Onur VAROL

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School of Informatics and Computing Indiana University
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Research Interests

Complex Systems, Network Science, Data Science, Machine Learning, Computational Social Science

Publications

Journal

J.4 E Ferrara, **O Varol**, C Davis, F Menczer, A Flammini **"The Rise of Social Bots"**, Communications of the ACM (In press)

J.3 V.S. Subrahmanian, A. Azaria, S. Durst, V. Kagan, A. Galstyan, K. Lerman, L. Zhu, E. Ferrara, A. Flammini, F. Menczer, R. Waltzman, A. Stevens, A. Dekhtyar, S. Gao, T. Hogg, F. Kooti, Y. Liu, **O. Varol**, P. Shiralkar, V. Vydiswaran, Q. Mei, T. Huang. **"The DARPA Twitter Bot Challenge"**, IEEE Computer (In press)

J.2 M JafariAsbagh, E Ferrara, **O Varol**, F Menczer, A Flammini **"Clustering memes in social media streams"**, Social Network Analysis and Mining

J.1 **O. Varol**, D. Yuret, B. Erman, A. Kabakçıoglu **"Mode coupling points to functionally important residues in Myosin II"**, PROTEINS: Structure, Function, and Bioinformatics

Conference Proceedings

C.5 **O Varol**, E Ferrara, C Ogan, F Menczer, and A Flammini. **"Evolution of online user behavior during a social upheaval"**. ACM Web Science Conference 2014 (Full paper, acceptance rate 14%, **Best paper award**)

C.4 **O Varol** and F Menczer. **"Connecting Dream Networks Across Cultures"**. WWW 2014 workshop on "Connecting Online & Offline Life" (COOL)

C.3 Ferrara, E., **Varol, O.**, Menczer, F. & Flammini, A. **"Traveling Trends: Social Butterflies or Frequent Fliers?"**, ACM Conference on Online Social Networks (COSN 2013) (Full paper, acceptance rate 15%)

C.2 E Ferrara, M JafariAsbagh, **O Varol**, V Qazvinian, F Menczer, A Flammini **"Clustering Memes in Social Media"**, ASONAM 2013 (Full paper, acceptance rate 13%)

C.1 Yasemin Alban; Tuba Ayhan; **Onur Varol**; Müştak Erhan Yalçın **"A Feature Filtering Method for EEG Data Classification"**, Signal Processing and Communications Applications (SIU), IEEE 19th Conference, Antalya, April 20-22 2011.

Education

Indiana University, Bloomington, IN. USA

Ph.D., Complex Systems track of the Ph.D. in Informatics
Minor in Statistics (expected graduation date: June 2017)

Koç University, Istanbul, Turkey

M.Sc., Computer Science and Engineering, (July 2012)

Advisors: Assoc. Prof. Deniz Yüret
Assist. Prof. Alkan Kabakçıoglu

Istanbul Technical University, Istanbul, Turkey

B.Sc., Electronics Engineering, (June 2010)

B.Sc., Physics Engineering, (June 2012)

Conducted Researches and Academic Experience

Research

DOISAC: Project name stands for "Detecting Orchestrated Information and Synthetic Account Campaigns". This project founded by the Office of Naval Research aims at detecting orchestrated information and synthetic activity campaigns on social media using machine learning and computational tools.

PIs: Dr. Emilio Ferrara, Assoc. Prof. Alessandro Flammini,

DESPIC: Project name stands for "Detecting Early Signature of Persuasion in Information Cascades" and aims to design a system detect persuasion campaigns at their early stage of inception, in the context of online social media. This project founded by DARPA SMISC program.

PIs: Assoc. Prof. Alessandro Flammini, Prof. Fil Menczer

Truthy: This project aims to understand how information propagates through complex socio-technical information networks. In this project, I analyzed and studied roles of individuals during social upheavals, diffusion of trending topics in spatio-temporal space. I also worked on classification of social bots.

PIs: Assoc. Prof. Alessandro Flammini, Prof. Fil Menczer

Research on Modal analysis of Myosin II and Identification of Functionally Important Sites: During my Master's studies in Koc University, I worked on analysis of protein fluctuations to identify functionally important residues as my thesis project.

Advisors: Assoc. Prof. Deniz Yüret, Assist. Prof. Alkan Kabakçıoglu

Research on Modeling of Social Networks and Phase Transitions of Complex Systems (Graduation project for B.Sc in Physics Engineering)

Advisor: Prof. Ayse Erzan

Research on EEG Signal Processing and Classification (Graduation project for B.Sc in Electronics Engineering)

Advisor: Prof. Müstak Erhan Yalçın

Projects

Koç University, Istanbul, Turkey

- Community networks and opinion dynamic models (2012)
- Designed and implemented a sketch based map builder in 3D graphics (2011)
- Designed and programmed a Tourist Guidance Multi Model Interface Application(2011)
- Implemented unsupervised part-of-speech tagger, regression-based statistical machine translation decoder, spam filter using language models in Machine Learning Course (2011)

Istanbul Technical University, Istanbul, Turkey

- EEG Signal Processing and Classification for Mobile Robot Navigation (2010)
- Scanning Tunnel Microscope control electronic design and software implementation (2010)
- Human machine interface for mouse control using hand gestures (2009)
- EKG device electronic and software implementation (2009)

Teaching Assistant

Koç University, Istanbul, Turkey

Machine Learning (Spring 2012)
Microprocessors (Fall 2011)
Probability and Random Variables (Spring 2011)
Discrete Mathematics (Fall 2010)

Work Experience

Microsoft Research, Redmond WA, USA

Research Intern (June 2015 - September 2015): I worked in CLUES group at MSR. I studied social media timelines of individuals to detect experiential activities and analyzed outcomes of those actions. This projects involves analyzing search query logs and social media timelines.

Microsoft Research, Redmond WA, USA

Research Intern (June 2014 - September 2014): I worked in CLUES group at MSR. I studied how individuals in social networks adopts their behavior to match with their inner intents. I carried out experiments on Amazon Mechanical Turk platform to justify our hypothesis in micro level and analyzed Twitter data to validate effects on macro level.

Stonefish Software Consultant, Istanbul, Turkey

Software Developer (August 2009 - March 2010): I worked on an enterprise web application development using C♯, ASP.NET, MSSQL.

Istanbul Technical University Computer Center, Istanbul, Turkey

Asistant Student (April 2008 - August 2009)

ASELSAN, Ankara, Turkey

Intern (June 2009 - August 2009): I studied different forms of network programming for data transfer. I also worked on implementation of observation station platform for unmanned vehicles.

Istanbul Technical University Computer Center, Istanbul, Turkey

Intern (June 2008 - August 2009): I manufactured a temperature monitoring device using DS2019 sensor on Atmega16 microprocessor. Communication between microprocessor and server is implemented via RS232 protocol. Server and clients communicated through WPF on .NET framework.

Control Avionic Laboratory, Istanbul Technical University, Istanbul, Turkey

Intern (June 2007 - August 2007): I worked on improving distortion problem for the robotic testbed using MATLAB and OpenCV.

Honors and Awards

Best poster award (CCS'15)
Best paper award (WebSci'14)
Research Assistantship Indiana University (2012-2016)
Student travel grant (COSN'14 Conference, Boston)
Scholarship from TUBITAK(2010-2012)
Graduate scholarship from Koç University (2010-2012)
Electrical Engineering Society (EMO) Project Competition 1st Rank (2010)
Bosch Scholarship for Undergraduate Education (2009)
Istanbul Technical University Student Council Vice President (2009)
Microsoft Student Partner (2008-2010)
Euroskills 2010, Portugal, Mobile Robotic Expert
Worldskills 2009, Canada, Mobile Robotic Competitor
Euroskills 2008, Netherlands, 3rd rank in Mobile Robotic

Talks and Events

Invited Talks

- Evolution of online user behavior during a social upheaval, Indiana University Turkish Flagship Center (January 2015)

- Studying Social Dynamics Through Social Media, Istanbul Technical University Physics Department Colloquia (June 2014)

Workshop & Schools

- A Workshop on the Allosteric Mechanisms in Protein Regulation, Koç University (July 2012)
- Computational Methods for Life Sciences and Nanotechnology, Koç University (January 2012)
- Phase Transition and Renormalization Groups, Feza Gürsey Institute (August 2010)
- International Summer School and Research Workshop on Complexity, Feza Gürsey Institute - Imperial College (September 2011)

Computer and Language Skills

Programming Languages and Skills:

Python, C / C++, C#, Java, MATLAB, R, OpenBUGS, LaTeX
HTML, CSS, Javascript, ASP.NET
MySQL, NoSQL, Map-Reduce
View projects on Github: github.com/onurvarol

Languages:

English (fluent), German (beginner), Turkish (native)

Interests

I enjoy playing basketball and foosball. I also love traveling a lot, you can visit my online travel journal (onurvarol.com/apps/travels).