Itamar Kanter

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Profile

I am an algorithms developer with a wide experience in variety of domains, including computer vision, predictive analytics, and bioinformatics. Driven by a natural curiosity, I like to face new data driven challenges using machine and deep learning approaches. I bring with me the ability to think creatively, communicate with people from different disciplines, and to quickly master new knowledge and techniques.

Education

2013 -2017   **Ph.D., Faculty of Engineering, Bar-Ilan University,** *GPA: 96/100*

- Thesis title: "Mining big biological data sets: applications of novel clustering methods for single cell genomics, cancer, and developmental studies"
- Advisor: Dr. Tomer Kalisky

2010 -2012   **M.Sc. in Biophysics, Physics Dept., Bar-Ilan University, M***agna* **C***um Laude, GPA: 95/100*

- Thesis title: "Studying splicing factor dynamics and transcription of β-actin in living cell using advanced fluorescence methods"
- Advisors: Prof. Yuval Garini and Prof. Yaron Shav-Tal

2007 -2010   **B.Sc. in Biophysics, Physics Dept., Bar-Ilan University,** *Summa Cum Laude, GPA: 97/100*

Professional Experience

- 5/2018-present: Deep Learning Innovation Coach, NEC Israel Research Center (IRC)
  - In NEC Israel research center I am part of the Edge-AI team, and developing deep learning solutions with the goal of working on cheap hardware that would eliminate the need for GPUs or cloud computing.
  - In particular, I'm researching and implementing deep learning algorithms to solve various computer vision problems, like face recognition, object detection, triplet loss for zero shot learning, pose estimation, object tracking and more.
  - Currently, I'm working mostly with Pytorch in Python environment.
  - I was involved in the full cycle of POC, starting from goal definition, literature review, models development and training, all the way through the final evaluation of the outcomes.
- 1/2017-5/2018: Research analyst, Earnix.
  - Building and testing new machine learning and deep learning models for predictive analytics in the fields of insurance and banking: recurrent neural network (rnn), gradient boosting, general linear model (GLM)

Teaching experience

- 2011-2017:   Teaching assistant, Bar-Ilan University.
- 2015-2016:   Advisor- final project of a 4th year bioengineering student.

Military service

- 2003-2006:   Complete compulsory service the paratroopers brigade as a commander.

Technical skills

Programing and machine learning

- Deep learning: Classification, Object detection, feed-forward networks, recurrent networks
- Machine learning: unsupervised learning (clustering and dimension reduction), supervised learning (gradient boosting, GLM, KNN), network analysis (community detection).
- Programming: Python (Pytorch, Keras, TensorFlow, OpenCV, scikit-learn, pandas, matplotib), R, Matlab, shell scripts, CPP (Basic).
- Systems: Linux, Windows.

Awards

- 2009, 2010   Bar-Ilan University Dean's prize.
- 2008   Bar-Ilan University Rector's prize.
- 2008   Bar-Ilan University, Physics department award for excellence in undergraduate studies.

Fellowships
- 2014-2016   Bar-Ilan President's fellowship for excellent Ph.D. students ("Milgat Nasi").
- 2014, 2016   Fellowship from the Bar-Ilan Institute of Nanotechnology and Advanced Materials.
- 2009-2013   'Interdisciplinary Technologies' fellowship of the Council for Higher Education in Israel for outstanding students.

Personal skills

Hobbies
- Running- best half marathon – Emek Hamayanot Dec/19: 1:23:59 (75 out of 1938).

Publications

1. **I Kanter**, G Yaari, and T Kalisky. Applications of community detection algorithms to large biological datasets. Methods in Molecular Biology. 2021.
2. O Harari-Steinberg, D Omer, Y Gnatek, O Pleniceanu, S Goldberg, O Cohen-Zontag, S Pri-Chen, **I Kanter**, N Ben Haim, E Becker, R Ankawa, Y Fuchs, T Kalisky, Z Dotan, and B Dekel. Ex vivo expanded 3D human kidney spheres engraft long term and repair chronic renal injury in mice. Cell reports. 2020.
3. O Cohen-Zontag, R Gershon, OHarari-Steinberg, **I Kanter**, D Omer, O Pleniceanu, GTam, S Oriel, H Ben Hur, G Katz, D Zohar, T Kalisky, B Dekel, and Naomi Pode-Shakked. Human kidney clonal proliferation disclose lineage-restricted precursor characteristics. Scientific Reports. 2020.
4. Y Wineberg*, **I Kanter***, N Ben-Haim, N Pode-Shakked, E Bucris, T Bar-Lev, S Oriel, Y Yehuda, R Gershon, R Shukrun, D Bar-Lev, A Urbach, B Dekel, and Tomer Kalisky. Characterization of splice isoform switching during human kidney development. BioRxiv. 2019. (*Co-first authors)
5. I Kanter, G Yaari, T Kalisky. Applications of community detection algorithms to large biological datasets. BioRxiv. 2019.
6. H Golan, R Shukrun, R Caspi, E Vax, N Pode-Shakked, S Goldberg, O Pleniceanu, D Bar-Lev, M Mark-Danieli, S Pri-Chen, J Jacob-Hirsch, **I Kanter**, A Trink, G Schiby, R Bilik, T Kalisky, O Harari-Steinberg, A Toren, and B Dekel. In vivo expansion of cancer stemness affords novel cancer stem cell targets: Malignant rhab. doid tumor as an example. Stem cell reports. 2018.
7. **I Kanter**, P Dalerba, and T Kalisky A cluster robustness score for identifying cell subpopulations in single cell gene expression datasets from heterogeneous tissues and tumors. Bioinformatics. 2018
8. A Trink*, **I Kanter***, N Pode-Shakked*, A Urbach, B Dekel, and T Kalisky. Geometry of gene expression space of Wilms' tumors from human patients. Neoplasia. 2017. (*Co-first authors)
9. S Avivi, A Mor, I Dotan, S Tzadok, **I Kanter**, N Kinor, D Canaani, and Y Shav-Tal. Visualizing nuclear RNAi activity in single living human cells. PNAS. 2017.
10. T Kalisky, S Oriel, TH Bar-Lev, N Ben-Haim, A Trink, Y Wineberg, **I Kanter**, S Gilad, and S Pyne. A brief review of single-cell transcriptomic technologies. Briefings in Functional Genomics. 2017.
11. N Pode-Shakked, R Gershon, G Tam, D Omer, Y Gnatek, **I Kanter**, S Oriel, G Katz, O Harari-Steinberg, T Kalisky, and B Dekel. Evidence of In Vitro Preservation of Human Nephrogenesis at the Single-Cell Level. Stem Cell Reports. 2017.
12. I Grbeša, A Kalo, R Belužić, L Kovačević, A Lepur, F Rokić, H Hochberg, **I Kanter**, V Simunović, P M M Torres, Y Shav-Tal, and O Vugrek. Mutations in S-adenosylhomocysteine hydrolase (AHCY) affect its nucleocytoplasmic distribution and capability to interact with S-adenosylhomocysteine hydrolase-like 1 protein. European Journal of Cell Biology. 2017.
13. J Sheinberger, H Hochberg, E Lavi, **I Kanter**, S Avivi, G Reinitz, A Schwed, Y Aizler, E Varon, N Kinor, and Y Shav-Tal. CD-tagging-MS2: detecting allelic expression of endogenous mRNAs and their protein products in single cells. Biology Methods and Protocols. 2017.
14. O. Pleniceanu, R. Shukrun, D. Omer, E. Vax, **I. Kanter**, K. Dziedzic, N. Pode-Shakked, M. Mark-Daniei, S. Pri-Chen, Y . Gnatek, H. Alfandary, N. Varda-Bloom, D. Bar-Lev, N. Bollag, R. Shtainfeld, L. Armon, A. Urbach, T. Kalisky, A. Nagler, O. Harari-Steinberg, J.L Arbiser, and B. Dekel. PPARG is central to the initiation and propagation of human angiomyolipoma, suggesting its potential as a therapeutic target. EMBO Molecular Medicine. 2017.
15. P. Kafri, S. E Hasenson, **I. Kanter**, J. Sheinberger, N. Kinor, S. Yunger, and Y. Shav-Tal. Quantifying β-catenin subcellular dynamics and cyclin D1 mRNA transcription during Wnt signaling in single living cells. eLife. 2016.
16. I. Bronshtein, **I. Kanter**, E. Kepten, M. Lindner, S. Berezin, Y. Shav-Tal, and Y. Garini. Exploring chromatin organization mechanisms through its dynamic properties. Nucleus. 2016.
17. N. Pode-Shakked, O. Pleniceanu, R. Gershon, R. Shukrun, **I. Kanter**, E. Bucris, B. Pode-Shakked, G. Tam, H. Tam, R. Caspi, S. Pri-Chen, E. Vax, G. Katz, D. Omer, O. Harari-Steinberg, T. Kalisky, and B. Dekel. Dissecting Stages of Human Kidney Development and Tumorigenesis with Surface Markers Affords Simple Prospective Purification of Nephron Stem Cells. Scientific reports. 2016.
18. **I. Kanter** and T. Kalisky. Single cell transcriptomics: methods and applications. Frontiers in oncology. 2015.

19. A. Kalo, **I. Kanter**, A. Shraga, J. Sheinberger, H. Tzemach, N. Kinor, R. H. Singer, T. Lionnet, and Y. Shav-Tal. Cellular Levels of Signaling Factors Are Sensed by β-actin Alleles to Modulate Transcriptional Pulse Intensity. Cell reports. 2015.
20. I. Bronshtein, E. Kepten, **I. Kanter**, S. Berezin, M. Lindner, A. B. Redwood, S. Mai, S. Gonzalo, R. Foisner, Y. Shav-Tal, and Y. Garini. Loss of lamin A function increases chromatin dynamics in the nuclear interior. Nature Communications. 2015.