia/ocx093>

Conference Publications

T. Effland. 2015. Focused Retrieval of University Course Descriptions from Highly Variable Sources. In *ACM Student Research Competition Undergraduate Grand Finals*. **First Place Award**.

J. Hartloff, M. Morse, B. Zhang, **T. Effland**, J. Cordaro, J. Schuler, S. Tulyakov, A. Rudra, V. Govindaraju. 2015. A Multiple Server Scheme for Fingerprint Fuzzy Vaults. In *Computer Vision and Pattern Recognition Workshops (CVPRW)*, 2015 IEEE Conference on.

M. Morse, J. Hartloff, **T. Effland**, J. Schuler, J. Cordaro, S. Tulyakov, A. Rudra, V. Govindaraju. 2014. Secure Fingerprint Matching With Generic Local Structures. In *Computer Vision and Pattern Recognition*

Workshops (CVPRW), 2014 IEEE Conference on. pages 84-89.

T. Effland, M. Schneggenburger, J. Schuler, B. Zhang, J. Hartloff, J. Dobler, S. Tulyakov, A. Rudra, V. Govindaraju. 2014. Secure fingerprint hashes using subsets of local structures. In *Proc. SPIE 9075-12, Biometric and Surveillance Technology for Human and Activity Identification XI, 90750D*.

Conference Presentations

T. Effland. Partially Supervised Named Entity Recognition via the Expected Entity Ratio Loss. Empirical Methods in Natural Language Processing, Punta Cana, Dominican Republic, November, 2021.

T. Effland. Focused Retrieval of University Course Descriptions from Highly Variable Sources. ACM SIGCSE Student Research Competition, Kansas City, Missouri, March, 2015.

T. Effland, M. Schneggenburger, J. Schuler, B. Zhang, J. Hartloff, J. Dobler, S. Tulyakov, A. Rudra, V. Govindaraju. Secure fingerprint hashes using subsets of local structures. SPIE Defense, Sensing, Security Biometrics Workshop, Baltimore, Maryland, May, 2014.

T. Effland, M. Schneggenburger, J. Schuler. Fingerprints as Passwords. National Conference for Undergraduate Research (NCUR), Lexington, Kentucky, April, 2014.

Poster Presentations

Drashko Nakikj, **T. Effland**. The Posts Recommendation Algorithm for dExplorer. Columbia University Data Visualization and Exploration Poster Event, New York, New York, May, 2017.

T. Effland. Identifying Foodborne Illness from Social Media. Columbia University Data Science Day, New York, New York, April, 2016.

T. Effland. Focused Retrieval of University Course Descriptions from Highly Variable Sources. University at Buffalo Celebration of Excellence, Buffalo, New York, April, 2015.

T. Effland. Focused Retrieval of University Course Descriptions from Highly Variable Sources. ACM SIGCSE Student Research Competition, Kansas City, Missouri, March, 2015.

Technical Skills

Languages: Python , Javascript

Libraries & Frameworks: PyTorch, Tensorflow, Pandas, SpaCy, Jupyter, Scikit-Learn

Web & Visualization: React, Matplotlib, HTML, CSS, jQuery, d3

Data: JSON, XML, SQL, MongoDB, PostgreSQL, Neo4J, ElasticSearch

Honors and Awards

Columbia University:

- Northeast Big Data Hub Young Innovators Award
- NSF Graduate Research Fellowship
- NSF IGERT "From Data to Solutions" Fellowship

June, 2016
April, 2016
August, 2015

University at Buffalo:

- 1st Place - ACM Student Research Competition Grand Finals
- Outstanding Senior Award, Mathematics Department
- NSF Data-Intensive Computing Fellowship (NSF-DUE-CCLI-0920335)
- 2nd Place - NASA Europa International Software Competition
- Harriet F. Montague Award
- Phi Beta Kappa
- Grace Capen Academic Award
- Provost Scholarship
- Deans List

May, 2015
May, 2015
August, 2014
June, 2014
May, 2014
February, 2014
May, 2013
Fall 2011 - Spring 2015
Fall 2011 - Spring 2015