Dafna Shahaf

Gates Building, Computer Science, Stanford
353 Serra Mall Stanford, CA 94305
dshahaf@cs.stanford.edu
http://i.stanford.edu/~dshahaf/

Research Interests

My research focuses on **making sense of massive amounts of data**. I design algorithms that help people understand the **underlying structure** of complex topics, **connect the dots** between pieces of information, and turn information into **insight**.
Favorite Areas: Data Mining, Machine Learning, Knowledge Discovery, Information Retrieval, Information Visualization, Artificial Intelligence and Algorithms.

Education

Postdoctoral Fellow in Computer Science, Stanford University, CA
2012–Present: Research supervised by Prof. Jure Leskovec

Ph.D. in Computer Science, Carnegie Mellon, PA
2007–2012: Research supervised by Prof. Manuel Blum and Prof. Carlos Guestrin
GPA: 4.0 / 4.0

M.S. in Computer Science, University of Illinois at Urbana-Champaign, IL
2005–2007: Research supervised by Prof. Eyal Amir
GPA: 4.0 / 4.0

B.Sc. Mathematics and Computer Science (Double Major), Tel Aviv University, Israel
2001–2005, Graduated with honors *(Summa Cum Laude)*
GPA: 96% (4.0 / 4.0)

Honors & Awards

2012: Magic Grant for innovative ideas

2012: Rising Stars in EECS

2010: Best Research Paper award, KDD'10

2010: Microsoft Research Fellowship

2009: Microsoft Research Graduate Women's Scholarship

2008: David J. Kuck Outstanding Thesis Award

2006: Siebel Scholar Fellowship (siebelscholars.com)

2006: Phi Kappa Phi Honor Society (phikappaphi.org)

2004: Tel-Aviv University Dean's List award of Distinction.

2004: Tel-Aviv University Computer Science school award of Distinction.

2004: The Shmuel Beck Scholarship – given to one student in the faculty of Exact Sciences

2004: Laureate of Wolf Foundation prize of Distinct Student.

2003: Tel-Aviv University Dean's List award of Distinction.

2002: Center of Technology, 8200 Unit – Distinct Soldier.

2002: Tel-Aviv University Dean's List award of Distinction.

2001: Tel-Aviv University Freshmen Fellowship – given to one freshman from selected programs

2001: President of Israel - IDF Distinct Soldier Award.

Publications

Journal Papers

[1] D. Shahaf, C. Guestrin and E. Horvitz, *Metro Maps of Information*, in ACM SIGWEB, 2013.

[2] D. Shahaf and C. Guestrin, *Connecting Two (or Less) Dots: Discovering Structure in News Articles*, in ACM Transactions on Knowledge Discovery from Data (TKDD), 2011.

[*] D. Shahaf and J. Leskovec, *Information Cartography*, under review.

[*] D. Shahaf and J. Leskovec, *Finding Insights in Big Data*, in preparation.

Selected Refereed Conference Papers

[1] D. Shahaf, J. Yang, C. Suen, J. Jacobs, H. Wang, and J. Leskovec, *Information Cartography: Creating Zoomable, Large-Scale Maps of Information*, in ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'13), 2013.

[2] D. Shahaf, C. Guestrin, and E. Horvitz, *Metro Maps of Science*, in ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'12), 2012.

[3] D. Shahaf, C. Guestrin, and E. Horvitz *Trains of thought: generating information maps*, in 21st international conference on World Wide Web (WWW'12), 2012.

[4] D. Shahaf and C. Guestrin, *Connecting the Dots Between News Articles*, in 22th International Joint Conference on Artificial Intelligence (IJCAI'11), 2011 (Best Paper Track). **2rd most-cited paper of IJCAI'11**

[5] D. Shahaf and C. Guestrin, *Connecting the Dots Between News Articles*, in ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'10), 2010. **Best Research Paper award**

[6] D. Shahaf and E. Horvitz, *Generalized task markets for human and machine computation*, in 24st National Conference on Artificial Intelligence (AAAI'10), 2010. **3rd most-cited paper of AAAI'10**

[7] K. El-Arini, G. Veda, D. Shahaf and C. Guestrin, *Turning down the noise in the blogosphere*, in ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'09), 2009

[8] D. Shahaf and E. Horvitz, *Investigations of Continual Computation*, in 21th International Joint Conference on Artificial Intelligence (IJCAI'09), 2009

[9] D. Shahaf, A. Chechetka and C. Guestrin, *Learning Thin Junction Trees via Graph Cuts*, in In Artificial Intelligence and Statistics (AISTATS'09), 2009

[10] D. Shahaf and E. Amir, *Logical Circuit Filtering*, in 20th International Joint Conference on Artificial Intelligence (IJCAI'07), 2007

[11] D. Shahaf and E. Amir, *Learning Partially Observable Action Schemas*, in 21st National Conference on Artificial Intelligence (AAAI'06), 2006

[12] D. Shahaf, A. Chang, and E. Amir, *Learning Partially Observable Action Models: Efficient Algorithms*, in 21st National Conference on Artificial Intelligence (AAAI'06), 2006

[13] D. Shahaf and E. Amir, *Towards a Theory of AI Completeness*, in CommonSense'07, 2007

Academic Service

Invited Presentations: Stanford Conference on Computational Social Science 2013, Stanford Computer Forum 2013, Stanford MobiSocial, Berkeley, MIT, Columbia University, Tel-Aviv University, Technion, Hebrew University, Ben Gurion University, Bar Ilan University, Interdisciplinary Center Herzliya, ONR MURI, Yahoo!, Microsoft Research.

Program Committee: AAAI, SNOW@WWW.

Reviewer: ACM Transactions on Intelligent Systems and Technology (ACM TIST), ACM Transactions on Computer-Human Interaction (ACM TOCHI), Artificial Intelligence Journal (AIJ), Management Science Journal, Web Search and Data Mining (WSDM), AAAI, International Joint Conferences on Artificial Intelligence (IJCAI), CommonSense, Human Computation and Crowdsourcing (HCOMP), Web Intelligence (WI).

Work Experience

Microsoft Research, Seattle, Intern (2008, 2010).
Worked on continual computation, optimal proxy-cache updates, human-computer micro-task marketplaces, and information overload.

Fujitsu Laboratories, Tokyo, Intern (2007).
Developed algorithms for blog ranking and entity extraction from the web.

Tel-Aviv University, University of Haifa, Carnegie Mellon University,
Teaching Assistant for Introduction to Modern Cryptography, Introduction to AI, and Algorithms, respectively.

Safend Ltd., Researcher (2004–2005).
Analyzed software and protocols, found endpoint security holes, implemented proof-of-concept attacks and tested security solutions.

Israel Defense Force (IDF), Intelligence Corps, 8200 Unit (2000–2003)
Served as an individual contributor in an award-winning communication software project.

Skills

Programming Languages: C, C++, C#, Java, Python, Matlab, Lisp, Scheme, Ocaml, Perl, Prolog.

Web Skills: HTML, Javascript, JQuery, PHP, ASP.

Data: OpenMP, SQL, Hadoop.

Languages: Hebrew (native), English (high fluency), French as a foreign language. Rusty Japanese.

Interests: Scuba Diving, Swimming, Underwater Hockey, Karate, 3D Printing, Science Fiction and Animation.