

# Curriculum Vitae

Yoav Ram

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## Personal Information

**Name:** Yoav Ram

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## Education

- **Current:** Postdoctoral fellow, Feldman lab, Stanford University, 2016-ongoing
- Postdoctoral fellow, Hadany lab, Tel Aviv University, 2016
- Ph.D., 2010 - 2016
  - *Institution:* Tel Aviv University
  - *Advisor:* Prof. Lilach Hadany
  - *Ph.D. title:* The Evolution of Stress-Induced Mutagenesis: Causes and Consequences
  - Submitted February 2016
- M.Sc., 2010-2012 (direct Ph.D. track) Theoretical and Computational Biology, Tel Aviv University
- B.Sc., 2007-2010 Biology and Mathematics *magna cum laude*, Tel Aviv University

## Employment

- **Current:** Technical instructor, 2016-ongoing
  - Python for Engineers, Machine learning & Deep learning
- Data scientist at Neura, 2016
- Teacher / TA at Tel Aviv University, 2011-2015
- R&D at NetAlgin, 2008-2009
- Developer at XLNet, 2006-2008
- R&D at IDF Intelligence Corps, 2002-2006

## Publications

- *Ram, Y., Liberman, U., and Feldman, M.W. (2018) Vertical and oblique transmission under fluctuating selection. Proceedings of the National Academy of Sciences USA*, in press.

- Ram, Y., Altenberg, L., Liberman, U., and Feldman, M.W. **Generation of Variation and Mean Fitness Increase: Necessity is the Mother of Genetic Invention.** *Submitted.*
- Zinger, E., Guiejman, A., Obolski, U., Ram, Y., Ruby, E., Binder, M., Yechieli, N., Ohad, N., Hadany L. **The plant and the ant: less fit *Lamium* plants produce more dispersible seeds.** *Submitted.*
- Harari, Y., Ram, Y., Rappoport, N., Hadany, L., Kupiec, M. **Spontaneous changes in ploidy are common in yeast.** *In revision.*
- Ram, Y. and Hadany, L. **The evolution of stress-induced mutagenesis in the presence of recombination.** *Submitted.*
- Ram, Y., Dellus-Gur, E., Bibi, M., Obolski, U., Berman, J., and Hadany, L. **Predicting microbial relative growth in a mixed culture from growth curve data.** *Submitted.* Preprint available, DOI: 10.1101/022640
- Rougier, N.P., . . . , Ram, Y., et al. **Sustainable computational science: the *ReScience* initiative.** *PeerJ Computer Science*, 3: e142. DOI: 10.7717/peerj-cs.142
- Dellus-Gur, E., Ram, Y., and Hadany, L. (2017) **Errors in mutagenesis and the benefit of cell-to-cell signalling in the evolution of stress-induced mutagenesis.** *Royal Society Open Science*, 4:170529. DOI: 10.1098/rsos.170529
- Obolski, U., Ram, Y., Lilach Hadany. (2018) **Evolution on rugged adaptive landscapes.** *Reports on Progress in Physics*, 81: 12602. DOI: 10.1088/1361-6633/aa94d4
- Obolski, U., Lewin-Epstein, O., Even-Tov, E., Ram, Y., Hadany, L. (2017) **With a little help from my friends: cooperation can accelerate the rate of adaptive valley crossing.** *BMC Evolutionary Biology*, 17:143. DOI: 10.1186/s12862-017-0983-2
- Ram, Y., and Hadany, L. (2016) **Condition-dependent sex: who does it, when, and why?.** *Philosophical Transactions of the Royal Society B*, 371: 20150539. DOI: 10.1098/rstb.2015.0539
- Ram, Y. and Hadany, L. (2015) **The probability of improvement in Fisher’s geometric model: a probabilistic approach.** *Theoretical Population Biology*, 99: 1-6. DOI: 10.1016/j.tpb.2014.10.004
- Ram, Y. and Hadany, L. (2014) **Stress-induced mutagenesis and complex adaptation.** *Proceeding of the Royal Society B*. 281: 20141025. DOI: 10.1098/rspb.2014.1025
- Gueijman, A., Ayali, A., Ram, Y., and Hadany, L. (2013) **Dispersing away from bad environments: The evolution of fitness-associated dispersal (FAD) in homogeneous environments.** *BMC Evolutionary Biology*, 13:125. DOI: 10.1186/1471-2148-13-125
- Ram, Y. and Hadany, L. (2012) **The evolution of stress-induced hypermutation in asexual populations.** *Evolution*, 66: 2315-2328. DOI: 10.1111/j.1558-5646.2012.01576.x

## Software & Datasets

- Ram, Y., Zinger, E., Hadany, L. (2017). **Sid: Image processing for seed images.** *Zenodo*. DOI: 10.5281/zenodo.344898.
- Ram Y., Hadany L. (2014) **Data from: Stress-induced mutagenesis and complex adaptation.** *Dryad Digital Repository*. DOI: 10.5061/dryad.3066j.
- Ram, Y., Guiejman, A. and Hadany L. (2014). **proevolution simulation: Version Dobzhansky.** *ZENODO*. DOI: 10.5281/zenodo.11400.
- Ram, Y., Hadany, L. (2014) **proevolution simulation: Version Charles.** *ZENODO*. DOI: 10.5281/zenodo.11401.

## Presentations

- *Mathematical and Computer Models in Evolution: from microbes to human culture* - the School of Computer Science colloquium, Interdisciplinary Center Herzliya, January 2018.
- *Evolution of non-vertical transmission in changing environments* - special guest seminar at the Department of Molecular Genetics, Weizmann Institute, January 2018.
- *Vertical and oblique transmission under fluctuating selection* - Evolgenome seminar, Stanford University, November, 2017.
- Poster at the **Gordon Research Conference on Biological Mechanisms in Evolution**, Stonehill College, Easton, MA, USA, June 10 - 15, 2017.
- *Evolution on empirical adaptive landscapes* - oral presentation at Israel Society for Microbiology Annual Meeting, April 6, 2017.
- *Predicting competition dynamics from growth curve data* - Oral presentation at FISEB/ILANIT, Eilat, February 2017.
- Seminar presentation at the Balaban Lab at Hebrew University of Jerusalem, December, 2016.
- *The Evolution of Stress-Induced Mutagenesis* - department seminar at the Department of Ecology, Evolution and Behavior, Hebrew University of Jerusalem, December, 2016.
- Poster at the *Genome Evolution* conference in Weizmann Institute, November 1 - 3, 2016.
- *The Evolution of Stress-Induced Mutagenesis* - seminar at the Department of Biology and the Environment, Faculty of Natural Sciences, University of Haifa-Oranim, May, 2016.
- *The Evolution of Stress-Induced Mutagenesis: Causes and Consequences* - PhD seminar at the Department of Molecular Biology and Ecology of Plants, Tel Aviv University, April, 2016.
- *Microbial Growth in a Mixed Culture* - Poster at ISM (Israel Society for Microbiology) annual meeting in Bar-Ilan, February 17-18, 2016.
- *The Population Genetics of Stress-Induced Mutation* - seminar at the IGC, Portugal, January, 2016.
- Poster at the *first Pearl Seiden International meeting in Life Sciences*, Technion, Haifa, Israel, December 9 - 10, 2015
- **Oral presentation** at the **Gordon Research Conference on Biological Mechanisms in Evolution**, Stonehill College, Easton, MA, USA, June 28 - July 3, 2015.
- Poster at the *Forecasting Evolution?* SFB 680 conference in Lisbon, Portugal, July 8 - 11, 2015.
- *The Population Genetics of Stress-Induced Mutation* - seminar at the IST, Austria, June 25, 2015.
- *Stress-induced mutagenesis & complex adaptation* - **Short oral presentation** at the Two2Many Systems Biology Conference, Weizmann Institute, March 2015.
- Oral presentation at the Quantitative and Evolutionary Biology Seminar, Tel Aviv University, March 2015.
- *On the role of stress-induced mutagenesis in evolution* - Poster at the Israeli Genetics Society annual meeting, Weizmann Institute, February 2015.
- *On the role of stress-induced mutagenesis in evolution* - Poster at ISM (Israel Society for Microbiology) annual meeting, Haifa, April 2014.
- *Stress, mutation, evolution, and mathematical models* - Presentation at the Astrophysics student journal club at Tel Aviv University, March 2014.
- *Modeling the evolution of the mutation rate* - Presentation at the Topics in Theoretical and Mathematical Biology Seminar at Tel Aviv University, March 2014.
- *The rate of complex adaptation with and without stress-induced mutagenesis* - Poster at

FISEB/ILANIT, Eilat, February 2014.

- Seminar presentation at the Pupko Lab at Tel Aviv University, November 2013.
- Seminar presentation at the Philosophy of Biology Group at the Humanities Faculty, Tel Aviv University, October 2013.
- *Adaptedness, Adaptability and Stress-Induced Mutagenesis* - Poster at *PDEs and Dynamical Systems in Biology* conference in Bar-Ilan University, October 1, 2013.
- *Adaptedness, Adaptability and Stress-Induced Mutagenesis* - Poster at **ESEB 2013** in Lisbon, Portugal, August 19-24, 2013.
- *Stress-induced Mutagenesis and the Evolution of Complex Traits* - Poster at the **Gordon Research Conference on Biological Mechanisms in Evolution**, Stonehill College, Easton, MA, USA, June 2-6, 2013.
- *The Role of Stress-Induced Mutation in the Emergence of Complex Adaptations* - **Oral presentation** at the *5th Annual SIDEER Graduate Symposium*, Ben-Gurion University of the Negev, Sede-Boqer Campus, March 20, 2013.
- *Evolutionary Causes and Consequences of Stress-Induced Hypermutation* - **Oral presentation** at *The 1st Graduate Students' Conference in Genetics, Genomics and Evolution*, Ben-Gurion University of the Negev, September 23, 2012. DOI: 10.6084/m9.figshare.96049.
- Seminar presentation at the Pilpel Lab at the Weizmann Institute of Science, June 2012.
- *The Evolution of Stress-Induced Mutagenesis in Finite and Infinite Populations* - **Oral presentation at PopGroup 45** in Nottingham, UK, January, 2012. DOI: 10.6084/m9.figshare.95939.
- Seminar presentation at the Eldar Lab at Tel Aviv University, December 2011.
- Seminar presentation at the Department of Molecular Biology and Plants M.Sc. Seminar at Tel Aviv University, November 2011.
- *Rise and Fall of Mutator Bacteria* - Seminar presentation at the *BioMath Student Journal Club*, Tel Aviv University, May 2011. DOI: 10.6084/m9.figshare.95940.
- *The Evolution of Stress-Induced Hypermutation* - Poster at **ESEB 2011** in Tübingen, Germany, August 2011. See: F1000 Posters 2011, 2: 1484.
- *The Evolution of Stress-Induced Hypermutation* - Poster at **SMBE 20108** in Lyon, France, July, 2010.
- *The Evolution of Stress-Induced Hypermutation* - Poster at *MMSB 2010* in Tel Aviv, Israel, 2010 – won the **Best poster award**.

## Awards

- Stanford *Center for Computational, Evolutionary, and Human Genomics* (CEHG) Postdoctoral Fellowship, Stanford University, 2016-17.
- Dean's Award for Excellence in Teaching at the Faculty of Engineering, Tel Aviv University, 2015-16.
- The *Israel Society for Microbiology* 2015 travel Award.
- The *Anat Karuskopf Fund* 2015 travel Award.
- The *Manna Institute for Plants BioSciences* 2015 travel award.
- The Ministry of Science and Technology International Education 2014 Scholarship.
- Research achievements scholarship from the Life-Science faculty, Tel Aviv University, 2013-2014.
- Fellowship from the *Manna Program in Food Safety and Security*, 2013-14.
- The *Manna Institute for Plants BioSciences* 2013 travel award.
- Research achievements scholarship from the Life-Science faculty, Tel Aviv University, 2011-

2012.

- Registration and accommodation waiver (sponsored by Cambridge University Press) for *PopGroup45*, 2012, in Nottingham, UK.
- Crowd-funded travel expenses for *PopGroup 45* via *The #SciFund Challenge*.
- SSE International 2011 Travel Award.
- Direct Ph.D. scholarship from the Department of Molecular Biology and Ecology of Plants, Tel Aviv University, 2010-2015.
- *SMBE 2010 Undergraduate Diversity Mentoring Program* award.
- Best poster award at *MMSB 2010* in Tel Aviv, Israel.
- The *Amos de-Shalit* Ulpana for excellent students in Life-Sciences at the Weizmann Institute of Science, 2009.

## Peer-Reviews

- ReScience
- Theoretical Population Biology
- Evolution
- PLOS ONE
- Proceeding of the Royal Society B
- Integrative Zoology

## Teaching

- 2016-2017: Python for Engineers workshops for industry-leading companies as a freelance technical instructor.
- Spring 2015: Python Programming for Biologists (0411-3122, Teacher) - new graduate students course
- Spring 2015: Evolution (0455-2536, TA)
- Fall 2014: Python Programming for Engineers (0509-1820, Teacher) - received Dean's Award for Excellence in Teaching
- Summer 2014: Gentle Introduction to Programming (preparation course for 1st year CS students)
- Summer 2014: Introduction to Programming for Engineers (preparation course for 1st year eng. students)
- Fall 2013: Python Programming for Engineers (0509-1820, Teacher)
- Summer 2013: Gentle Introduction to Programming (preparation course for 1st year CS students)
- Summer 2013: Introduction to Programming for Engineers (preparation course for 1st year eng. students)
- Spring 2013: Extended Introduction to Computer Science (0368-1105, TA)
- Fall 2012: Python Programming for Engineers (0509-1820, TA)
- Spring 2012: Evolution (0455-2536, TA)
- Fall 2011: Python Programming for Engineers (0509-1821, TA)
- 2011-2014: Co-organizing the *BioMath Student Journal Club* at Tel Aviv University

## Public Outreach

### Publications

- Even-Tov, E., Obolski, U., Gueijman, A., **Ram, Y.**, Hadany, L. (2010) The Evolutionary Riddle of Sexual Reproduction. *Galileo, an Israeli journal for popular science*: June, 32-41

### Presentations

- **How to Study Evolution Using Scientific Python** - contributed talk at PyCon Israel 2016, Tel Aviv, May 2 - 3, 2016
- **Evolution and mutation in stressful times** - the evolution series in Tel Aviv University's Botanical Gardens, May 16, 2013.