

Curriculum Vitae

YOSEPH BARASH

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Education

1999-05 Ph.D., School of Computer Science & Engineering, Hebrew University,
Advisor: Prof. Nir Friedman
Title: "Unified Models for Regulatory Mechanisms"
1996-98 B.Sc. in Computer Science and Physics, Hebrew University
Jerusalem, Israel. Graduated Magna Cum Laude.

Honors & Awards

2010 Lap-Chee Tsui Publication Award (Biomedical Research),
Canadian Institutes of Health Research
2006 Charles H. Best postdoctoral fellowship recipient, University of Toronto
Renewed: 2007
2005 Best scientific poster award, Hebrew University
2002 Levi Eshkol fellowship recipient, Israeli Ministry of Science.
Renewed: 2003, 2004
2002 Best poster award, the Annual Israeli Bioinformatics Symposium
2000 Leibniz award for M.Sc. research study, Hebrew University
1998 Graduated Cum Laude Magna, Hebrew University
1997 Dean's List for undergraduate achievements, Faculty of Science,
Hebrew University

Employment

- 2009-2010 Senior research fellow, University of Toronto
- 2006-2009 Postdoc, Dept. of CS, ECE, Centre for Cellular and Biomolecular Research, University of Toronto, Advisors: Prof. Brendan Frey, Prof. Ben Blencowe
- 2004-05 Lecturer, Introduction to Computational Biology course, Hebrew University
- 2003 Teaching assistant (frontal), Programming Lab A course (OOD,C++,STL), Hebrew University
- 2002 Teaching assistant (frontal), Information Theory course, Hebrew University
- 2002 Microarray gene expression analysis (joint research), Functional Genomics Unit, Tel Hashomer Hospital
- 1999-01 Teaching assistant (frontal), Data Structures, Algorithms, OOD programming, Hebrew University
- 1997-98 Algorithm and software developer - Java programming netPost™ Inc
- 1991-95 Army Officer (Major), Chief of an operational wing in an air force unit, Commanding officer in a paratroops reconnaissance unit, An infantry officer instructor in the Officer's Academy IDF

References

- Professor Brendan Frey, Department of Electrical and Computer Engineering, University of Toronto, E-mail: frey@psi.utoronto.ca Website: <http://www.psi.utoronto.ca/~frey/> Tel. +1 416 978 7001
- Professor Benjamin Blencowe, Centre for Cellular and Biomolecular Research E-mail: b.blencowe@utoronto.ca Website: <http://www.utoronto.ca/intron/> Tel. +1 416 978 3016
- Dr. Naftali Kaminski, University of Pittsburgh Medical Center, Email: kaminx@upmc.edu Website: <http://simmonscenterild.upmc.com/NaftaliKaminski.htm> Tel. +1 412 841 3876
- Prof. Nir Friedman, School of Computer Science and Engineering, Hebrew University, Email: nir@cs.huji.ac.il Website: <http://www.cs.huji.ac.il/~nir/>
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Community Activities and Contributions:

Professional:

• Meetings & Conference Organization

Co-organizer, 8th Special Interest Group meeting on Alternative Splicing, Vienna, 2011

Program Committee, Gene Regulation & Transcriptomics Track of ISMB, 2011

• **Paper Review** (2003 - present)

Journals: Nature, Nature Methods, Genes and Development, Bioinformatics, Journal of Bioinformatics and Computational Biology, Journal of Machine Learning Research (JMLR)

Conferences: International Conference on Computational Molecular Biology

(RECOMB), European Conference on Computational Biology (ECCB),

International Conference on Intelligent Systems for Molecular Biology (ISMB)

• **Student Supervisor**

Hebrew University (2002-2005)

Supervised numerous undergraduates in their final computational biology (CSLS)

projects. Several of these (Noa Shefi, Gali Niv and Omri Peleg) later extended their work to M.Sc. and PhD research in computational Biology and machine learning.

University of Toronto (2008-current)

Supervising graduate students Clement Chung and Hui Xiong in their ongoing research at the PSI lab.

• **Project for programming skills improvement**

Hebrew University (2002)

Initiated, in conjunction with Prof. Danny Dolev, head of the CSE school at the Hebrew University, a project to update the curriculum for B.Sc. in CS. Aiming to improve the level of programming skills, we researched the curriculum in other leading universities in the U.S and interviewed academy and industry figures. Conclusions from this project were adopted in following years.

Personal:

• **Let's Talk Science Volunteer**

Canada (2009 - current)

Volunteered to activities introducing current science research to the general public (e.g. "Science Rendezvous"). Completed Let's Talk Science training workshop.

• **Traditional Karate Training/Teaching**

Israel/Canada (1982-3, 1985-7, 1999 - current)

Trained in traditional Okinawan Goju Ryu Karate for more than a decade. Traveled to Okinawa to train with the head master of our style and with people from all over the world. Currently hold the rank of Nidan (black belt, 2nd Dan). As such, have helped instruct beginners and youth and organized special seminars for advanced students. Regard traditional Karate practice as a major contributor for a healthy, balanced, life both physically and mentally.

Presentations

Speaker:

2011	Invited speaker, Inter. Workshop on Visualizing Biological Data, Broad Institute
2010	Invited speaker, Stowers Institute, USA
2010	7th Special Interest Group meeting on Alternative Splicing (AS-SIG), USA
2010	Inter. Conf. on intelligent systems for molecular biology (ISMB), USA
2009	Eukaryotic mRNA Processing, Cold Spring Harbor (CSHL), USA
2009	Inter. Conference on Functional Annotation of the Mammalian Genome, Canada
2009	Systems Biology: Networks, Cold Spring Harbor (CSHL), USA
2008	Annotation of the Human Genome for Disease Study, Genome Canada,

- 2004 Inter. Conference on Intelligent Systems for Molecular Biology (ISMB), Scotland
- 2003 European Science Foundation (ESF) exploratory workshop, Spain
- 2003 Inter. Conference on Computational Molecular Biology (RECOMB), Germany
- 2001 Workshop on Algorithms in Bioinformatics (WABI), Denmark
- Poster:**
- 2008 Inter. Conf. on intelligent systems for molecular biology (ISMB), Canada
- 2007 Systems Biology, Cold Spring Harbor Laboratory (CSHL), USA
- 2005 Inter. Conf. on intelligent systems for molecular biology (ISMB), USA
- 2002 Inter. Conference on Computational Molecular Biology (RECOMB), USA
- 2001 Inter. Conf. on intelligent systems for molecular biology (ISMB), Denmark

Public Dissemination of Research (selection)

- Barash et. al, Nature, 2010 - Selected for “notable breakthroughs in computational biology”
Nature Biotech. Vol 29, p. 45-49, 2011
- Barash et. al, Nature, 2010 - Selected for Faculty of 1000 Biology(<http://www.f1000biology.com>)
- CBC News, “Canadian scientists crack hidden DNA code”, 2010
- BBC Radio, “The Naked Scientist”, 2010
- CBC Radio1, “Here and Now”, 2010
- Toronto Star, front page headline cover story, “UofT Cracks the Code”, 2010

Peer Reviewed Papers

- Hui Yuan Xiong* , **Yoseph Barash*** and Brendan Frey
“Bayesian Inference of the Splicing Code”
Submitted, (***co-first author**)
- Hui Yuan Xiong , **Yoseph Barash*** and Brendan Frey*
“Predicting Tissue-Dependent Alternative Splicing Using Bayesian Neural Networks”
MLCB 2010 (***corresponding author**)
- **Barash Y.**, Wang X.
“An illuminated view of molecular biology”
Genome Biology 11:307, August 2010
- ***Barash Y.**, *Calarco J. A., Gao W., Pan Q., Wang X., Shai O., Blencowe B.J, Frey B.J.
“Deciphering the Splicing Code”
Nature, 465, p.53–59, May 2010 (***co-first authors**)
- ***Barash Y.**, Blencowe B.J, *Frey B.J.
“Model-Based Detection of Alternative Splicing Signals”,
Bioinformatics, Vol. 26, pages i325–i333, 2010
Also presented at the *18th International Conference on Intelligent Systems for Molecular Biology*

(ISMB), 2010 (***corresponding author**)

- *Aznarez I., ***Barash Y.**, Shai O., He D., Zielenski J., Tsui L.C., Parkinson J., Frey B.J., Rommens J.M., and Blencowe B.J., “A systematic analysis of intronic sequences downstream of 5′ splice sites reveals a widespread role for U-rich motifs and TIA1/TIAL1 proteins in alternative splicing regulation”, *Genome Research* 18(8):1247-58, 2008 (***co-first authors**)
- *Fagnani M., ***Barash Y.**, Ip J., Misquitta C., Pan Q., Saltzman A.L., Shai O., Lee L., Rozenhek A., Mohammad N., Willaime-Morawek S., Babak T., Zhang W., Hughes T.R., van der Kooy D., Frey B.J., Blencowe, B.J., “Functional coordination of alternative splicing in the mammalian central nervous system”, *Genome Biology*, 8, R108, 2007 (***co-first authors**)
- **Barash Y.**, Elidan G., Kaplan T., Friedman N., “CIS: Compound Importance Sampling Method for Protein-DNA Binding Site p-value Estimation” *Bioinformatics* 20(6):839-46, 2004
- Marion R.M., Regev A., Segal E., **Barash Y.**, Koller D., Friedman N. and O’Shea E.K. “Sfp1 is a Stress- and Nutrient-Sensitive Regulator of Ribosomal Protein Gene Expression” *PNAS*, 101:14315-22, 2004.
- **Barash Y.**, Elidan G., Kaplan T., Friedman N., “CIS: Compound Importance Sampling Method for Protein-DNA Binding Site p-value Estimation” *Proceedings of the 12th International Conference on Intelligent Systems for Molecular Biology (ISMB)*, 2004
- **Barash Y.**, Dehan E., Krupsky M., Franklin W., Geraci M., Friedman N. and Kaminski N. “Comparative Analysis of Algorithms for Signal Quantitation from Oligonucleotide Microarrays”, *Bioinformatics*, 12;20(6):839-46, 2004
- **Barash Y.**, Elidan G., Kaplan T., Friedman N., “Modeling Dependencies in Protein-DNA Binding Sites” In Proc. Seventh Annual Inter. Conf. on Computational Molecular Biology (RECOMB), 2003
- **Barash Y.** and Friedman N. “Context-Specific Bayesian Clustering for Gene Expression Data” *Journal of Computational Biology*, 9:169-191, 2002
- Segal E., **Barash Y.**, Simon I., Friedman N. and Koller D. “From Promoter Sequence to Expression: A Probabilistic Framework” Proc. 6th Inter. Conf. on Computational Molecular Biology (RECOMB), 2002
- **Barash Y.**, Bejerano G. and Friedman N. “A simple hyper-geometric approach for discovering putative transcription factor binding sites” *Algorithms in Bioinformatics: Proc. First International Workshop, (WABI) 2001*
- **Barash Y.** and Friedman N. “Context-Specific Bayesian Clustering for Gene Expression Data”, *Proc. 5th Inter. Conf. on Computational Molecular Biology (RECOMB) 2001*