C. Mike Gartrell

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Education

- Ph.D. in Computer Science, received in August 2014 at the University of Colorado Boulder in Boulder, CO. GPA (includes M.S. coursework): 3.93 of 4.0.
  - Thesis: "Enhancing Recommender Systems Using Social Indicators".
  - Advisor: Richard Han.
- M.S. in Computer Science, received in December 2008 at the University of Colorado Boulder in Boulder, CO.
  - Thesis: "SocialAware: Context-Aware Multimedia Presentation via Mobile Social Networks".
  - Advisor: Richard Han.
- B.S. in Computer Engineering, received in May 2000 at Virginia Tech in Blacksburg, VA.

Professional Experience

- *July 2023 – present*: Independent researcher in Paris, France. I conduct research related to generative models, with interests in score-based diffusion models, natural language processing (NLP), language models, generative adversarial networks (GANs), determinantal models, probabilistic models, and Bayesian methods.
- *February 2017 – June 2023*: Senior Researcher at Criteo AI Lab in Paris, France. I conducted research related to scalable machine learning models for sets and generative models, with interests in determinantal models, natural language processing (NLP), score-based diffusion models, recommendation systems, and Bayesian methods.
- *July 2014 – August 2016*: Postdoctoral Researcher at Microsoft Israel R&D Center in Herzliya, Israel. I conducted recommendation systems research. The focus of my research was on developing novel recommendation models, including models based on determinantal point processes (DPPs).
- *June 2013 – November 2013*: Research internship at Microsoft Research in Cambridge, UK. Using one of the first large-scale TV group watching behavior datasets, I worked on data analysis and a Bayesian model for group recommendation.
- *June 2011 – August 2011*: Research internship at Microsoft Research in Cambridge, UK. I worked on the development of a Bayesian recommendation system that leverages friendship connections in social networks to improve the predictive performance of the system.
- *Feb. 2008 – May 2011*: Co-founder and part-time contract Software Design Engineer for Techoshark, Inc. Techoshark is a start-up company focused on the production of mobile social networking software. My contract work involved the development of Java EE (Enterprise Edition) server-side software to manage user accounts, provide for efficient location-based searches, and perform data/text mining of social network profiles.
- *June 2000 – Feb. 2008*: Software Design Engineer in product research and development at Hewlett-Packard in Corvallis, OR. I was involved in the development of various products and projects related to digital printing and publishing, including HP Instant Delivery, HP Asset Manager (part of HP Custom Publishing), and HP Production Flow. Through work on these projects I gained extensive experience in

designing, developing, documenting, and testing Java EE (Enterprise Edition) applications and components.

Selected highlights:

- Designed and implemented a content synchronization framework based on the WebDAV protocol to enable sharing of print job content between the HP Asset Manager and HP Production Flow applications via the Internet. Asset Manager was a Web application that provided for end-user submission and storage of print job content. Production Flow was a Digital Front End (DFE) product that controlled digital printing presses and performed print job processing.
- Developed a software component to enable resumption of HTTP PUT method uploads for the Apache Tomcat Java Servlet engine (http://en.wikipedia.org/wiki/Apache_Tomcat). This component is based on functionality described in the HTTP 1.1 RFC (RFC 2616) and was donated to the Tomcat project and accepted for inclusion in the Tomcat version 4.1 release.
- Responsible for the maintenance and development of the Connectivity Software Development Kit (SDK) for HP Digital Front End (DFE) products, including HP Production Flow and HP Press Production Manager. The Connectivity SDK enables Internet submission and tracking of print jobs on HP DFE products via XML over HTTP.

Key Skills

GitHub profile: https://github.com/cgartrel

- Programming languages: Python, Julia, R, Java, C, C++, C#
- Machine learning (ML) and data science frameworks: PyTorch, R
- Other ML/AI skills: deep learning, generative modeling, large language models (LLMs), Bayesian methods, probabilistic modeling, natural language processing (NLP), recommendation systems
- Other software skills: LaTeX, Git, Hadoop

Academic Research Experience

- *September 2011 – May 2014*: Research assistant for the SocialFusion project at University of Colorado at Boulder (CU-Boulder). My work involved the development of a framework for building mobile context-aware applications that leverage social networks.
- *January 2007 – May 2009*: Research assistant in the MANTIS group at CU-Boulder. My work involved the development of a wireless sensor network for environmental monitoring in a global warming project. I have collaborated with the National Center for Atmospheric Research (NCAR) and the Department of Ecology and Evolutionary Biology at CU-Boulder over the course of this work. See "http://www.cs.colorado.edu/~rhan/Papers/p423-laffea.pdf" for a short paper describing some prior work done on this project.

Teaching Experience

- *January 2014 – May 2014:* I worked as a teaching assistant (TA) for CSCI 3573: Operating Systems, taught by Prof. Shivakant Mishra at CU-Boulder. My TA responsibilities included leading and teaching three recitation sections, holding office hours, and grading.
- *January 2013 – May 2013:* I worked as a teaching assistant (TA) for CSCI 3573: Operating Systems, taught by Prof. Shivakant Mishra at CU-Boulder. My TA responsibilities included leading and teaching a recitation section, holding office hours, and grading.

- *January 2010 – May 2010*: I worked as a teaching assistant (TA) for CSCI 1300, Computer Science 1: Programming, taught by Prof. Michael Main at CU-Boulder. My TA responsibilities included leading and teaching three recitation sections, assisting with the delivery of lecture materials, holding office hours, and grading.

Supervisory Experience

- *January 2023 – present*: Ongoing co-supervision of Dalin Wang's PhD research project on controllable language model decoding using determinantal point processes (DPPs).
- *February 2020 – present*: Ongoing co-supervision of Insu Han's PhD and postdoc research on scalable methods for determinantal point process (DPP) models.
- *December 2022 – December 2023*: *C*o-supervision of Ilana Sebag's PhD research on controllable generative models and score-based diffusion models.
- *February 2022 – June 2023*: *C*o-supervision of Song Duong's PhD research on generative models for text and data-to-text/text-to-data.
- *June 2021 – June 2023*: Mentorship of Lucas Anquetil, and member of his PhD thesis committee.
- *April 2021 – October 2021*: Co-supervision of Imad Aouali's Criteo research internship on slate recommendation and multi-armed bandits.
- *March 2020 – September 2020*: Supervision of Lucas Anquetil's Criteo research internship on Wasserstein-distance-based methods for learning models for discrete sets.
- *May 2017 – December 2017*: Supervised Jason Zhang's Criteo research internship on diversity in recommendation.

Grants and Awards

- NSF GK-12 Fellowship. Integrating aspects of computing and sensor technology into STEM curriculum at the middle school and elementary school level and teaching this material within the Boulder Valley School District. June 2010 – May 2011.
- Techoshark, Inc. - SBIR Phase I grant, "Improving Business-Consumer Commerce via Mobile Social Networking Services." January – June 2009.

Publications

Google Scholar profile: https://scholar.google.com/citations?hl=en&user=NX6eiWYAAAAJ

Peer Reviewed

- Jean-Yves Franceschi, Mike Gartrell, Ludovic Dos Santos, Thibaut Issenhuth, Emmanuel de Bézenac, Mickaël Chen, and Alain Rakotomamonjy. "Unifying GANs and Score-Based Diffusion as Generative Particle Models". *Advances in Neural Information Processing Systems (NeurIPS) 2023,* Dec. 2023.
- Song Duong, Alberto Lumbreras, Mike Gartrell, and Patrick Gallinari. "Learning from Multiple Sources for Data-to-Text and Text-to-Data". *International Conference on Artificial Intelligence and Statistics (AISTATS) 2023*, April 2023.
- Insu Han, Mike Gartrell, Elvis Dohmatob, and Amin Karbasi. "Scalable MCMC Sampling for Nonsymmetric Determinantal Point Processes". *International Conference on Machine Learning (ICML) 2022*, July 2022.
- Insu Han, Mike Gartrell, Jennifer Gillenwater, Elvis Dohmatob, and Amin Karbasi. "Scalable

Sampling for Nonsymmetric Determinantal Point Processes". *International Conference on Learning Representations (ICLR) 2022*, May 2022.

- Imad Aouali, Sergey Ivanov, Mike Gartrell, David Rohde, Flavian Vasile, Victor Zaytsev, and Diego Legrand. "Combining Reward and Rank Signals for Slate Recommendation". *KDD 2021 Workshop on Bayesian Causal Inference for Real World Interactive Systems (BCIRWIS)*, August 2021.
- Mike Gartrell, Insu Han, Elvis Dohmatob, Jennifer Gillenwater, and Victor-Emmanuel Brunel. "Scalable Learning and MAP inference for Nonsymmetric Determinantal Point Processes". *International Conference on Learning Representations (ICLR) 2021*, May 2021.
- Lucas Anquetil, Mike Gartrell, Alain Rakotomamonjy, Ugo Tanielian, Clément Calauzènes, "Wasserstein Learning of Determinantal Point Processes". 1st Workshop on Learning Meets Combinatorial Algorithms @ NeurIPS 2020, December 2020.
- Mike Gartrell, Victor-Emmanuel Brunel, Elvis Dohmatob, and Syrine Krichene. "Learning Nonsymmetric Determinantal Point Processes". *Advances in Neural Information Processing Systems (NeurIPS) 2019,* Dec. 2019, pp. 6718-6728.
- Romain Warlop, Jérémie Mary, and Mike Gartrell. "Tensorized Determinantal Point Processes for Recommendation". *Proceedings of the 25th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD 2019)*, Aug. 2019, pp. 1605-1615.
- Zelda Mariet, Mike Gartrell, and Suvrit Sra. "Learning Determinantal Point Processes by Corrective Negative Sampling". *Proceedings of the 22nd International Conference on Artificial Intelligence and Statistics (AISTATS 2019)*, Apr. 2019, pp. 2251-2260.
- Shuo Zhang, Mike Gartrell, Richard Han, Qin, Lv, and Shivakant Mishra. "GEVR: An Event Venue Recommendation System for Groups of Mobile Users". *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, vol. 3, issue 1, Mar. 2019.
- Shuo Zhang, Khaled Alanezi, Mike Gartrell, Richard Han, Qin, Lv, and Shivakant Mishra. "Understanding Group Event Scheduling via the OutWithFriendz Mobile Application". *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, vol. 1, issue 4, Dec. 2017.
- Mike Gartrell, Ulrich Paquet, and Noam Koenigstein. "Low-Rank Factorization of Determinantal Point Processes". *Proceedings of the 31st AAAI Conference on Artificial Intelligence (AAAI 2017)*, Feb. 2017.
- Mike Gartrell, Ulrich Paquet, and Noam Koenigstein. "Bayesian Low-Rank Determinantal Point Processes". *Proceedings of the 10th ACM Conference on Recommender Systems (RecSys 2016)*, Sep. 2016, pp. 349-356.
- Peng Zhang, Hansu Gu, Mike Gartrell, Tun Lu, Dayi Yang, Xianghua Ding, and Ning Gu. "Group-based Latent Dirichlet Allocation (Group-LDA): Effective Audience Detection for Books in Online Social Media". *Knowledge-Based Systems,* Elsevier; vol. 105, August 2016, pp. 134-146.
- Junho Ahn, James Williamson, Mike Gartrell, Richard Han, Qin Lv, and Shivakant Mishra. "Supporting Healthy Grocery Shopping via Mobile Augmented Reality." *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)*, vol. 12, issue 1s, October 2015, pp. 16.
- Allison Chaney, Mike Gartrell, Jake Hofman, John Guiver, Noam Koenigstein, Pushmeet Kohli, and Ulrich Paquet. "A Large-scale Exploration of Group Viewing Patterns". *Proceedings of the 1st ACM International Conference on Interactive Experiences for Television and Online Video (TXV 2014)*, June 2014, pp. 31 – 38. Honorable Mention Award (nominated for Best Paper).
- Hansu Gu, Mike Gartrell, Liang Zhang, Qin Lv, and Dirk Grunwald, "AnchorMF: Towards Effective Event Context Identification". *Proceedings of the 22nd ACM International Conference on on Information & Knowledge Management (CIKM 2013)*, Oct. 2013, pp. 629 – 638.
- Aaron Beach, Mike Gartrell, Richard Han. "q–Anon: Practical Anonymity for Social Networks", *International Journal of Social Computing and Cyber-Physical Systems*, vol. 1,

issue 3, 2012.

- Mike Gartrell, Xinyu Xing, Qin Lv, Aaron Beach, Richard Han, Shivakant Mishra, Karim Seada. "Enhancing Group Recommendation by Incorporating Social Relationship Interactions", *Proceedings of the ACM 2010 International Conference on Supporting Group Work (GROUP 2010)*, Nov. 2010, pp. 97-106.
- Mike Gartrell, Aaron Beach, Jai Ramanarayanankrishnaniyer, Xinyu Xing, Qin Lv, Richard Han, Shivakant Mishra, Karim Seada. "Integrating Wikipedia, Facebook, and Other Personal Online Context into Collaborative E-Brainstorming", *Collective Intelligence In Organizations (CIorg): Tools and Studies workshop*, associated with the *ACM 2010 International Conference on Supporting Group Work (GROUP 2010)*, Nov. 2010.
- Aaron Beach, Mike Gartrell, and Richard Han. "q-Anon: Rethinking Anonymity for Social Networks", *2nd International Conference on Social Computing (SocialCom 2010)*, Aug. 2010.
- Aaron Beach, Mike Gartrell, and Richard Han. "Social-K: Real-Time K-Anonymity Guarantees for Social Network Applications", *Security and Social Networking (SESOC 2010) workshop*, associated with the *8th Annual IEEE International Conference on Pervasive Computing and Communications (PerCom 2010),* April 2010.
- Aaron Beach, Mike Gartrell, Xinyu Xing, Richard Han, Qin Lv, Shivakant Mishra, and Karim Seada. "Fusing Mobile, Sensor, and Social Data To Fully Enable Context-Aware Computing", *11th International Workshop on Mobile Computing Systems and Applications (HotMobile 2010)*, Feb. 2010.
- Aaron Beach, Mike Gartrell, and Richard Han. "Solutions to Security and Privacy Issues in Mobile Social Networking," cse, vol. 4, pp. 1036-1042, *2009 International Conference on Computation Science and Engineering, 2009* (*in SWM09: Workshop on Social Mobile Web at IEEE International Conference on Social Computing (SocialCom 2009)*.
- Aaron Beach, Mike Gartrell, Sirisha Akkala, Jack Elston, John Kelley, Keisuke Nishimoto, Baishakhi Ray, Sergei Razgulin, Bonnie Surendar, Michael Terada, and Richard Han. "WhozThat? Evolving an Ecosystem for Context-Aware Mobile Social Networks", *IEEE Network*, vol. 22, issue 4, July - Aug. 2008, pp. 50-55.

Technical Reports and Preprints

- Ilana Sebag, Muni Sreenivas PYDI, Jean-Yves Franceschi, Alain Rakotomamonjy, Mike Gartrell, Jamal Atif, Alexandre Allauzen. "Differentially Private Gradient Flow based on the Sliced Wasserstein Distance for Non-Parametric Generative Modeling". arXiv:2312.08227, Dec. 2023.
- Jean-Yves Franceschi, Mike Gartrell, Ludovic Dos Santos, Thibaut Issenhuth, Emmanuel de Bézenac, Mickaël Chen, and Alain Rakotomamonjy. "Unifying GANs and Score-Based Diffusion as Generative Particle Models". arXiv arXiv:2305.16150, May 2023.
- Song Duong, Alberto Lumbreras, Mike Gartrell, and Patrick Gallinari. "Learning from Multiple Sources for Data-to-Text and Text-to-Data". arXiv preprint arXiv:2302.11269, Feb. 2023.
- Insu Han, Mike Gartrell, Elvis Dohmatob, and Amin Karbasi. "Scalable MCMC Sampling for Nonsymmetric Determinantal Point Processes". arXiv preprint arXiv:2207.00486, July 2022.
- Insu Han, Mike Gartrell, Jennifer Gillenwater, Elvis Dohmatob, and Amin Karbasi. "Scalable Sampling for Nonsymmetric Determinantal Point Processes". arXiv preprint arXiv:2201.08417, Jan. 2022.
- Imad Aouali, Sergey Ivanov, Mike Gartrell, David Rohde, Flavian Vasile, Victor Zaytsev, and Diego Legrand. "Combining Reward and Rank Signals for Slate Recommendation". arXiv preprint arXiv:2107.12455, July 2021.
- Lucas Anquetil, Mike Gartrell, Alain Rakotomamonjy, Ugo Tanielian, Clément Calauzènes, "Wasserstein Learning of Determinantal Point Processes". arXiv preprint arXiv:2011.09712, Nov. 2020.
- Mike Gartrell, Insu Han, Elvis Dohmatob, Jennifer Gillenwater, Victor-Emmanuel Brunel. "Scalable Learning and MAP Inference for Nonsymmetric Determinantal Point Processes",

arXiv preprint arXiv:2006.09862, June 2020.

- Syrine Krichene, Mike Gartrell, Clément Calauzènes. "Embedding Models for Recommendation under Contextual Constraints", arXiv preprint arXiv:1907.01637, June 2019.
- Mike Gartrell, Victor-Emmanuel Brunel, Elvis Dohmatob, and Syrine Krichene. "Learning Nonsymmetric Determinantal Point Processes", arXiv preprint arXiv:1905.12962, May 2019.
- Mike Gartrell, Elvis Dohmatob, and Jon Alberdi. "Deep Determinantal Point Processes", arXiv preprint arXiv:1811.07245, May 2019.
- Zelda Mariet, Mike Gartrell, and Suvrit Sra. "Learning Determinantal Point Processes by Corrective Negative Sampling", arXiv preprint arXiv:1802.05649, Feb. 2019.
- Romain Warlop, Jérémie Mary, and Mike Gartrell. "Multi-Task Determinantal Point Processes for Recommendation", arXiv preprint arXiv:1805.09916, Nov. 2018.
- Ugo Tanielian, Mike Gartrell, and Flavian Vasile. "Adversarial Training of Word2Vec for Basket Completion", arXiv preprint arXiv:1805.08720, May 2018.
- Mike Gartrell, Ulrich Paquet, and Noam Koenigstein. "The Bayesian Low-Rank Determinantal Point Process Mixture Model", arXiv preprint:1608.04245, August 2016.
- Mike Gartrell, Ulrich Paquet, and Noam Koenigstein. "Low-Rank Factorization of Determinantal Point Processes for Recommendation", arXiv preprint:1602.05436, February 2016.
- Cheng Zhang, Mike Gartrell, Thomas Minka, Yordan Zaykov, and John Guiver. "GroupBox: A Generative Model for Group Recommendation", Technical Report MSR-TR-2015-61, Microsoft Research, July 2015.
- Allison Chaney, Mike Gartrell, Jake Hofman, John Guiver, Noam Koenigstein, Pushmeet Kohli, and Ulrich Paquet. "Mining Large-scale TV Group Viewing Patterns for Group Recommendation", Technical Report MSR-TR-2013-114, Microsoft Research, November 2013.
- Hansu Gu, Mike Gartrell, Liang Zhang, Qin Lv, and Dirk Grunwald. "Identifying Event Context using Anchor Information in Online Social Networks", Technical Report, Department of Computer Science, University of Colorado at Boulder, May 2013.
- Mike Gartrell, Ulrich Paquet, and Ralf Herbrich. "A Bayesian Treatment of Social Links in Recommender Systems", Technical Report CU-CS-1092-12, Department of Computer Science, University of Colorado at Boulder, May 2012.
- Mike Gartrell, Richard Han, Qin Lv, and Shivakant Mishra. "SocialNews: Enhancing Online News Recommendations By Leveraging Social Network Information", Technical Report CU-CS-1084-11, Department of Computer Science, University of Colorado at Boulder, Aug. 2011.
- Mike Gartrell, Aaron Beach, Jai Ramanarayanankrishnaniyer, Xinyu Xing, Richard Han, Qin Lv, Shivakant Mishra, and Karim Seada. "Integrating Wikipedia and Facebook Context into Collaborative E-Brainstorming", Technical Report CU-CS-1073-10, Department of Computer Science, University of Colorado at Boulder, Sep. 2010.
- Aaron Beach, Mike Gartrell, Richard Han, and Shivakant Mishra, "CAwbWeb: Towards a Standardized Programming Framework to Enable a Context-Aware Web", Technical Report CU-CS-1063-10, Department of Computer Science, University of Colorado at Boulder, Mar. 2010.
- Aaron Beach, Mike Gartrell, Xinyu Xing, Richard Han, Qin Lv, Shivakant Mishra, and Karim Seada, "SocialFusion: Context-Aware Inference and Recommendation By Fusing Mobile, Sensor, and Social Data", Technical Report CU-CS-1059-09, Department of Computer Science, University of Colorado at Boulder, Dec. 2009.
- Aaron Beach, Mike Gartrell, Baishakhi Ray, and Richard Han, "Secure SocialAware: A Security Framework for Mobile Social Networking Applications", Technical Report CU-CS-1054-09, Department of Computer Science, University of Colorado at Boulder, June 2009.
- Aaron Beach, Mike Gartrell, Saroch Panichsakul, Li Chen, Chao-Kai Ching, and Richard Han. "X-Layer: An Experimental Implementation of a Cross-Layer Network Protocol Stack for Wireless Sensor Networks", Technical Report CU-CS-1051-08, Department of Computer Science, University of Colorado at Boulder, Dec. 2008.

Service

- Co-organized the KDD 2021 Workshop on Bayesian Causal Inference for Real World Interactive Systems (https://bcirwis2021.github.io).
- Co-organized the "Laplace's Demon" online seminar series, on Bayesian machine learning at scale, from 2020 – 2021 (https://ailab.criteo.com/laplaces-demon-bayesian-machine-learning-at-scale/).
- Co-organized the ICML 2020 Workshop on Negative Dependence and Submodularity in Machine Learning (https://negative-dependence-in-ml-workshop.lids.mit.edu).
- Co-organized the ICML 2019 Workshop on Negative Dependence in Machine Learning (https://negative-dependence-in-ml-workshop.lids.mit.edu/schedule).
- Reviewer for NeurIPS, ICML, ICLR, and AAAI conferences.