

Daniel Cohen

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PhD Candidate

University of Massachusetts Amherst

College of Information and Computer Sciences

Advisor: Dr. W. Bruce Croft

EDUCATION

- **Ph.D. Computer Science.** University of Massachusetts Amherst. Amherst, MA. 2015 - 2020
- **M.S. Computer Science.** University of Massachusetts Amherst. Amherst, MA. 2015 - 2017
- **B.A. Computer Science and Mathematics.** New York University. NY, NY. 2013 - 2015

RESEARCH EXPERIENCE

- **Research Assistant** - University of Massachusetts Amherst (Prof. W. Bruce Croft) Sep. 2015 - present
 - Develop methods and conduct analysis for low resource information retrieval tasks.
- **Program Manager** - University of Massachusetts Amherst (IARPA MATERIAL Task) Sep. 2017 - present
 - Work with a diverse team of universities to develop a cross lingual retrieval system.
- **Research Intern** - Microsoft Research and AI (Dr. Katja Hofmann, Bhaskar Mitra) May 2017 - Aug.2017
 - Develop methods to resolve impact of changing domains on query auto completion and ad-hoc retrieval.
- **Research Intern** - Microsoft Research and AI (Dr. Fernando Diaz, Bhaskar Mitra) Feb 2019 - Jun.2019
 - Explored representing policy identification through information retrieval paradigm.
- **Research Assistant** - New York University (Prof. Mohamed Zahran) Jun. 2014 - Jan. 2015
 - Evaluate and develop an automatic program to resolve bottlenecks in GPUs.

PUBLICATIONS

- [1] Scott Jordan, Yash Chandak, **Daniel Cohen**, Mengxue Zhang, and Philip S. Thomas. Evaluating the performance of reinforcement learning algorithms. In *ICML*, volume 97 of *PMLR*, Vienna, Austria, 12–18 Jul 2020. PMLR.
- [2] Yen-Chieh Lien, **Daniel Cohen**, and W. Bruce Croft. An assumption-free approach to the dynamic truncation of ranked lists. In *ICTIR 2019*, pages 79–82, Santa Clara, CA, USA, October 2-5 2019. ACM.
- [3] **Daniel Cohen**, Scott M. Jordan, and W. Bruce Croft. Learning a better negative sampling policy with deep neural networks for search. In *ICTIR 2019*, page 19–26, New York, NY, USA, 2019. ACM.
- [4] Scott M. Jordan, **Daniel Cohen**, and Philip S. Thomas. Evaluating reinforcement learning algorithms using cumulative distributions of performance. In *NeurIPS - Workshop on Critiquing and Correcting Trends in Machine Learning*. Montreal, Canada, December 3-8 2018.
- [5] Constantine Lignos, **Daniel Cohen**, Yen-Chieh Lien, Pratik Mehta, W. Bruce Croft, and Scott Miller. The challenges of optimizing machine translation for low resource cross-language information retrieval. In *EMNLP-IJCNLP*, pages 3497–3502, Hong Kong, China, November 2019. ACL.
- [6] **Daniel Cohen**, Brendan O'Connor, and W. Bruce Croft. Understanding the representational power of neural retrieval models using nlp tasks. In *ICTIR '18*, page 67–74, New York, NY, USA, 2018. ACM.
- [7] **Daniel Cohen**, Scott M. Jordan, and W. Bruce Croft. Distributed evaluations: Ending neural point metrics. In *SIGIR - LND4IR Workshop*, SIGIR '18, New York, NY, USA, 2018. ACM.
- [8] **Daniel Cohen**, Liu Yang, and W. Bruce Croft. Wikipassageqa: A benchmark collection for research on non-factoid answer passage retrieval. In *SIGIR '18*, page 1165–1168, New York, NY, USA, 2018. ACM.
- [9] **Daniel Cohen**, John Foley, Hamed Zamani, James Allan, and W. Bruce Croft. Universal approximation functions for fast learning to rank: Replacing expensive regression forests with simple feed-forward networks. In *SIGIR '18*, page 1017–1020, New York, NY, USA, 2018. ACM.

- [10] **Daniel Cohen**, Bhaskar Mitra, Katja Hofmann, and W. Bruce Croft. Cross domain regularization for neural ranking models using adversarial learning. In *SIGIR '18*, page 1025–1028, New York, NY, USA, 2018. ACM.
- [11] **Daniel Cohen** and W. Bruce Croft. A hybrid embedding approach to noisy answer passage retrieval. volume 10772 of *ECIR 2018*, pages 127–140, Grenoble, France, March 26-29 2018. Springer.
- [12] **Daniel Cohen** and W. Bruce Croft. End to end long short term memory networks for non-factoid question answering. *ICTIR 2016*, pages 143–146. ACM, September 12-16 2016.
- [13] **Daniel Cohen**, Qingyao Ai, and W. Bruce Croft. Adaptability of neural networks on varying granularity in tasks. In *SIGIR - Neu-IR Workshop*, *SIGIR '16*, New York, NY, USA, 2018. ACM.

TEACHING EXPERIENCE

- **Mentor** - Project on cross lingual information retrieval (Yen-Chieh Lien). University of Massachusetts Amherst. Fall 2018 - present.
- **Mentor** - Project on improving first stage neural retrieval models (Karnika Agarwal, Praful Johari, Shubhankar Kothari, Sumanth Palakurthy). University of Massachusetts Amherst/Microsoft Research. Spring 2020
- **Mentor** - HackUMass. University of Massachusetts Amherst. Fall 2017
- **Teaching Assistant** - Search Engines (Undergraduate). University of Massachusetts Amherst. Taught by David Fisher Spring 2016
- **Tutor** - Varsity Tutors. Tutored math and computer science to undergraduates. Summer 2015

AWARDS AND GRANTS

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| • Best full paper, ICTIR | 2019 |
| • SIGIR Student Travel Grant | 2019 |
| • Bloomberg Data Science Research Grant, co-writer. | 2018 |
| • Best short paper, SIGIR | 2018 |
| • SIGIR Student Travel Grant | 2018 |
| • IARPA MATERIAL Research Grant, co-writer. | 2017 |
| • SIGIR Student Travel Grant | 2016 |
| • Best poster - NYU Undergraduate Research Conference | 2016 |

TALKS AND PRESENTATIONS

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| • Oral Presentation - ICTIR. California, USA. | 2019 |
| • Oral Presentation - Microsoft AI and Research. Tea Talk. Montreal Canada | 2019 |
| • Oral Presentation - IARPA MATERIAL Grant. SARAL site visit. Boston, USA. | 2018, 2019 |
| • Oral Presentation - ECIR. Grenoble, France. | 2018 |
| • Oral Presentation - Bloomberg. Data Science Research Grant. New York, USA. | 2018 |
| • Oral Presentation - SIGIR LND4IR Workshop. Michigan, USA | 2018 |
| • 3x Poster Presentation - SIGIR. Michigan, USA. | 2018 |
| • Oral Presentation - ICTIR. Delaware, USA. | 2016 |
| • Poster Presentation - SIGIR Neu-IR workshop. Pisa, Italy. | 2016 |

PROFESSIONAL ACTIVITIES AND SERVICE

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| • Committee Member - SIGIR - LND4IR, EMNLP, EACL, CIKM, WWW, WSDM-DAPA, AACL-IJCNLP | |
| • Guest Lecturer - NYU ACM | 2016 |
| • Treasurer - NYU ACM | 2013-2014 |