

M. Irmak Sirer

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BIRTH DATE 1981 August 4

NATIONALITY Turkey

WORK EXPERIENCE Jan 2014–Present **Partner, Data Scientist;** Datascope, Chicago, IL

We design solutions and products with a human-centered, data-driven approach. We clarify needs, identify data, design analysis and communicate results.

May 2013–Jan 2014 **Data Scientist;** Datascope, Chicago, IL

Sep 2006–May 2013 **PhD;** Northwestern University, Evanston, IL

Complex Systems Modeling / Data Science
Amaral Lab, Chem. and Biol. Eng. Dept.
- Cartography of directed & weighted complex networks
- School choice dynamics in the Chicago Public Schools
- Modeling/optimization of air transportation networks
- Conservation of species' roles among food webs
- Categorization/inference of web browsing behavior
- Knowledge access in scientist social network websites
- Stability and robustness of language topic models
- Natural language processing and sentiment analysis
- Optimization of DNA sequences for high gene expression
- Mapping between time series and complex networks

Aug 2012–Oct 2012 **Data Scientist;** Datascope, Chicago, IL

Automatic daily webscraping, opinion mining and sentiment analysis based on NLP for a big tech company. An interactive dashboard visualization of the results.

Jun 2010–Sep 2010 **Research Intern;** Yahoo! Research, New York City, NY

Inference of gender, age, race, income and education level from browsing history of 250K users with 70-90% accuracy for improved ad targeting.

EDUCATION	2006–2013	PhD Chemical and Biological Engineering Northwestern University; Evanston, IL Advisor: Professor Luís Amaral
	2006–2009	Master of Science Chemical and Biological Engineering Northwestern University; Evanston, IL Advisor: Professor Luís Amaral
	2004–2006	Master of Science Materials Science and Engineering Sabancı University; Istanbul, Turkey Advisor: Professor Canan Atılğan
	2000–2004	Bachelor of Science Materials Science and Engineering, Top of class Sabancı University; Istanbul, Turkey

GRADUATE COURSEWORK	Northwestern:	Special Topics: Networks, Elementary Statistical Mechanics, Applied Mathematics, Advanced Thermodynamics, Heat Transfer, Mass Transfer, Fluid Dynamics, Kinetics, Cell-Material Interactions
	Sabancı:	Computational Analysis, Forces of Interaction, Thermodynamics, Protein Chemistry, Kinetics, Characterization Techniques, Composite Materials, Surface Interactions, Carbon Technology, Phase Transitions, Properties of Materials

SKILLS	General:	Data Mining, Data Analysis, Data Visualization, Big Data, Non-linear Modeling, Social Network Analysis, Natural Language Processing, Sentiment Analysis, Monte Carlo Simulation, Time Series Analysis, Optimization, Data Classification, Cluster Analysis, Topic Models, Hypothesis testing, Agent-based Modeling, Machine Learning, Test Driven Development
	Tools:	Python, Javascript, C++, Unix, SQL, MongoDB, Redis, SciPy, Sklearn, nltk, Matlab, R, MapReduce, Hadoop, Pig, Scrapy, Django, Bootstrap, D3, Puppet, PyGrace, ELisp, Cowsay
	Languages:	English (fluent), German (fluent), Turkish (native), French (elementary), American Sign Language (elementary)

AWARDS AND
HONORS

2010	George Thodos TA of the Year Award, Northwestern University
2006	Murphy Fellowship, Northwestern University
2005	Rising Scientists Group Domestic Graduate Scholarship, TUBITAK
2004–2006	MSc Merit Scholarship, Sabancı University
2001–2004	BSc Academic Success Full Scholarship, Sabancı University
2000	BSc Financial Aid Scholarship, Sabancı University

PUBLICATIONS

- Sirer, MI, Maroulis, S, Wilensky, U, Guimera, R, Amaral, LAN. The Currents Beneath the “Rising Tide” of School Choice: An Analysis of Student Enrollment Flows in the Chicago Public Schools. Under Review at *Journal of Policy Analysis and Management*.
- Lancichinetti, A, Sirer, MI, Acuna, D, Wang, J, Kording, K, Amaral, LAN. A high-reproducibility and high-accuracy method for automated topic classification. *arXiv:1402.0422*. 2014.
- Sirer, MI. *Cartography of heterogeneous structures in complex systems*. PhD Dissertation, Northwestern University, Evanston, IL, USA. 2013.
- Hockenberry, A, Sirer, MI, Amaral, LAN, Jewett, MC. Quantifying position-dependent codon usage bias. *Molecular Biology and Evolution* 31, 1880-1893. 2014.
- Stouffer, DB, Sales-Pardo, M, Sirer, MI, Bascompte, J. Evolutionary Conservation of Species’ Roles in Food Webs. *Science* 335, 1489-1492. 2012.
- Goel, S, Hofman, JM, Sirer, MI. Who does what on the Web: A large-scale study of browsing behavior. *Proceedings of the 6th International Conference on Weblogs and Social Media (ICWSM 2012)*. 2012.
- Campanharo, ASLO, Sirer, MI, Malmgren, RD, Ramos, FM, Amaral, LAN. Duality between time series and networks. *PloS One* 6. 2011.
- Sirer, MI. *Modeling of air transportation networks using a heuristic optimization approach*. Master’s Thesis, Northwestern University, Evanston, IL, USA. 2009.
- Atilgan, C, Sezerman, AO, Baloglu, C, Sirer, MI, Okan, OB, Atilgan, AR. Solvent mobility and surface group flexibility at the dynamical transition. *Biophysical Journal*, Suppl S, 405A-406A. 2007.
- Sirer, MI. *Understanding protein dynamical transition and protein-water interactions from dielectric relaxation calculations*. Master’s Thesis, Sabancı University, Istanbul, Turkey. 2006.
- Ertorer, O, Fakioglu, E, Sirer, MI, Oncel, C, Gulgun, MA. Microwave assisted processing of ceramics. *Key Engineering Materials*, 765-768. 2004.

TEACHING
EXPERIENCE

- 2014 **Metis Data Science Bootcamp Designer / Instructor;**
New York City
Teaching first cohort: September – December 2014
- 2006–2010 **Teaching Assistant;** Northwestern University, Evanston
Transport Phenomena II: Heat Transfer
Chemical Engineering Laboratory (2 quarters)
Process Dynamics and Control
- 2004–2006 **Teaching Assistant;** Sabancı University, Istanbul, Turkey
Science of Nature I: Physics (2 semesters)
Science of Nature II: Chemistry & Biology (2 semesters)
- 2001 **Tutor;** Volunteer for the Educational Volunteers Foundation
(TEGV), Istanbul, Turkey
English
Algebra