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Tommy Kaplan, PhD

Contact Address

Prof. Tommy Kaplan
School of Computer Science and Engineering, and, Faculty of Medicine
The Hebrew University of Jerusalem, Jerusalem, 91904, Israel
tommy@cs.huji.ac.il | http://www.cs.huji.ac.il/~tommy
Google Scholar: **5741 citations, H-index 30**

Education

10/02 – 08/08	**Ph.D. in Computer Science and Computational Biology,** The Hebrew University, Jerusalem, Israel.
10/00 – 10/02	**M.Sc. in Computer Science**, The Hebrew University, Jerusalem, Israel.
10/98 – 10/00	**B.Sc. in Computer Science and Cognitive Studies,** The Hebrew University, Jerusalem, Israel

Appointments

2017 –	**Associate Professor ,** School of Computer Science and Engineering, The Hebrew university of Jerusalem
2019 –	**Associate Professor ,** Faculty of Medicine**,** The Hebrew university of Jerusalem
2015 –	**Head, Computational Biology Program**, The Hebrew University of Jerusalem
2012 – 2017	**Assistant Professor ,** School of Computer Science and Engineering, The Hebrew university of Jerusalem
2008 – 2012	**Post-doctoral Fellow in Computational Biology,** UC Berkeley

Honors and Awards

06/19	**Kaye Innovation Award** awarded to PhD student Josh Moss
10/16	**Bergmann Memorial** Research Award
12/09	**GE & Science Prize for Young Life Scientists**
09/08 – 09/10	**EMBO** long-term post-doctoral fellowship
10/08	Candidate, 2008 **ACM Doctoral Dissertation** award in Computer Science
10/07	Distinguished Graduate Student prize, The Hebrew University
06/06	**Barenholz** Prize for Applied Research
10/05 – 10/08	**Leibniz** Center for Research in Computer Science student fellowship
04/04	**Keystone** Symposia Scholarship Winner
10/02 – 10/05	**Horwitz** Fellowship for Excellent Interdisciplinary Ph.D. students
10/02 – 10/05	**Eshkol** Foundation scholarship for Ph.D. students (waived)
07/02	**Rector's Award** for graduate students
07/00	Selim and Rachel **Benin** Award for undergraduate students

Teaching

2022 –	**Artificial Intelligence in Medicine**
2015 –	**Algorithms in Computational Biology**
2015 – 2021	**Advanced seminar in Computational Biology**
2015 –	**Computational Genomics**
2014 – 2020	**Systems Biology of Transcription**
2013 – 2017	**Advanced Practical Course in Machine Learning**
2013 –	**Undergraduate seminar in Computational Biology**
2012 –	**Guided research in Computational Biology**
2012 – 2015	**High-throughput Methods in Genomics**
2004 – 2008	**Research Projects in Computational Biology** (Organizer)
2006 – 2007	**Undergraduate seminar in Computational Biology**
2001 – 2004	**Computational Bioskills Workshop**
2000 – 2001	**Computer Architecture** (TA)

Current Funding

2023 – 2027	ERC Horizon (Co-PI): PANCAID - machine learning analysis of multi-omics data for early detection and diagnosis of pancreatic cancer
2023 – 2027	ISF Precision Medicine IPMP (Co-PI): Monitoring response to cancer treatment using Point-of-care multi-modal cfDNA profiling
2022 – 2025	Israel Innovation Auth. (Co-PI): LiquidBx - multi-omics diagnosis of human diseases from blood
2020 – 2024	CIDR (Head PI): A computational view of cell-free DNA
2020 – 2024	CIDR (Co-PI): A university-wide multi-disciplinary data science education program
2019 – 2023	GRAIL Inc (Co-PI): A human methylation atlas of circulating cell-free DNA
2018 – 2023	ISF (PI): Computational Detection of Human Diseases from DNA Methylation Patterns

Supervision of Graduate Students

2012 – 2022	13 MSc students, 3 PhD students, 2 postdoc, 4 guests
Current lab	2 PhD students, 4 MSc students

Organization of Scientific Meetings

2023	**Co-organizer**, 21st Israeli Bioinformatics Symposium
2019	**Co-organizer**, 21st Israeli Bioinformatics Symposium (postponed)
2015 – 2019	**Organizer**, “Towards a Postdoc” open days at Hebrew University
2015	**Co-organizer**, Genome Regulation in 3D, Weizmann Inst.
2015	**Co-organizer**, The regulatory conformation of the genome, Israel
2013	**Organizer**, Analysis of Genome-Wide sequencing data, UC Berkeley

Institutional Services

2015 –	**Head**, Computational Biology program
2012 –	**Student Counselor**, Computational Biology program
2021 –	**Member**, Ethics committee, School of Computer Science
2019 – 2021	**Member,** University Senate
2018 – 2021	**Counselor**, Arab Students in Computational Biology
2018 – 2021	**Counselor**, Orthodox Jew Students in Computational Biology
2014 – 2021	**Member**, University Committee for Gender Equality
2012 – 2016	**Organizer**, Computational Biology Seminar
2012 – 2015	**Organizer**, Computer Science Colloquium

Service in other academic and research Institutions

2021 – 2022	**Sabbatical**, Cancer Research Inst., Cambridge University, UK
Summer 2018	**Visiting Scholar**, UC San Francisco
Summer 2017	**Visiting Scholar**, UC San Francisco
Summer 2015	**Visiting Scholar**, UC San francisco
Summer 2013	**Visiting Scholar**, UC Berkeley
2022 –	PhD committee member, University of Cambridge
2015 –	PhD committee member / examiner, Weizmann Institute
2015 –	PhD committee member / examiner, Technion
2015 –	MSc/PhD committee / examiner, Ben Gurion University
2014 –	MSc/PhD committee / examiner, Tel Aviv University

Outreach and Volunteering

2014 –	High school lessons (through Mad’an Ba’reshet and others)
2014 – 2017	President’s program for gifted children, Jerusalem
2014 –	Popular Science Talks (Madua, Shaare Zedek, Hadassah Ein Kerem, Microsoft IL)
2014, 2017	High school mentoring of matriculation projects (Leyada, IASA)
2015 – 2020	High school seminars on Gender Equality and Manhood (Mechane Meshutaf)

Reviewing Activities

Journals: Nature, Nature Communications, Nature MSB, Genome Biology, Developmental Cell, Genome Research, PNAS, PLoS Genetics (guest editor), PLoS Computational Biology, eLife, NAR, Genetics, Advanced Science, Bioinformatics, Journal of Computational Biology, BMC Bioinformatics, Molecular Oncology, ISMB, ECCB
Others: ISF (panel), BSF (panel), GIF, ERC, Ministry of Science and Technology, Israeli Cancer Assoc., Dutch Cancer Society, Cancer Research NZ, Swiss NSF

Selected Publications

- Loyfer N*, Magenheim J*, Peretz A*, … Yuval Dor*, Ben Glaser*, and Tommy Kaplan*
  A human DNA methylation atlas reveals principles of cell type-specific methylation and identifies thousands of cell type-specific regulatory elements
  Nature *(to appear)*, 7 citations
- Jaber M*, Radwan A*, Loyfer N*, …,Tommy Kaplan*, and Yossi Buganim*
  Comparative parallel multi-omics analysis during induction of pluripotent and trophectoderm states
  Nature Communications*, 2022*, 173 citations
- Asael Lubotzky, …Tommy Kaplan,... Ben Glaser, Ruth Shemer, and Yuval Dor
  Liquid biopsy reveals collateral tissue damage in cancer
  JCI insight, 2022, 12 citations
- Ronen Sadeh,... , Tommy Kaplan, … and Nir Friedman
  ChIP-seq of plasma cell-free nucleosomes identifies gene expression programs of cells of origin
  Nature Biotechnology, 2021, 51 citations
- Magen E Barefoot, Netanel Loyfer, …, Tommy Kaplan, and Anton Wellstein
  Detection of Cell Types Contributing to Cancer From Circulating, Cell-Free Methylated DNA
  Frontiers in genetics*, 2021*, 9 citations
- Naomi Habib, …, Tommy Kaplan**,** Aviv Regev, and Michal Schwartz
  Disease-associated astrocytes in Alzheimer's disease and aging
  Nature Neuroscience, 2020, 325 citations
- Benchetrit H, … Oren Ram, Tommy Kaplan, and Yossi Buganim
  Direct induction of the three pre-implantation blastocyst cell types from fibroblasts
  Cell stem cell, 2019, 40 citations
- Joshua Moss, … Benjamin Glaser, Ruth Shemer*, Tommy Kaplan*, and Yuval Dor*
  Comprehensive human cell-type methylation atlas reveals origins of circulating cell-free DNA in health and disease
  Nature Communications, 2018, 408 citations
- Malka Y, … Hanah Margalit, Tommy Kaplan*, and Michael Berger*
  Post-transcriptional 3'-UTR cleavage of mRNA transcripts generates thousands of stable uncapped autonomous RNA fragments
  Nature Communications, 2017, 42 citations
- Dikla Cohn, Or Zuk*, and Tommy Kaplan*
  Enhancer identification using transfer and adversarial deep learning of DNA sequences
  BioRxiv, 2018, 19 citations
- Gil Ron, Yuval Globerson, Dror Moran, and Tommy Kaplan
  Promoter-Enhancer Interactions Identified from Hi-C Data using Probabilistic Models and Hierarchical Topological Domains
  Nature Communications, ***2017***, 114 citations
- Michael Klutstein, Josh Moss, Tommy Kaplan, and Howard Cedar
  Contribution of epigenetic mechanisms to variation in cancer risk among tissues
  PNAS, 2017, 50 citations
- Xiao-Yong Li, … Tommy Kaplan*, and Michael Eisen*
  Establishment of regions of genomic activity during the Drosophila maternal to zygotic transition
  eLife, 2014, 172 citations
- Axel Visel, … Tommy Kaplan, Eddy Rubin, Len Pennacchio, and John Rubenstein
  A High-Resolution Enhancer Atlas of the Developing Telencephalon
  Cell, 2013, 242 citations

- Dalit May, … Tommy Kaplan, Eddy Rubin, Len Pennacchio, and Axel Visel
  Large-scale discovery of Enhancers from Human Heart Tissue
  Nature Genetics, 2012, 277 citations
- Melissa Harrison*, Xiao-Yong Li*, Tommy Kaplan*, Michael Botchan, and Michael Eisen
  Zelda Binding in the Early Drosophila melanogaster Embryo Marks Regions Subsequently Activated at the Maternal-to-Zygotic Transition
  PLoS genetics, 2011, 328 citations
- Tommy Kaplan, …, Mark D Biggin*, and Michael B Eisen*
  Quantitative Models of the Mechanisms That Control Genome-Wide Patterns of Transcription Factor Binding during Early Drosophila Development
  PLoS genetics, 2010, 210 citations
- Moran Yassour*, Tommy Kaplan*, …, Nir Friedman, and Aviv Regev
  Ab initio construction of a eukaryotic transcriptome by massively parallel mRNA sequencing
  PNAS, 2009, 253 citations
- Tommy Kaplan*, Chih Long Liu*, …, Nir Friedman, and Oliver J Rando
  Cell cycle–and chaperone-mediated regulation of H3K56ac incorporation in yeast
  PLoS genetics, 2008, 173 citations
- Andrew Capaldi, Tommy Kaplan, … Aviv Regev, Nir Friedman, and Erin O'Shea
  Structure and Function of a Transcriptional Network Activated by the MAPK Hog1
  Nature Genetics, 2008, 256 citations
- Michael Dion*, Tommy Kaplan*, … Nir Friedman, and Oliver J Rando
  Dynamics of replication-independent histone turnover in budding yeast
  Science, 2007, 630 citations
- Chih-Long Liu*, Tommy Kaplan*, … Nir Friedman, and Oliver J Rando
  Single-nucleosome mapping of histone modifications in S. cerevisiae
  PLoS biology, 2005, 628 citations
- Tommy Kaplan, Nir Friedman, and Hanah Margalit
  Ab initio prediction of transcription factor targets using structural knowledge
  PLoS computational biology, 2005, 143 citations
- Yoseph Barash*, Gal Elidan*, Nir Friedman, and Tommy Kaplan*
  Modeling dependencies in protein-DNA binding sites
  RECOMB, 2003, 301 citations