

# Halil Bisgin, Ph.D.

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## CONTACT INFORMATION

203D MSB  
303 East Kearsley Street  
Flint, MI, 48502, USA

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## RESEARCH INTERESTS

- Data Mining and Machine Learning  
Graph Mining, Text Mining  
Knowledge Discovery in the fields of Bioinformatics, Biomedical Signal Processing
- Social Computing  
Social Network Analysis, evaluating influence and homophily in social networks
- Biomedical Informatics
- Parallel Computing

## EDUCATION

### **University of Arkansas at Little Rock (UALR)**, Little Rock, AR USA

Ph.D., Integrated Computing Program (IGCP)-Computer Science (CS), Dec 2012, GPA: 4.00

Dissertation Topic: A graphical approach to drug safety and drug repositioning

Advisor: Xiaowei Xu

M.S., Applied Computing, Aug 2012

### **Istanbul Technical University (ITU)**, Istanbul, Turkey

Ph.D. Candidate, Computational Science and Engineering, Jan 2008-Jun 2008

M.S., Computational Science and Engineering, Jan 2008

Thesis: Parallel clustering algorithms with application to climatology

### **Koç University (KU)**, Istanbul, Turkey

B.S., Mathematics, Jun 2003

## ACADEMIC EXPERIENCE

### **University of Michigan, Flint, MI, USA**

*Assistant Professor of Computer Science*

**Sep 2015-Present**

- Courses taught:  
CSC 582-Advanced Database Concepts  
CSC 375-Data Structures  
CSC 384-Database Design  
CSC 487-Data Mining

### **National Center for Toxicological Research (NCTR)/FDA**, Jefferson, AR, USA

*ORISE Research Participant*

**Dec 2012 -Aug 2015**

- Analyzing micRNA Next Generation Sequencing (NGS) data to discover biomarkers for drug induced liver injury (DILI)
- Mining patient narratives for regulatory purposes
- Application and development of probabilistic graphical models for drug repositioning, pharmacovigilance, biological data analysis, and DILI
- Involved in the development of ArrayTrack<sup>TM</sup> Software  
(<http://www.fda.gov/ScienceResearch/BioinformaticsTools/Arraytrack/>)

### **UALR**, Little Rock, AR, USA

*Adjunct Assistant Professor of Computer Science*

**Sep 2013 -Present**

- Teaching Parallel Processing course for Spring 2015 (Graduate Level)
- Co-taught data mining in Database Systems course (Graduate Level)
- Master's Thesis committee member

**NCTR/FDA** , Jefferson, AR, USA

*Research intern under supervision of Dr. Weida Tong*

**Aug 2011-Dec 2012**

- Investigation of drug safety and drug repositioning opportunities through probabilistic graphical models.
- Concept discovery of large-scale text data for Center for Tobacco Products-FDA

**UALR**, Little Rock, AR, USA

*Graduate Assistant*

**Aug 2008 - Aug 2011**

- Teaching assistant for graduate level courses
  - Database Systems (Graduate Level)
  - Machine Learning (Graduate Level)
- Research assistant in Center for Advanced Research in Data Mining (CARD)
- System administrator assistant in High Performance Computing Center

**ITU Informatics Institute**, Istanbul, Turkey

*Graduate Assistant*

**Jan 2005 - Jul 2008**

- Teaching assistant for computer programming courses
  - Intr. to Sci & Eng Comp. (C) (BIL104E)
  - Intr. to Sci & Eng Comp. (Fortran) (BIL106E)
  - Intr. to Sci & Eng Comp. (Matlab) (BIL108E)
- System administrator assistant in High Performance Computing Center

**Dr. Sadik Ahmet High School**, Istanbul, Turkey

*Teacher*

**Jan 2005 - Jul 2008**

- Taught English and Mathematics

**KU**, Istanbul, Turkey

*Student Worker*

**Jun 2000 - Jun 2003**

- Teaching assistant for undergraduate courses
  - Finite Mathematics (MATH 101)
  - Linear Algebra and Multivariate Calculus ( MATH 200 )
  - Microeconomics Theory (ECON 201 )
- Served as a resident assistant at KU dorms
- Served as a mentor for eleven Turkish and three Italian students in their first year at KU

BOOK CHAPTER

**Halil Bisgin**, Nitin Agarwal, and Xiaowei Xu. A Study of Homophily on Social Media, Social Network Mining, Analysis and Research Trends: Techniques and Applications. Editors: I-Hsien Ting, Tzung-Pei Hong and Leon S.L. Wang. IGI Global, 2011. (**News Coverage: UALR News**)

JOURNAL PAPERS

1. **Halil Bisgin**, Yuping Wang, Binsheng Gong, Weida Tong. An integrated analysis of gene and microRNA expression profiles in the rat liver exposed to two structurally similar drugs: amiodarone and benzobromane (to be submitted).
2. **Halil Bisgin**, Yuping Wang, Binsheng Gong, Weida Tong. Evaluation of bioinformatics choices for next-generation sequencing analysis of microRNAs (to be submitted)
3. Harsh Dweep, Yuji Morikawa, Binsheng Gong, Jian Yan, Tao Chen, Zhichao Liu, Christina Castro, **Halil Bisgin**, Wen Zou, Huixiao Hong, Tieliu Shi, Ping Gong, Takeki Uehara, Yuping Wang, Weida Tong. Mechanistic Roles of miRNAs in Hepatocarcinogenesis at Rats Treated with a Non Genotoxic Carcinogen (to be submitted)
4. Su Inn Park, Joshua Xu, **Halil Bisgin**, Hongjian Ding, Howard Semey. Species Identification of Food Contaminating Beetles by Recognizing Patterns in Microscopic Images of Elytra Fragments, *PLoS ONE*, 11:1-22, 2016

5. **Halil Bisgin**, Zhichao Liu, Reagan Kelly, Hong Fang, Xiaowei Xu, Weida Tong. A phenome-guided drug repositioning through a latent model, *BMC Bioinformatics*, 15:267, 2014.
6. Minjun Chen, **Halil Bisgin**, Lillian J. Tong, Huixiao Hong, Hong Fang, Weida Tong. Toward Predictive Models for Drug-induced Liver Injury in Humans: Are We There Yet?, *Biomarkers in Medicine*, 8(2):201-213, 2014.
7. **Halil Bisgin**, Minjun Chen, Yuping Wang, Reagan Kelly, Hong Fang, Xiaowei Xu, Weida Tong. A Systems Approach for Analysis of High Content Screening Assay Data with Topic Modeling, *BMC Bioinformatics*, 14(S11), 2013.
8. **Halil Bisgin**, Zhichao Liu, Reagan Kelly, Hong Fang, Xiaowei Xu, Weida Tong. Investigating drug repositioning opportunities in FDA drug labels through topic modeling, *BMC Bioinformatics*, 13(S6), 2012.
9. **Halil Bisgin**, Zhichao Liu, Hong Fang, Xiaowei Xu, Weida Tong. Mining FDA Drug Labels using unsupervised learning technique -Topic Modeling, *BMC Bioinformatics*, 12(S11), 2011. (2011 Impact Factor: 3.03)
10. **Halil Bisgin**, Orhan Kilinc, Ahmet Ugur, Xiaowei Xu, Volkan Tuzcu. Diagnosis of Long QT Syndrome via Support Vector Machine Classification, *Journal of Biomedical Science and Engineering*, 4(4): 264-271, April, 2011.
11. **Halil Bisgin**, Nitin Agarwal, and Xiaowei Xu. A Study of Homophily on Social Media, *World Wide Web*, 15(2):213-232, 2012. (top 4<sup>th</sup> journal in Computer Science that focuses on Web Science Research)

CONFERENCE  
PROCEEDINGS

1. M. Venkata Swamy, Stephen Wallace, **Halil Bisgin**, Nitin Agarwal, Xiaowei Xu, and Hemant Joshi. NMiner: A System for Finding Related Entities by Mining a Bimodal Network. 8<sup>th</sup> Asia Information Retrieval Societies Conference (AIRS 2012). December 17-19, 2012, Tianjin, China.
2. Fatih Sen, Rolf T. Wigand, Nitin Agarwal, Debanjan Mahata, and **Halil Bisgin**. Identifying focal patterns in social networks. 4<sup>th</sup> International Conference on Computational Aspects of Social Networks (CASoN 2012). November 21-23, 2012, Sao Carlos, Brazil.
3. M. Venkata Swamy, **Halil Bisgin**, Stephen Wallace, Nitin Agarwal, Xiaowei Xu, and Hemant Joshi. UALR at TREC 2011 Entity Track. 20<sup>th</sup> Text REtrieval Conference (TREC 2011). November 15-18, 2011, Gaithersburg, Maryland.
4. **Halil Bisgin**, Nitin Agarwal, and Xiaowei Xu. Does Similarity Breed Connection? - An Investigation in BlogCatalog and Last.fm Communities. 2<sup>nd</sup> International Symposium on Social Computing Applications (SCA-10) held in conjunction with the 2<sup>nd</sup> IEEE International Conference on Social Computing (SocialCom10). August 20-22, 2010, Minneapolis, MN.
5. **Halil Bisgin**, Nitin Agarwal, and Xiaowei Xu. Investigating Homophily in Online Social Networks. The 10<sup>th</sup> IEEE/WIC/ACM International Conference on Web Intelligence (WI10). August 31 - September 3, 2010, Toronto, Canada.
6. **Halil Bisgin**, Nitin Agarwal, and Xiaowei Xu. Does Similarity breed Connection? - An Investigation in BlogCatalog and Last.fm Communities. The 4<sup>th</sup> ACM Workshop on Social Network Mining and Analysis (SNAKDD) held in conjunction with the 16<sup>th</sup> ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2010). July 25, 2010, Washington DC, USA.
7. Xiaowei Xu, Mutlu Mete, **Halil Bisgin**, Kemal Aydin, Nitin Agarwal, and Thomas A.J. Schweiger. Finding Community Leaders in Social Networks. The 4<sup>th</sup> ACM Workshop on Social Network Mining and Analysis (SNAKDD) held in conjunction with the 16<sup>th</sup> ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2010). July 25, 2010, Washington DC, USA.

POSTERS/TALKS

1. Monisha Puttaraju and Halil Bisgin. A probabilistic framework for identifying drug-drug interactions and primary suspect drugs for multi-drug treatment settings. 13<sup>th</sup> Annual Conference of the MidSouth Computational Biology and Bioinformatics Society Mar 3-5, 2016. Memphis, TN

2. **Halil Bisgin**, Joshua Xu, Binsheng Gong, Zhichao Liu, Hong Fang, Leming Shi, Weida Tong. Exploring Rat RNA-Seq transcriptomic BodyMap through Topic Modeling. *10<sup>th</sup> Annual Conference of the MidSouth Computational Biology and Bioinformatics Society*, March 6-18, 2014 (MCBIOS 2014), Stillwater, Oklahoma
3. **Halil Bisgin**, Zhichao Liu, Reagan Kelly, Hong Fang, Xiaowei Xu, Weida Tong. A phenome-guided drug repositioning through a latent model. *Conference on Semantics in Healthcare and Life Sciences*, Feb 26-28, 2014 (CSHALS 2014), Boston, Massachusetts
4. **Halil Bisgin**, Zhichao Liu, Hong Fang, Weida Tong, Xiaowei Xu. Mining FDA Drug Labels using unsupervised learning technique -Topic Modeling. *8<sup>th</sup> Annual Conference of the Mid-South Computational Biology and Bioinformatics Society*, April 1-2, 2011 (MCBIOS 2011), College Station, Texas
5. **Halil Bisgin**, Orhan Kilinc, Ahmet Ugur, Xiaowei Xu, Volkan Tuzcu. Diagnosis of Long QT Syndrome via Support Vector Machine Classification. *7<sup>th</sup> Annual Conference of the MidSouth Computational Biology and Bioinformatics Society*, February 19-20, 2010 (MCBIOS 2010), Jonesboro, Arkansas
6. **Halil Bisgin**, H. Nuzhet Dalfes. Parallel Clustering Algorithms with Application to Climatology. *EGU General Assembly*, 2008, Vienna, Austria.

HONORS AND AWARDS

- **Best Doctoral Student** in IGCP, UALR
- **Best Paper Award** in EIT, UALR, 2011
- Who's Who among American Colleges and Universities, 2011
- Travel award for TERA-GRID Summer School, Italy, 2010
- Member of Phi Kappa Phi Honor Society
- Member of Alpha Epsilon Lambda Honor Society
- Harambee Award, UALR, 2009, 2010
- Graduate Fellowship, UALR, 2008-2013
- Scholarship for Italian Language Program sponsored by FIAT, Florence, Italy, 2001
- Deans Honor Roll at Koc University, 2000
- Undergraduate Fellowship, Koc University, Turkey, 1998-2003

COMPUTER SKILLS

- C, C++, Java, Fortran, Visual Basic
- R, Matlab, Perl, Python
- Linux, Unix, MAC OS X
- MPI, PVM, OpenMP, Hadoop
- Indri, Mallet, RapidMiner
- Bioinformatics tools for Next Generation Sequencing Analysis
- Trainings: R workshop Oak Ridge National Lab, ArrayTrack at NCTR

PROFESSIONAL ACTIVITIES AND SERVICES

- PC Member for  
www15websci  
FOSINT-SI2012-13-14  
SBP 2015
- Sigma Xi member
- Reviewer for  
Information Sciences  
PLoS One  
BMC Bioinformatics  
Social Network and Mining  
Advances in Bioinformatics

LANGUAGE

- Turkish (Native)
- English (Fluent)
- Italian (Intermediate)
- German (Beginner)

PERSONAL INTERESTS AND COMMUNITY SERVICES

- Served in Arkansas Science Olympiads Organization Committee, 2012-2013
- TERA-GRID Conference Volunteer, 2011
- VP, Turkish Student Association