

# Haluk Dogan

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## Contact

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## Research Interests

Algorithms, Machine Learning, Graphical Models, Functional Programming.

## Education

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| 2013 -      | <b>Doctor of Philosophy</b><br><i>Department of Electrical and Computer Engineering</i>  | University of Nebraska-Lincoln, USA    |
| 2011 - 2013 | <b>Master of Science</b><br><i>Department of Computer Engineering</i><br><i>Thesis: Discovering Gene Interaction Atlas Using External Biological Knowledge</i> | Bogazici University, Istanbul - Turkey |
| 2008 - 2009 | <b>Exchange Student</b><br><i>Department of Computer Science</i>   | Aarhus University, Denmark             |
| 2006 - 2010 | <b>Bachelor of Science</b><br><i>Department of Computer Science</i>  | Istanbul Bilgi University - Turkey     |

## Employment History

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| Aug 2013 - | <b>University Of Nebraska-Lincoln, Lincoln, NE</b><br><i>Graduate Research Assistant, Department of Electrical and Computer Engineering</i> |
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Nov 2010 - Jun 2013

## **Istanbul Bilgi University, Istanbul, Turkey**

*Teaching and Research Assistant, Department of Genetics and Bio-engineering Engineering*

- ⇒ **BIOE 341**, Bioinformatics; Led weekly lab, and office hours, grading (quizzes, homework assignments, projects, midterms), and proctored exams.
- ⇒ **CMPE 100**, Introduction to Computing; Led weekly lab, and office hours, grading (quizzes, homework assignments, projects), and proctored exams.
- ⇒ **ENGR 230**, Probability and Random Processes; Led weekly lab, and office hours, grading (quizzes, homework assignments, projects, midterms), and proctored exams.
- ⇒ Built an interactive ICGEB 2012 Workshop website using Django Web Framework.

Mar 2010 - Jun 2010

## **i2i Systems, Istanbul, Turkey**

Java Developer

My responsibilities included importing large dataset into Oracle database after post stage of data preprocessing. The facilitating technologies were Java, Spring Framework, and JExcel.

Aug 2009 - Mar 2010

## **GNA, Istanbul, Turkey**

Business Intelligence Consultant

- ⇒ Design, develop, and support Pentaho Reports applications used by business users at a large company setting.
- ⇒ Design, develop, and support creation of tables, stored procedures, functions, views, triggers, and all relevant database objects using Oracle database.

Mar 2008 - June 2008

## **Aradiom, Istanbul, Turkey**

Java Developer

Designed and implemented back-end RegEx editor using JSF framework. My responsibilities were focused on parsing various statements into RegEx expressions.

## **Project Summary**

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- ⇒ Implemented and designed I/O-efficient merge-sort algorithm.
- ⇒ Implemented and designed I/O-efficient heap and heap sort algorithm.
- ⇒ Implemented offline and online versions of minimum spanning tree problem using sparsification technique.

- ☞ Implemented and designed McCreight's suffix tree construction algorithm.
- ☞ Implemented and designed Stoye-Gusfield algorithm for finding all occurrences of tandem repeats.
- ☞ Designed a distributed application that sends SMS messages by connecting to SMSC via SMPP by using Apache Thrift RPC Framework.
- ☞ Implemented and designed J48 decision tree.
- ☞ Implemented and designed Huffman Coding and Arithmetic Coding algorithms.
- ☞ Implemented and designed Multi-Layer Perceptron Neural Network for classification.
- ☞ Implemented and designed N  ive Bayes algorithm for classification.
- ☞ Implemented and designed Non-parametric Bayesian Method for clustering.

## Skills Summary

Programming Languages	Java, Python, Scala, R, Scheme, C, Haskell, SQL	
Script Languages	Bash Script, L��T��X\Tikz, Markdown	
Database Systems	Oracle, PostgreSQL, MySQL	
Web Development	Django Web Framework, Vaadin RIA Web Framework, Spring MVC	
Database Technologies	Hibernate ORM, SQLAlchemy	
Scientific Programming	Numpy, Scipy, Scikit-Learn, Matplotlib, Seaborn, Smile, aGrUM, Tetrad	
Development Technologies	PyCharm, IntelliJ IDEA, DataGrip, Eclipse, Sublime Text Editor, Atom, Aqua Studio, Weka, RStudio, Matlab	
Build Tools	Maven, Sbt, Gradle, SCons, CMake	
Version Control System	Git, SVN, Mercurial	
Operating Systems	Linux, Mac OS X, Windows	
Foreign Language Skills	Turkish	Native
	English	Advanced
	Danish/German	Beginner

## Publications

### Journal papers

1. M. L. Tomov, Z. T. Olmsted, H. Dogan, E. Gongorurler, M. Tsompana, H. H. Otu, M. Buck, E.-A. Chang, J. Cibelli, and J. L. Paluh. Distinct and Shared Determinants of Cardiomyocyte Contractility in Multi-Lineage Competent Ethnically Diverse Human iPSCs. *Scientific Reports* **6** (2016), 37637.
2. F. Wang et al. Detecting Microbial Dysbiosis Associated with Pediatric Crohn Disease Despite the High Variability of the Gut Microbiota. *Cell Reports* (2016).

3. H. Dogan, H. Can, and H. H. Otu. Whole Genome Sequence of a Turkish Individual. *PLoS ONE* **9**(1) (2014), e85233.
4. H. Dogan, U. Nalbantoglu, A. Cakar, N. Abaci, D. Ustek, K. Sayood, and H. Can. Metagenomic analysis of the microbial community in kefir grains. *Food Microbiology* **41** (2014), 42–51.
5. S. Isci, H. Dogan, C. Ozturk, and H. H. Otu. Bayesian network prior: network analysis of biological data using external knowledge. *Bioinformatics* **30**(6) (2014), 860–867.

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## Book chapters

1. H. Dogan and H. H. Otu. “Objective Functions”. In: *Multiple Sequence Alignment Methods*. Ed. by D. J. Russell. Vol. 1079. Methods in Molecular Biology. Humana Press, 2014, pp.45–58. ISBN: 978-1-62703-645-0. DOI: 10.1007/978-1-62703-646-7\_3.

## References

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*References available upon request.*