

# A. Pinar Ozisik

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## EDUCATION

**University of Massachusetts Amherst** — Amherst, MA

Sept. 2012-present  
expected May 2018

- M.S./Ph.D. in **Computer Science**
- **Advisor:** Brian Levine, UMass Amherst Center for Forensics

**Brandeis University** — Waltham, MA

Aug. 2007-May 2012

- B.S. in **Computer Science** and B.A. in **Neuroscience**

May 2012

## TECHNICAL SKILLS

- **Programming Languages:** Java, Python, Lisp
- **Data Analysis:** Matlab, R
- **Tools:** SQL, git, Eclipse, LaTeX

## LANGUAGES

- Turkish (native), English (fluent), French (proficient)

## RELEVANT COURSES

- Statistical Machine Learning, Advanced Algorithms, Computation Theory, Computer Networking, Principles of Biological Modeling, Artificial Intelligence, Database Design and Implementation, Computer Vision, Geometric Modeling, Linear Algebra, Operating Systems, Computational Neuroscience, Neural Networks

## WORK & RESEARCH EXPERIENCE

**Center for Forensics, UMass Amherst** — Amherst, MA

Sep. 2013-present

*Research Assistant*

Understanding Bitcoin and Related Virtual Currencies

- Creating and modifying protocols to increase security and privacy in Bitcoin

**Complex Systems Summer School, Santa Fe Institute** — Santa Fe, NM

Jun. 2016-July 2016

*Complex Systems Scholar*

Four-week introduction to complex behavior in mathematical, physical, living, and social systems

- Attended lectures and seminars in network structure and dynamics, scaling theory, non-linear dynamics and pattern formation, adaptation and evolution, and information theory
- Writing two research papers influenced by the topics covered during the program

**Analysis and Decision Systems Group, Systems & Technology Research** — Woburn, MA

Jun. 2015-Aug. 2015

*Graduate Research Intern*

Bayesian Inference on Twitter

- Testing Bayesian parametric and non-parametric models, such as latent Dirichlet allocation, for topic modeling
- Implementing assortative hierarchical Dirichlet process relational model, a nonparametric generalization of the assortative mixed membership block model, for community detection in social networks
- Surveying ML algorithms to correctly classify users into participants of specific group activities

**BINDS Lab, UMass Amherst** — Amherst, MA

Apr. 2013-Aug. 2013

*Research Assistant*

Coordinating Robot Teams via Signaling

- Introduction of a distributed system to enable coordination and cooperation among a group of robots to resolve crises

- DEMO Lab, Brandeis University** — Waltham, MA Sep. 2011-May 2012  
*Undergraduate Researcher*  
 Emergence of Signaling in Evolving Populations of Flying Agents
- Analysis and modification of computer program, SwarmEvolve 2.0, to engender signaling among flying agents
- Center for Embedded Networked Sensing, UCLA** — Los Angeles, CA Jun. 2011-Aug. 2011  
*Undergraduate Scholar*  
 Stumble Detection: Data Collection and Classification
- Introduction of a system made of low-cost accelerometers to track walking and detect stumbling, using a Naïve Bayes classifier and outlier detection algorithm
- Memory and Cognition Lab, Brandeis University** — Waltham, MA Sep. 2010-Sep. 2011  
*Research Assistant*
- Coordinated and managed data collection for a human subject experiment examining the Stroop effect
  - Analyzed data, using SPSS Statistics
- Women's Studies Research Center, Brandeis University** — Waltham, MA Sep. 2009-Dec. 2010  
*Research Assistant*  
 The Allocation of Scientific Credit to Collaborative Couples: The Lederbergs and the 1958 Nobel Prize in Physiology
- Examination of whether the half share of the 1958 Nobel Prize in Physiology, given to Joshua Lederberg, was meant to signify recognition for the work of two, his own or that of his collaborative spouse Esther
  - Research findings presented at International Congress of History and Technology in Budapest, Hungary July 2009
- iNNOVA IT Solutions** — Ankara, Turkey Jun. 2009-Aug. 2009  
*Intern*
- Tested newly developed software using HP's QuickTest and LoadRunner
  - Developed websites for construction and industrial design companies, using Visual Studio

## PUBLICATIONS

- **A Secure, Efficient, and Transparent Network Architecture for Bitcoin.**  
 A. Pinar Ozisik, George Bissias, Brian N. Levine, Amir Houmansadr, and Gavin Andresen. *In submission.*
- **An Analysis of Attacks on Blockchain Consensus.**  
 George Bissias, Brian N. Levine, A. Pinar Ozisik, and Gavin Andresen. *In submission.*
- **Sybil-Resistant Mixing for Bitcoin.**  
 George Bissias, A. Pinar Ozisik, Brian N. Levine, and Marc Liberatore. *In Proc. ACM Workshop on Privacy in the Electronic Society*, November 2014.
- **The Effect of Tags on the Evolution of Honest Signaling.**  
 A. Pinar Ozisik and Kyle I. Harrington. *In Proceedings of the Genetic and Evolutionary Computation Conference Companion*, July 2012.
- **The Effects of Finite Populations and Selection on the Emergence of Signaling.**  
 Kyle I. Harrington, A. Pinar Ozisik, and Jordan Pollack. *In Proceedings of Artificial Life XIII*, July 2012.
- **Detecting Stumbles with a Single Accelerometer.**  
 Nabil Hajj Chehade, A. Pinar Ozisik, James N. Gomez, Fabio Ramos, and Gregory J. Pottie. *In International Conference of the IEEE Engineering in Medicine & Biology Society*, August 2012.

## POSTER PRESENTATIONS

- **Increasing Scalability and Reliability of Virtual Currencies.**  
 A. Pinar Ozisik, Gavin Andresen, George Bissias, Amir Houmansadr, and Brian N. Levine. *In New England Security Day (NESD15)*, September, 2015.
- **The Emergence and Maintenance of Signaling in the Sir Philip Sydney Game.**  
 A. Pinar Ozisik and Kyle I. Harrington. *In The New England Undergraduate Computing Symposium (NEUCS12)*, April 2012.
- **Stumble Detection and Classification Using Body-Mounted Tri-Axial Accelerometers.**  
 James N. Gomez, A. Pinar Ozisik, Chieh Chien, Nabil Hajj Chehade, and Gregory J. Pottie. *In CENS High School & Undergraduate Scholars Poster Symposium*, August 2012.

## HONORS & AWARDS

- 2015 Grace Hopper Conference (GHC) Scholarship
- 2014 ACM Conference on Computer and Communications Security (CCS) Travel Grant
- 2013 Google Anita Borg Scholar
- Dean's List (Brandeis University)

## TEACHING EXPERIENCE

**College of Information and Computer Sciences, UMass Amherst** — Amherst, MA

*Teaching Assistant*

- Introduction to Problem Solving with the Internet; Programming with Data Structures; Representing, Storing, and Retrieving Information; Reasoning Under Uncertainty

**Computer Science Department, Brandeis University** — Waltham, MA

*Teaching Assistant*

- Data Structures and the Fundamentals of Computing; Programming in Java and CS

## REFERENCES

- Brian Levine, Advisor, [brian@cs.umass.edu](mailto:brian@cs.umass.edu), <https://people.cs.umass.edu/~brian/>
- Amir Houmansadr, Master's Thesis Co-advisor, [amir@cs.umass.edu](mailto:amir@cs.umass.edu), <https://people.cs.umass.edu/~amir/>
- Jim Kurose, Professor, [kurose@cs.umass.edu](mailto:kurose@cs.umass.edu), <https://gaia.cs.umass.edu/personnel/>