Miriam Huntley

INTERESTS

Applying tools from physics, numerical methods, and machine learning towards analyzing complex data-driven systems.

EDUCATION

Harvard University, Applied Math, SEAS — Sept. 2010-May 2016
PhD Candidate, **GPA**: 4.0/4.0
Secondary Field: Computational Science and Engineering

Massachusetts Institute of Technology — Sept. 2005-June 2009
B.S. in Physics, June 2009. **GPA**: 4.9/5.0

Technion, Israel Institute of Technology, Haifa, Israel — May-Aug. 2008
Semester Abroad. **GPA**: 96.3/100

Midreshet Lindenbaum, Jerusalem, Israel — Aug. 2004-June 2005
Post high school year abroad at college for Judaic studies. **GPA**: 4.0/4.0

University of California, Davis — June-Aug. 2002, 2003, 2004
Attended summer sessions while in high school: Math, CS, Econ. **GPA**: 4.0/4.0

Northwest Yeshiva High School, Seattle, WA — Aug. 2001-June 2004
Valedictorian, Dean's List every semester. **GPA**: 4.0/4.0

RESEARCH EXPERIENCE

Brenner Group, Harvard University — Jan. 2013-May 2016
Principles of self-assembly in synthetic and natural biology; applications of random matrix theory for data analysis

Aiden Lab, Baylor College of Medicine — Aug. 2011-May 2016
Algorithm design for Hi-C and genomic data analysis to uncover principles of chromatin spatial organization; Computational modeling of condensed polymer systems

Microsoft Research Internship — June-Aug 2015
Developed an algorithm for input aware ensemble learning

Biochip Group, Institute of Bioengineering and Nanotechnology, Singapore — Sept. 2009-Feb. 2010
Developed SAW microfluidic techniques and developed PCR data analysis software

Ashoori Group, MIT — Sept. 2008-June 2009
Senior thesis: performed low temperature transport studies on CVD-grown graphene

Condensed Matter Group, Tel Aviv University — Spring 2008
Wrote numerical simulations of non-linear optical trapping

NSF REU Internship, U.C. Davis — Summer 2007
Performed numerical simulations of fermions using quantum Monte-Carlo techniques

Neutrino and Dark Matter Group, MIT — Jan. and Spring Terms 2007
Designed rear electron gun setup for KATRIN experiment

PUBLICATIONS

(* denote equal contribution, first author contributions in bold)

1. **MH Huntley***, A Murugan*, MP Brenner. The Capacity of Specific Glues. PNAS (2016)
2. EM Darrow*, **MH Huntley***, B Chadwick, E Lieberman Aiden, et al. Deletion of DXZ4 on the human inactive X chromosome eliminates superdomains and impairs gene silencing. PNAS (2016)
3. NC Durand, MS. Shamim, MH Huntley, ES Lander, E Lieberman Aiden et al. Juicer: a one-click system for analyzing loop-resolution Hi-C experiments. Cell Systems (2016)

4. AL Sanborn, SSP Rao, MH Huntley, E Lieberman Aiden et al. Chromatin extrusion explains key features of loop and domain formation in wild-type and engineered genomes. PNAS (2015)
5. SSP Rao*, **MH Huntley***, ES Lander, E Lieberman Aiden, et al. A three-dimensional map of the human genome at kilobase resolution reveals principles of chromatin looping. Cell (2014)
6. LJ Colwell, Y Qin, MH Huntley, A Manta, MP Brenner. Feynman-Hellmann Theorem and Signal Identification from Sample Covariance Matrices. Physical Review X
(2014)
7. GG Batrouni, MH Huntley, VG Roussea, RT Scalettar. Exact Numerical Study of Pair Formation with Imbalanced Fermion Populations. Physical Review Letters (2008)

AWARDS

NSF Graduate Research Fellowship 2011
Phi Beta Kappa Award 200
Sigma Pi Sigma Physics Honor Society 2009
MIT Public Service Grant for Website Development Project 2007
Awarded for trip to Guatemala to develop website for technical high school and teach classes
High School Valedictorian 2004

OTHER

Computer Related: Matlab, python, CUDA, Java, C++
Languages: fluent Hebrew and Spanish, beginner Mandarin
Teaching:
Science of Cooking Lab Instructor 2013
Hebrew Teacher, MIT Hebrew Language Club 2009
Windsurfing Instructor, MIT Sailing Pavilion 2013-Present
Mentor: Harvard Women In Science, Technology, Engineering and Mathematics 2012-2015
Art:
Created images of DNA polymer simulations for exhibits at the Broad Institute and the Smithsonian
Co-wrote and co-directed a Cell Video abstract that was the recipient of the 2015 BioTechniques Lab Grammy in Education (https://www.youtube.com/watch?v=dES-ozV65u4&list=UUlSV2Tk7x-wBBXP6-VCNbNw)