Ethan Baron

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Education

1. **New York University (Courant Institute)** — New York, NY, USA
   PhD in Computer Science (in progress) — Sep 2024 - Present
   - Supervisor: Prof. Andrew Gordon Wilson

2. **University of Toronto** — Toronto, ON, Canada
   BASc in Engineering Science — Sep 2019 - Jun 2024
   - Cumulative GPA: 3.98 / 4.00
   - Major: Machine Intelligence

Employment

1. **Amazon Supply Chain Optimization Technologies (SCOT)**
   Applied Scientist Intern — May 2025 - Aug 2025
   - Explored methods to generate realistic sample paths in time series forecasting

2. **Zelus Analytics (now Teamworks Intelligence)**
   Associate Data Scientist — Jun 2024 - Aug 2024
   Associate Data Scientist (part-time) — Sep 2023 - Mar 2024
   Data Scientist Intern (under Dr. Luke Bornn) — May 2022 - Aug 2023
   - Developed, validated, and productionalized statistical and machine learning models of player and team performance in sports

3. **Ghent University**
   Research Assistant (part-time under Prof. Matthias Bogaert) — Feb 2023 - Jun 2023
   - Developed and validated collaborative filtering approach to road cycling race prediction based on historical race results

4. **University of Toronto Applied Optimization Lab**
   Research Assistant (part-time) — Sep 2021 - Apr 2022
   Research Assistant (under Prof. Timothy Chan) — May 2021 - Aug 2021
   - Developed Bayesian hierarchical generative model to propose novel shooting skill metric for soccer players based on in-game shot trajectories

5. **University of Toronto Transportation Research Institute**
   Research Assistant (part-time) Sep 2020 - Apr 2021
   Research Assistant (under Prof. Eric Miller) May 2020 - Aug 2020

   - Developed statistical and machine learning spatial models of real estate prices and post-secondary school location choice

Publications and Presentations

Journal Papers

1. **Ethan Baron**, Nathan Sandholtz, Devin Pleuler, and Timothy C. Y. Chan. Miss it like Messi: Extracting value from off-target shots in soccer. *Journal of Quantitative Analysis in Sports*, Jan 2024. doi:10.1515/jqas-2022-0107

Conference Proceedings

1. **Ethan Baron**, Victor Hau, and Zeke Weng. Boulder2Vec: Modeling climber performances in professional bouldering competitions. In *Carnegie Mellon Sports Analytics Conference*, Nov 2024. URL: https://www.stat.cmu.edu/cmsac/conference/2024/assets/pdf/Weng24.pdf

2. **Ethan Baron**, Bram Janssens, and Matthias Bogaert. Bike2Vec: Vector embedding representations of road cycling riders and races. In *10th MathSport International Conference Proceedings*, Jun 2023. URL: https://github.com/baronet2/Bike2Vec

3. **Ethan Baron**, Gonzalo Martinez Santos, and Eric J. Miller. Modelling GTHA post-secondary school location choice. In *Transportation Association of Canada Conference and Exhibition*, Oct 2021. URL: https://www.tac-atc.ca/sites/default/files/conf%5Fpapers/barone%5Fmodellinggthapost-secondaryschoollocationchoice.pdf

Workshop Papers

1. **Ethan Baron**, Boris N. Oreshkin, Ruijun Ma, Hanyu Zhang, Kari Tokkola, Michael W. Mahoney, and Andrew Gordon Wilson. Efficiently generating correlated sample paths from multi-step time series foundation models. In *NeurIPS Workshop on Recent Advances in Time Series Foundation Models*, Dec 2025

2. **Ethan Baron**, Alan Nawzad Amin, Ruben Weitzman, Debora Susan Marks, and Andrew Gordon Wilson. A diffusion model to shrink proteins while maintaining their function. In *ICML Workshop on Exploration in AI Today* ***(Best Paper)***, Jul 2025. URL: https://openreview.net/pdf?id=YqQoNJWY22

3. **Ethan Baron**, Alan Nawzad Amin, Ruben Weitzman, Debora Susan Marks, and Andrew Gordon Wilson. A diffusion model to shrink proteins while maintaining their

function. In *ICML Workshop on Generative AI and Biology* ***(Spotlight)***, Jul 2025. URL: https://openreview.net/pdf?id=OUETBZ4lKC

4. Anton Korikov, George-Kirollos Saad, **Ethan Baron**, Mustafa Khan, Manav Shah, and Scott Sanner. Multi-aspect reviewed-item retrieval via LLM query decomposition and aspect fusion. In *Information Retrieval's Role in RAG Systems, Special Interest Group on Information Retrieval* ***(Oral)***, Jul 2024. URL: https://ceur-ws.org/Vol-3784/paper3.pdf

Conference Presentations

1. Bike2Vec: Vector embedding representations of road cycling riders and races. 10th MathSport International Conference, Budapest, Hungary, Jun 2023

2. Miss it like Messi: Extracting a signal from off-target shots in soccer. Canadian Operational Research Society Annual Conference, Vancouver, Canada, Jun 2022

3. Modelling average dwelling value of Toronto dissemination areas. North American Regional Science Council, Virtual, Nov 2021

4. Predictive value of off-target shots in soccer. New England Symposium on Statistics in Sports, Virtual, Oct 2021. URL: https://www.youtube.com/watch?v=zQCl1cL-JxAs

5. Modelling GTHA post-secondary school location choice. Transportation Association of Canada Conference and Exhibition, Virtual, Sept 2021

Conference Posters

1. **Ethan Baron**, Alan Nawzad Amin, Ruben Weitzman, Debora Susan Marks, and Andrew Gordon Wilson. A diffusion model to shrink proteins while maintaining their function. In *Machine Learning in Computational Biology*, Sep 2025

Undergraduate Thesis

1. Multi-aspect reviewed-item retrieval. University of Toronto, supervised by Scott Sanner, Apr 2024. URL: https://github.com/baronet2/MARIR

Reports

1. **Ethan Baron**, Daniel Hocevar, and Zach Salehe. A foundation model for soccer. Technical report, arXiv, Jul 2024. URL: https://arxiv.org/abs/2407.14558

2. **Ethan Baron**, Daniel Hocevar, Kabir Malik, and Aaron White. RIPP: Holistic player evaluation with region-based isolated player performance. Technical report, Big Data Cup (hockey analytics competition), Jul 2022. URL: https://github.com/baronet2/RIPP/blob/master/Paper%20Submission.pdf

3. **Ethan Baron** and Eric Miller. Modelling average dwelling value of Toronto dissemination areas. Technical report, University of Toronto Transportation Research Institute, Apr 2021. URL: `https://tmg.utoronto.ca/files/Reports/DAAverageDwellingValueReport.pdf`

Research Funding

1. Postgraduate Scholarship – Doctoral (3 years × $40,000), Natural Sciences and Engineering Research Council of Canada, Apr 2025
2. Undergraduate Summer Research Award ($6,000), Natural Sciences and Engineering Research Council, May 2021
3. Engineering Science Research Opportunities Program Fellowship ($3,000), University of Toronto Division of Engineering Science, May 2020

Awards and Honors

1. Best Paper ($500), AI for Science track, ICML Workshop on Exploration in AI Today, Jul 2025
2. National Science Foundation Graduate Research Fellowship Program (NSF GRFP), Honorable Mention, Apr 2025
3. Winner, Student Track ($1,000), Carnegie Mellon Sports Analytics Conference Reproducible Research Competition, Nov 2024
4. Engineering Science Award of Excellence, University of Toronto, Mar 2024
5. Kathryn Jean Poole In-Course Scholar ($1,500), University of Toronto, Aug 2022
6. Winner, Student Category, Big Data Cup (hockey analytics competition), Jul 2022
7. Best Undergraduate Paper, Canadian Operational Research Society, Jun 2022
8. C. David Naylor University Scholarship ($20,000), University of Toronto, Sep 2019

Extracurricular Activity

1. **University of Toronto Sports Analytics Student Group**
   President Apr 2021 - Apr 2023

   - Oversaw executive team, recruitment, newsletter, and email communications
   - Led and supervised research projects on various sports, including 2022 Big Data Cup winning submission

   Executive Team Member Aug 2020 - Apr 2024

   - Planned and executed sports analytics presentations and data science tutorials