# Anat Etzion-Fuchs, PhD

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📱 +972-54-7902085  📍 Herzliya

Senior Data Scientist at Eleven Therapeutics and a recent Ph.D. graduate from Princeton University. Designed, implemented, and evaluated machine learning algorithms that leverage high-throughput genomic data. Experienced with classical machine learning, deep learning, and applying NLP methods to protein sequences. Cares deeply about creating unbiased models using careful data processing, methodical algorithmic design, and thorough evaluation.

## EDUCATION

**2015-2022**  **Ph.D. in Quantitative and Computational Biology | Princeton University**
*Graduate certificate in Statistics and Machine learning*
- Thesis title: Predicting Protein Interaction Sites Through Machine Learning and Data Aggregation
- GPA: 3.95/4.00 | Advisor: Prof. Mona Singh

**2008-2013**  **B.Sc. in Computer Science (summa cum laude) | Technion - Israel Institute of Technology**
*GPA: 92.5/100, ranked #1 in the Bioinformatics track and #12/224 in the CS department*
- Selected to the first class of the Lapidim excellence program (top 5 students of each incoming CS class) for outstanding students with management and entrepreneurship potential.
- Studied with a full-tuition scholarship and a monthly stipend.

## WORK EXPERIENCE

**07/2022-**  **Eleven Therapeutics**, Herzliya, Israel
*Senior Data Scientist*

**2015-2022**  **Princeton University**, Princeton, NJ
*Assistant instructor and graduate research assistant*
- Developed machine learning and statistical models for analyzing large-scale proteomic data.
- Established novel pipelines for unbiased handling of data for ML and facilitated proper usage of them across all the lab's projects.

**2011-2014**  **Qualcomm Incorporated**, Haifa, Israel
*2013-2014 Software Engineer*
- Designed, implemented, and tested Android device drivers for smart TVs (C and C++).
- Delivered code to the Android open-source community.

*2011-2013 Software Engineer Intern*
- Developed Windows/.NET drivers for high-speed wireless chipsets, using agile methodology (C#).

**2005-2008**  **Mandatory Military Service in the Israeli Intelligence Corps (8200)**, Tel-Aviv, Israel
Served in an elite intelligence center (Haman-Talpiot/Aham Sh'hakim).

*2007-2008 Foreign Affairs Manager*
- Led the division's foreign affairs, directed the strategy of ongoing collaborations with foreign countries, and identified key opportunities and obstacles for joint international efforts.
- Guided all the division's projects (~20 people) at the intelligence and technological levels.

*2005-2008 Data Analyst*
- Spearheaded an entire domain with both intelligence and technology aspects, redesigned working methodologies, and was awarded for accelerating the project's outcomes.
- Analyzed data to supply actionable insights using various programming tools (including Python, C-Shell, VBA, SQL), and statistical approaches.

## AWARDS AND HONORS

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| 2019 | **Women in Machine Learning (WiML, co-located with NeurIPS) travel grant** |
| | Recipient of the <u>WiML workshop</u> travel grant, for poster presenters and reviewers |
| 2017 | **Princeton Research Day, Best Poster award (1ˢᵗ place) for graduate/post-doctoral track** |
| | Poster title: *"Identifying Functional Protein Domain Positions Using Population Variation"* |
| 2012 | **Google Anita Borg Memorial scholarship EMEA** |
| | Recipient of the <u>Google Anita Borg Scholarship</u> for leading women in computer science |
| 2012 | **SAMBA scholarship (contributed by Mellanox Technologies)** |
| | Technion CS prize for academic excellence *(<u>Speaker on behalf of the scholarship recipients</u>)* |
| 2011 | **Lapidim scholarship (contributed by Pascal-Louis Perez)** |
| | Technion CS prize for academic excellence |
| 2009-2012 | **President's list for excellent students (4 semesters)** |
| | Top 3% in each department |
| 2007 | **Military "Personal Award of Excellence" (Colonel-rank award)** |
| | For contributing to the center's work and the advancement of the intelligence service and security |

## PUBLICATIONS

**Journals**

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| 2021 | **Anat Etzion-Fuchs**, David A. Todd, and Mona Singh. "dSPRINT: predicting DNA, RNA, ion, peptide and small molecule interaction sites within protein domains", *Nucleic Acids Research* (2021): 49(13): e78 <br> [Github](#) | [website](#) | [paper](#) |

**Posters**

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| 12/2019 | Machine Learning in Computational Biology (MLCB), *Vancouver, Canada* |
| 12/2019 | Women in Machine Learning (WiML), *Vancouver, Canada* |
| 05/2019 | RECOMB (International Conference on Research in Computational Molecular Biology), *Washington, DC* |
| 08/2017 | Quantitative Biology Meeting: Making Use of Emerging Technologies, *Cold Spring Harbor, NY* |

## PRESEENTATIONS

**Invited talks**

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| 06/2022 | Research talk for the Healthcare & Life Sciences department at IBM Research, *Givatayim, Israel* |
| 01/2022 | Orenstein Lab group meeting research talk, Ben-Gurion University, *Virtual* |
| 01/2021 | <u>Lapidim Technion CS excellence program colloquium</u>, *Virtual* |
| 03/2020 | Burstein Lab group meeting research talk, Tel Aviv University, *Tel Aviv, Israel* |
| 06/2012 | <u>Students' representative speech on behalf of the SAMBA scholarship recipients</u> <br> Excellent Students (SAMBA) award ceremony, *Technion, Haifa, Israel* |

**Platform talks**

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| 07/2019 | Affinity groups research talk, Computational Genomics Summer Institute (CGSI), *UCLA, Los Angeles, CA* |

**Posters**

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| 04/2019 | NHGRI Training Grant Annual Meeting, *St Louis, MO* |
| 04/2017 | NHGRI Training Grant Annual Meeting, *St Louis, MO* |
| 04/2017 | Princeton Research Day, Princeton University, *Princeton, NJ* |

## TECHNICAL SKILLS

**Programming languages:** Python, R, C-Shell, LaTeX (proficient), C, C++, C#, MATLAB, SQL (prior experience)

**Data science:** PyTorch, scikit-learn, pandas, numpy, scipy

**Source control:** Git, SVN

**Languages:** Hebrew (native), English (full professional proficiency), Arabic (Elementary)

## TEACHING AND METNORING EXPREINCE

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| 2018 | **Mentor for First-Year Graduate Students**, Princeton University | |
| | <u>Spring 2018</u> Research topic: "*Gradient boosting: tuning performance and predictions*" | |
| 2017-2020 | **Assistant Instructor**, Princeton University | |
| | <u>Fall 2017, Fall 2019</u> "*Introduction to Genomics and Computational Molecular Biology*" (COS 551) | |
| 2017-2018 | <u>**ReMatch Mentor for Undergraduate Students**</u>, Princeton University | |
| | A mentor through the Princeton ReMatch mentorship program. | |
| | Constructed a summer research project and advised undergraduate students. | |
| | <u>Summer 2017</u> Research topic: "*Statistical analysis of protein domains using physiochemical properties*" | |
| | <u>Summer 2018</u> Research topic: "*Deep learning framework for predicting proteins' functional sites*" | |

## SERVICE AND OUTREACH

**Conferences**

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| 2020 | Grace Hopper Celebration (GHC), Data Science committee member, *Virtual* |
| 2020 | Pacific Symposium on Biocomputing (PSB), referee, *Big Island of Hawaii* |
| 2019 | Machine Learning in Computational Biology (MLCB), *Vancouver, Canada* |
| 2019 | Women in Machine Learning (WiML) Workshop, referee, *Vancouver, Canada* |
| 2018 | Women in Machine Learning (WiML) Workshop, referee, *Montréal, Canada* |

**Journals**

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|---|---|
| 2022 | Bioinformatics, referee |
| 2022 | Briefings in Bioinformatics, referee |
| 2019 | Nucleic Acids Research, referee |

**Leadership**

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| 2018-2021 | **Princeton <u>Society of Women Engineers</u> (SWE)** | |
| | Vice President of the Princeton graduate chapter, co-organized events advancing women in STEM | |
| 2017-2020 | **Princeton <u>QCB mentorship program</u>** | |
| | Co-founded the mentorship program and served as a mentor for first year graduate students | |
| 2009-2010 | <u>**BizTEC**</u> **- Israel's National Entrepreneurship competition** | |
| | Marketing director, co-organized events for academia-tech industry collaborations | |