

Louis M. Shekhtman

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Education

2015–2018 (expected)	Ph.D in Physics, Bar Ilan University, Ramat Gan, Israel
2013–2016	M.Sc. in Physics with excellence, Bar Ilan University, Ramat Gan, Israel
M.Sc. GPA:	95 (Overall), 97 (Thesis), 90 (Courses)
2010–2013	BA in Physics, Northwestern University, Evanston.
2010–2013	BA in Integrated Science with Honors, Northwestern University, Evanston.
B.A. GPA:	3.65/4 Overall, 3.77/4 in Physics, Mathematics, and Applied Mathematics
Relevant Coursework:	Introduction to Information Theory, Introduction to Complex Networks, Statistical Mechanics, Computing Applications, Randomness in Complex Systems, Stochastic Processes, Mathematical Methods for Physicists, Linear Algebra, Multivariable Calculus, Advanced Electricity and Magnetism, Classical Mechanics, Fourier Analysis and Boundary Problems, Probability and Statistics, Nonlinear Dynamics and Chaos, Quantum Mechanics, Astrophysics, Physical Chemistry.

Academic Research Experience

Graduate Researcher, Bar Ilan University, Ramat Gan, Israel

Researcher, Loyola University Medical Center, Chicago, IL.

Undergraduate Researcher, Northwestern University, Evanston, IL.

Undergraduate Researcher, Weizmann Institute of Science, Rehovot, Israel

October 2013– Current	Research Supervisor: Shlomo Havlin, Department of Physics Researching the robustness of networks of interdependent networks.
July 2015– Current	Research Supervisor: Harel Dahari, Department of Medicine Studying the spatial movements of injecting drug users in the Chicagoland area in order to improve treatment and syringe exchange programs.
January 2012– August 2013	Research Supervisor: Dirk Brockmann, Department of Engineering Sciences and Applied Mathematics, Northwestern Institute on Complex Systems (NICO); James Bagrow, Department of Engineering Sciences and Applied Mathematics, NICO Researched the effects of percolation on skeleton backbones of complex networks. Analyzed how the backbone changes due to different perturbations.
Summer 2012	Research Supervisor: Elisha Moses, Department of Physics of Complex Systems, Weizmann Institute of Science Analyzed the presence of definitional loops in the English dictionary and determined the correlation between Age-of-Acquisition of words and definitional loops.

April
2011–July
2011

Research Supervisor: Vicki Kalogera, Department of Physics and Astronomy; Nicholas Cowan, CIERA Fellow

Developed Python programs to analyze the different frequency components present in a light curve. Also created theoretical light curves for a planet with a given heat model and rotation period.

Publications

- [1] Michael M. Danziger, **Louis M. Shekhtman**, Yehiel Berezin, and Shlomo Havlin. Two distinct transitions in spatially embedded multiplex networks. *Submitted to EPL (Europhysics Letters)*, 2016.
- [2] Fabiana Zollo, Alessandro Bessi, Michela Del Vicario, Antonio Scala, Guido Caldarelli, **Louis M. Shekhtman**, Shlomo Havlin, and Walter Quattrociocchi. Debunking in a world of tribes. *Submitted to PLOS One*, 2016.
- [3] **Louis M. Shekhtman**, Michael M. Danziger, and Shlomo Havlin. Spreading of Failures in Interdependent Networks. To appear in *Diffusive Spreading in Nature, Technology and Society*, Springer International Publishing, 2016.
- [4] Alon Sela, **Louis M. Shekhtman**, Shlomo Havlin, and Irad Ben-Gal. Comparing the diversity of information by word-of-mouth vs. web spread. *EPL (Europhysics Letters)*, 114(5):58003, 2016.
- [5] **Louis M. Shekhtman**, Michael M. Danziger, and Shlomo Havlin. Recent advances on failure and recovery in networks of networks. *Chaos, Solitons & Fractals*, 90:28–36, 2016.
- [6] Michael M. Danziger, **Louis M. Shekhtman**, Amir Bashan, Yehiel Berezin, and Shlomo Havlin. Vulnerability of Interdependent Networks and Networks of Networks. In *Interconnected Networks*, pages 79–99. Springer International Publishing, 2016.
- [7] **Louis M. Shekhtman**, Saray Shai, and Shlomo Havlin. Resilience of networks formed of interdependent modular networks. *New Journal of Physics*, 17(12):123007, 2015.
- [8] **Louis M. Shekhtman**, Yehiel Berezin, Michael M. Danziger, and Shlomo Havlin. Robustness of a network formed of spatially embedded networks. *Phys. Rev. E*, 90:012809, Jul 2014.
- [9] Michael M. Danziger, Amir Bashan, Yehiel Berezin, **Louis M. Shekhtman**, and Shlomo Havlin. An introduction to interdependent networks. In *Nonlinear Dynamics of Electronic Systems*, pages 189–202. Springer International Publishing, 2014.
- [10] **Louis M. Shekhtman**, James P. Bagrow, and Dirk Brockmann. Robustness of skeletons and salient features in networks. *Journal of Complex Networks*, 2014.
- [11] N.B. Cowan, P. Machalek, B. Croll, **Louis M. Shekhtman**, A. Burrows, D. Deming, T. Greene, and J. L. Hora. Thermal phase variations of wasp-12b: Defying predictions. *ApJ*, 747(1):82, 2012.

Conferences and Schools

- “The Theory of Networks” (Attended), The 27th Jerusalem School in Economic Theory, Israel Institute for Advanced Studies, Hebrew University, Jerusalem, Israel, 2016
- “Failure Spreading Transition in Spatially Embedded Multiplexes” (Talk), Israel Physical Society Meeting, Ramat Gan, Israel, 2015

“Resilience of Interdependent Modular Networks” (Talk), Challenges in Data Science: A Complex Systems Perspective, Torino, Italy, 2015

“Resilience of Interdependent Modular Networks” (Talk), CompleNet, New York, USA, 2015

“An Introduction to Interdependent Networks” (Talk), Yeshiva Univeristy Colloqium, New York, USA, 2015

“The Resilience of Networks Formed of Spatially Embedded Networks” (Talk), SIAM Workshop on Network Science, Chicago, USA, 2014

PRACE High Performance Computing Winter Workshop (attended), Tel Aviv, Israel, 2014

“Changing of Network Skeletons under Perturbation” (Poster), Northwestern Undergraduate Research Symposium, Chicago, USA , 2013.

Press Coverage

”**What was fake on the Internet this week: Why do we even bother, honestly?**” in the Washington Post on Zollo et al. [2].

Awards

- Bar Ilan University Presidential Scholarship for Ph.D. Studies (48,000 shekels/year \approx \$12,000/year for up to 4 years)
- Ministry of Absorption Scholarship for Doctoral Research Students (30,780 shekels/year \approx \$7695/year for three years)
- SIAM Student Travel Award for SIAM Workshop on Network Science 2014 (\$800)
- Dean’s List for Winter 2011, Spring 2012, Winter 2012, and Spring 2013
- Earl Wilson Gsell Scholarship for 2012-2013 academic year
- Florence Siddall Friend Scholarship for 2011-2012 academic year
- Faye Angell Memorial Scholarship for 2011-2012 academic year
- Pi Sigma Pi National Physics Honors Fraternity
- Everett Kovler Scholar (\$10,000/year for 4 year undergraduate degree)

Teaching Experience

2015–2016	Teaching Assistant for First Year Physics Lab at Bar Ilan University
2008–2010, 2013–2015	Chess Instructor
2012–2013	Teaching Assistant for ISP-101, an introductory programming class in Python

Skills

Computer: Experienced in Python, Matlab, and Latex; proficient in Microsoft Office (Word, Powerpoint, Excel); very familiar with C++, Linux, R, Qt Creator, qGIS, IDL

Language: English (native), Hebrew (fluent)

Strong chess player (1807 USCF rated)

Collaborators

**Shlomo
Havlin**
Bar Ilan
University

**Dirk
Brockmann**
Humboldt
University and
Northwestern
University

**James
Bagrow**
University of
Vermont and
Northwestern
University

**Nicholas
Cowan**
Amherst
University and
Northwestern
University

**Michael
Danziger**
Bar Ilan
University

Saray Shai
University of
North Carolina