Daniel Cohen

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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

- **Postdoctoral Researcher** - Brown University (Prof. Carsten Eickhoff) Dec. 2020 - present
  - Managed reporting from both PhD and undergraduate students for grants and independent research.
  - Research on uncertainty and generative methods for ranking and search.
- **Research Assistant** - University of Massachusetts Amherst (Prof. W. Bruce Croft) Sep. 2015 - Dec. 2020
  - Develop methods and conduct analysis for low resource information retrieval tasks.
- **Program Manager** - University of Massachusetts Amherst (IARPA MATERIAL) Sep. 2017 - Dec. 2020
  - Work with a diverse team of universities to develop a cross lingual retrieval system.
  - Managed local UMass research effort.
- **Research Intern** - Microsoft Research and AI (Dr. Fernando Diaz, Bhaskar Mitra) Feb 2019 - Jun.2019
  - Explored representing policy identification through information retrieval paradigm.
- **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 Assistant** - New York University (Prof. Mohamed Zahran) Jun. 2014 - Jan. 2015
  - Evaluate and develop an automatic program to resolve bottlenecks in GPUs.

Publications

[1] Oleg Lesota, Navid Rekabsaz, **Daniel Cohen**, Klaus Antonius Grasserbauer, Carsten Eickhoff, and Markus Schedl. A modern perspective on query likelihood with deep generative retrieval models. In *ICTIR '21*, Montreal, Canada, 2021. ACM.

[2] **Daniel Cohen**, Bhaskar Mitra, Oleg Lesota, Navid Rekab-Saz, and Carsten Eickhoff. Not all relevance scores are equal: Efficient uncertainty and calibration modeling for deep retrieval models. In *SIGIR '21*, Montreal, Canada, 2021. ACM.

[3] **Daniel Cohen**. Allowing for the grounded use of temporal difference learning in large ranking models via sub state updates. In *SIGIR '21*, Montreal, Canada, 2021. ACM.

[4] 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.

[5] 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.

[6] **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.

[7] 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.

[8] 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.

[9] **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.

[10] **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.

[11] **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.

[12] **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.

[13] **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.

[14] **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.

[15] **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.

[16] **Daniel Cohen**, Qingyao Ai, and W. Bruce Croft. Adaptability of neural networks on varying granularity ir 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

- 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

- **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

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