Mete Kemertas

kemertas@cs.toronto.edu | metekemertas.github.io

EDUCATION

- **University of Toronto** *September 2020 - Present*
  Doctor of Philosophy (PhD) in Computer Science Toronto, ON
  - GPA: 4.00/4.00. Focus on model-based reinforcement learning and computational optimal transport.
  - Supervisors: Allan D. Jepson, Amir-massoud Farahmand.

- **University of Toronto** *December 2017*
  Master of Science in Applied Computing (MScAC) Toronto, ON
  - Grade: 4.00/4.00. Focus on machine learning and natural language processing.

- **McGill University** *December 2015*
  Bachelor of Engineering (BEng) in Electrical Engineering Montreal, QC
  - GPA: 3.58/4.00. Minor degree: Software Engineering

- **Istanbul Technical University** *September 2011 - June 2013*
  Bachelor of Science (BSc.) in Electronics and Communication Engineering Istanbul, Turkey
  - GPA: 3.69/4.00 (2nd in a class of 200+). Transferred to McGill University.

EXPERIENCE

- **Samsung AI Research Centre [🌐]**
  Senior Research Engineer (Mar 2020 - Sep 2020), Research Engineer (May 2018 - Mar 2020) Toronto, ON
  - Led research efforts in multimodal deep learning (vision-language integration) resulting in the lab's first major AI conference publication (first-author at CVPR), multiple other peer-reviewed publications, and 5 patents (4 granted, 1 pending).
  - Proposed and led the execution of successful demos of research outcomes to senior executives under tight deadlines, which led to spin-off projects and influenced the lab's overall research direction; one demo directly kick-started efforts to integrate research into a widely used consumer product.
  - Presented findings at Seoul, Korea to a group of senior scientists and executives.
  - Continued research in a part-time capacity as a PhD student (Apr 2021 - Sep 2022).

- **TealBook [🌐]** *May 2017 - May 2018*
  Machine Learning Engineer Toronto, ON
  - As the company's first ML engineer, built an ML-enabled pipeline for filtering and cleaning up large-scale web crawls, generating a supplier database that exceeded prior data volume by orders of magnitude.
  - Reduced annual data licensing costs by over 100,000 USD by replacing external (3rd party) data.
  - Proposed, designed, implemented and deployed a recommendation engine for supplier discovery from scratch, which contributed to the startup's repositioning as an AI-first company.
  - Gave product-related webinars to potential and existing customers (procurement executives) on the value proposition of the supplier recommendation engine, generating leads and improving adoption.

- **Ormuco [🌐]** *May 2016 - September 2016*
  Software Developer (Backend) Toronto, ON
  - Reduced latency and improved user experience by optimizing database queries and redesigning the caching system on the server side.
  - Developed the back-end of a notification and messaging system.

- **Ericsson [🌐]** *May 2015 - September 2015*
  Software Development Intern Toronto, ON
  - Participated in the development of a global-scale messaging product.

Selected Publications

C=Conference, J=Journal, P=Patent, S=In Submission, W=Workshop

[C.1] **M. Kemertas**, A-m. Farahmand, A.D. Jepson. **"A truncated Newton method for optimal transport."** *International Conference on Learning Representations (ICLR)*, 2025.

[C.2] A. Rakhsha, **M. Kemertas**, M. Ghavamzadeh, A-m. Farahmand. **"Maximum entropy model correction in reinforcement learning."** *International Conference on Learning Representations (ICLR)*, 2024.

[S.1] **M. Kemertas**, A.D. Jepson, A-m. Farahmand. **"Efficient and accurate optimal transport with mirror descent and conjugate gradients."** *Preprint under review*, 2023.

[J.1] **M. Kemertas**, A.D. Jepson. **"Approximate policy iteration with bisimulation metrics."** *Transactions on Machine Learning Research (TMLR)*, 2022.

[C.3] **M. Kemertas**, T. Aumentado-Armstrong (equal contribution). **"Towards robust bisimulation metric learning."** *Neural Information Processing Systems (NeurIPS)*, 2021.

[C.4] **M. Kemertas**, L. Pishdad, K. Derpanis, and A. Fazly. **"RankMI: A mutual information maximizing ranking loss."** *Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020.

Patents

[P.1] Z. Hu, L. Xiao, **M. Kemertas**, C.R. Phillips, I. Mohomed, A. Fazly. **Method of processing multimodal retrieval tasks, and an apparatus for the same**. USPTO, Patent No. 20230237089A1. Application: 2023-01 (Pending).

[P.2] **M. Kemertas**. **Coarse-to-fine multimodal gallery search system with attention-based neural network models**. USPTO, Patent No. 11645323. Application: 2020-10, Grant: 2023-05.

[P.3] **M. Kemertas**, L. Pishdad, K. Derpanis, A. Fazly. **Apparatus for deep representation learning and method thereof** . USPTO, Patent No. 11580392. Application: 2020-02, Grant: 2023-02.

[P.4] A.D. Jepson, A. Levinshtein, **M. Kemertas**, H. Zhang, H. R. Kaviani. **Method and apparatus for data anonymization**. USPTO, Patent No. 11430088. Application: 2019-12, Grant: 2022-08.

[P.5] T. Capes, I. Mohomed, V. Raheja, **M. Kemertas**. **System and method for dynamic scheduling of distributed deep learning training jobs**. USPTO, Patent No. 11693706. Application: 2019-11, Grant: 2023-07.

Other Publications

[J.2] Z. Hu, **M. Kemertas**, L. Xiao, C. Phillips, I. Mohomed, A. Fazly. **"Realizing efficient on-device language-based image retrieval."** *ACM Transactions on Multimedia Computing, Communications, and Applications*, 2024.

[C.5] Z. Hu*, L. Xiao*, **M. Kemertas***, C. Phillips, I. Mohomed, A. Fazly (*equal contribution). **"CrispSearch: low-latency on-device language-based image retrieval."** *ACM Multimedia Systems Conference*, 2022.

[C.6] Á. Kádár, L. Xiao, **M. Kemertas**, F. Fancellu, A. Jepson and A. Fazly. **"Dependency parsing with structure preserving embeddings."** *Conference of the European Chapter of the Association for Computational Linguistics (EACL)*, 2021.

[W.1] T. Capes, V. Raheja, **M. Kemertas**, and I. Mohomed. **"Dynamic scheduling of MPI-based distributed deep learning training jobs."** *MLSys Workshop at Neural Information Processing Systems (NeurIPS)*, 2018.

Honors and Awards

- **NSERC CGS D Scholarship** *May 2022*
  National Sciences and Engineering Research Council of Canada (NSERC) [🌐]
  ◦ Doctoral scholarship for $120,000 awarded to highest-scoring PGS D applicants.
- **Vector Institute Research Grant** *2023, 2024*
  Vector Institute [🌐]
  ◦ A $6,000 grant awarded to graduate students affiliated with the Vector Institute.
- **Mitacs Accelerate Grant** *May 2017*
  Mathematics of Information Technology and Complex Systems (Mitacs) [🌐]
  ◦ Awarded funding ($30,000) for an 8-month applied research project.

Miscellaneous

- **Research Community Service**
  ◦ Served as a referee for major AI conferences: ICLR '25, ICML '23, ICLR '23, NeurIPS '22, ICML '22, CVPR '22.
- **Programming Languages**
  ◦ Expert: Python
  ◦ Proficient: Java, C, C++, C#
  ◦ Prior experience: JavaScript, Swift, MATLAB, R