

Iden Kalemaj

✉ ikalemaj@bu.edu ☎ [609-339-1817](tel:609-339-1817) 🎓 [Google Scholar](#) 📍 [Boston, MA](#)

I am a Ph.D. candidate in Computer Science with a research focus on differential privacy and theoretical machine learning. I am looking for a challenging Data Science internship where I can leverage my strong academic background and collaborative skills to build models with actionable predictions and positive impact.

MODELLING EXPERIENCE

CNN for lung X-rays, Course Project, Boston University Spring 2021

- Classified lung disease type based on X-ray images.
- Performed transfer learning using AlexNet (Tensorflow, Jupyter on GPU). Compared performance with and without weight freezing of the bottom layers. Used techniques such as regularization (L1-L2, dropout), data augmentation, and batch normalization, to achieve final accuracy of 84% on balanced test set.
- Explored model behavior by projecting the output of hidden layers onto a 2D space (tSNE), which revealed clear clustering of disease types.

Mitigating Distribution Shift in User Response due to Algorithmic Feedback Loop, Research Project, Boston University 2020-2021

- Modeled distribution shift due to users' responses when served with algorithmically generated information (e.g. Google Maps).
- Studied the impact of a sequential strategy to minimize the distribution shift and proved theoretical guarantees about convergence to a stable state [1].
- Evaluated theoretical results in a simulation on loan applicants.

Data Analyst, Analysis Group Inc, Boston August 2018-August 2019

- Modelled impact of cancer treatment on patients' quality of life and costs to the healthcare system.
- Performed survival analysis on clinical trial data to predict cancer progression and patients' survival rates. Fit Kaplan-Meier curves and growth models such as Gompertz, exponential, gamma, etc. (in R). Evaluated fit via AIC and BIC. See [4], [5], [6].

DEVELOPER EXPERIENCE

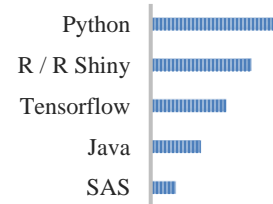
Data Analyst, Analysis Group Inc, Boston August 2018-August 2019

- Lead the development of an app that modeled and visualized impact of Parkinson's treatment on patient's quality of life.
- Designed and developed the front-end (R Shiny), supervised two analysts, and regularly checked in with managers to adjust the product's design.

TigerCinema, Course Project, Princeton University Spring 2017

- Worked in a team of 3 to develop a website where Princeton students could view, rate, and upload their films.
- Developed backend of website using Django and deployed with Heroku.

SKILLS



EDUCATION

Boston University. PhD
Computer Science (Exp. 2024)
Coursework: machine learning, differential privacy, optimization, randomized algorithms

Princeton University. BA
Mathematics (2014-2018)

RESEARCH HIGHLIGHTS

- Paper accepted with contributed talk to NeurIPS Workshop on Consequential Decision Making in Dynamic Environments, 2020
- Paper accepted at conference on Innovations in Theoretical Computer Science, 2022
- Presented posters at Women in Data Science, Cambridge, 2021, and Workshop on Algorithms for Large Data, 2021

IN MY FREE TIME

- 🕺 A regular at dancehall classes
- 🧗 Part of community of climbers in Boston area
- 🔔 Volunteer at math after-school program in middle school

PUBLICATIONS

- [1] Gavin Brown, Shlomi Hod, Iden Kalemaj. *Performative Prediction in a Stateful World*. NeurIPS Workshop on Consequential Decision Making in Dynamic Environments (2020). <https://arxiv.org/abs/2011.03885>
- [2] Iden Kalemaj, Sofya Raskhodnikova, Nithin Varma. *Sublinear-Time Computation in the Presence of Online Erasures*. Innovations in Theoretical Computer Science (2022), to appear. <https://arxiv.org/abs/2109.08745>
- [3] Hadley Black, Iden Kalemaj, Sofya Raskhodnikova. *Isoperimetric Inequalities for Real-Valued Functions with Applications to Monotonicity Testing*. In submission. <https://arxiv.org/abs/2011.09441>
- [4] Wei Gao, Dominic Muston, Matthew Monberg, Kimmie McLaurin, Robert Hettle, Elizabeth Szamreta, Elyse Swallow, Su Zhang, Iden Kalemaj, James Signorovitch, R. Brett McQueen. *A Critical Appraisal and Recommendations for Cost-Effectiveness Studies of Poly(ADP-Ribose) Polymerase Inhibitors in Advanced Ovarian Cancer*. *Pharmacoeconomics* 38, 1201–1218 (2020). <https://doi.org/10.1007/s40273-020-00949-9>
- [5] Dominic Muston, Robert Hettle, Matthew Monberg, Kimmie K. McLaurin, Wei Gao, Elyse Swallow, Su Zhang, Iden Kalemaj, James Signorovitch, Kathleen Moore. *Cost-effectiveness of olaparib as a maintenance treatment for women with newly diagnosed advanced ovarian cancer and BRCA1/2 mutations in the United States*. *Gynecologic Oncology*, 159 (2): 491-497 (2020). <https://doi.org/10.1016/j.ygyno.2020.08.013>
- [6] Dominic Muston, MJ Monberg, K McLaurin, A Sackeyfio, Robert Hettle, James Signorovitch, Elyse Swallow, Wei Gao, Su Zhang, Iden Kalemaj, Kathleen Moore. *Projection of long-term overall survival among patients with newly diagnosed advanced ovarian cancer and a BRCA1/2 mutation*. *Gynecologic Oncology*, 159 (2): 8 (2020). <https://doi.org/10.1016/j.ygyno.2020.05.174>