# Bahar Delibaş

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## EDUCATION

**University of Massachusetts Boston**, Boston, MA
Department of Computer Science
Doctor of Philosophy in Computer Science

**University of Massachusetts Boston**, Boston, MA
Master of Science in Computer Science

**University of Massachusetts Boston**, Boston, MA
Bachelor of Arts in Italian Literature and Language, *Summa Cum Laude*

## PROFESSIONAL EXPERIENCE

**Kadir Has University,** Istanbul, Turkey

*Assistant Professor, Computer Engineering Department*                    January 2016 - Present

**National Cancer Institute (NCI) of the NIH**, Frederick, MD

*Visiting Researcher, Leidos Biomedical Research*             December 2015 – January 2018

**University of Massachusetts Boston**, Boston, MA

*Visiting Scholar, Computational Biology Lab*             January 2015 – December 2015
- Conducted research on protein-protein docking by employing artificial intelligence techniques
- Published one journal article and one conference paper, which also received invitation for another journal publication

*Lecturer, Computer Science Department*             September 2014 – August 2015
- Taught "Introduction to Computer Concepts" course for two semesters to approximately 40 undergraduate students per semester
- Prepared and delivered the course content, including lectures, assignments and exams

*Research Assistant, Computational Biology Lab*             January 2010 – August 2014
- Researched protein-protein interactions by modeling conformational changes in protein chains and protein-based assemblies
- Researched how to combine different methods to detect critical protein residues
- Designed and developed a complex Java application to refine docked protein structures using evolutionary information and biophysics
- Published four refereed journal articles and seven peer-reviewed conference papers in computational structural biology and bioinformatics field
- Received UMass Boston Research Excellence Award, First Place, with the docked protein refinement research

**TEACHING**

**Courses Taught at Kadir Has University**

**Spring 2020:** CE140 Computer Programming I

CE348 Formal Languages and Automata Theory

**Fall 2019:** CE467 Algorithm Design and Analysis

CE473 Compiler Design

KHAS109 Computational Thinking

**Spring 2019:** CE140 Computer Programming I

CE348 Formal Languages and Automata Theory

CE516 Theory of Computation

**Fall 2018:** CE140 Computer Programming I

CE467 Algorithm Design and Analysis

CE473 Compiler Design

CE201 Discrete Computational Structures

**Spring 2018:** CE140 Computer Programming I

CE508 Bioinformatics Algorithms

**Fall 2017:** CE467 Algorithm Design and Analysis

CE473 Compiler Design

**Spring 2017:** CE473 Compiler Design

CE140 Computer Programming I

**Spring 2016:** CE140 Computer Programming I

**Courses Taught at University of Massachusetts Boston**

**Fall 2014 / Spring 2015:** CS105 "Introduction to Computer Concepts"

**Teaching Assistance at University of Massachusetts Boston**

CS451/651 "Compilers"

IT341 "Introduction to System Administration"

IT441 "Network Services Administration"

**New Courses Developed and Taught at Kadir Has University**

CE473 "Compiler Design"

**PH.D. STUDENTS ADVISED**

Aylin Tokuç                                          February 2019 - present

## PUBLICATIONS

### Books
- Bill Campbell, Swami Iyer, Bahar Akbal-Delibas, Introduction to Compiler Construction in a Java World (CRC Press, 2012)

### Peer Reviewed Journal Articles and Book Chapters

- R. Farhoodi, B. Akbal-Delibas, and N. Haspel, "Machine Learning Approaches for Predicting Protein Complex Similarity." Journal of Computational Biology, 24(1), 40-51, 2017.

- B. Akbal-Delibas, Roshanak Farhoodi, Marc Pomplun and N. Haspel, "Accurate Refinement of Docked Protein Complexes Using Evolutionary Information and Deep Learning ", J Bioinform Comput Biol (JBCB), 14(3):1642002, 2016.

- B. Akbal-Delibas, Marc Pomplun and N. Haspel, "Accurate Prediction of Docked Protein Structure Similarity", Journal of Computational Biology 22(9), 2015.

- B. Akbal-Delibas and N. Haspel, "A Conservation and Biophysics Guided Stochastic Approach to Refining Docked Multimeric Proteins", BMC Structural Biology J 2013.

- B. Akbal-Delibas, F. Jagodzinski, and N. Haspel, "A Conservation and Rigidity Based Method for Detecting Critical Protein Residues", BMC Structural Biology J 2013.

- B. Akbal-Delibas, I. Hashmi, A. Shehu and N. Haspel, "An Evolutionary Conservation Based Method for Refining and Reranking Protein Complex Structures", J Bioinform Comput Biol 10(3): 1242002, 2012.

- I. Hashmi, B. Akbal-Delibas, N. Haspel and A. Shehu, "Employing Geometric and Evolutionary Information for Protein Docking with Probabilistic Search", J Bioinform Comput Biol, 2012.

- B. Akbal-Delibas, P. Boonma and J. Suzuki, "Baobab: A Model-Driven Development Framework for Autonomous and Adaptive Wireless Sensor Network Applications," In Intl J of Autonomous and Adaptive Communications Systems, Special Issue on Self-* Systems, Inderscience.

### Peer Reviewed Conference and Workshop Proceedings

- R. Farhoodi, B. Akbal-Delibas, and N. Haspel, "Ranking Protein-Protein Binding Using Evolutionary Information and Machine Learning", In Proc. of the Computational Structural Biology Workshop (CSBW), ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics (ACM BCB), Boston, 2017

- R. Farhoodi, B. Akbal-Delibas, and N. Haspel. "Accurate Prediction of Docked Protein Structure Similarity Using Neural Networks and Restricted Boltzmann Machines", CSBW IEEE BIBM, Washington D.C., 2015

- B. Akbal-Delibas, M. Pomplun, and N., Haspel. "AccuRefiner: A Machine Learning Guided Refinement Method for Protein-Protein Docking", 7th International Conference on Bioinformatics and Computational Biology (BICoB), Honolulu, Hawaii, 2015.

- B. Akbal-Delibas, M. Pomplun, and N., Haspel. "AccuRMSD: A Machine Learning Approach to Predicting Structure Similarity of Docked Protein Complexes", In Proc. of the ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics (ACM BCB), Newport Beach, CA, 2014.

- F. Jagodzinsky, B. Akbal-Delibas and N., Haspel. "An Evolutionary Conservation and Rigidity Analysis Machine   Learning Approach for Detecting Critical Protein Residues", In Proc. of the Computational Structural Biology Workshop (CSBW), ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics (ACM BCB), Washington DC, 2013.

- B. Akbal-Delibas and N., Haspel. "Refining Multimeric Protein Complexes Using Conservation, Electrostatics and Probabilistic Selection", In Proc. of the Computational Structural Biology Workshop (CSBW), IEEE International Conference on Bioinformatics and Biomedicine (IEEE BIBM), Philadelphia, PA, 2012.

- B. Akbal-Delibas, F. Jagodzinski and N., Haspel. "Towards a Hybrid Method for Detecting Critical Protein Residues", In Proc. of the Computational Structural Biology Workshop (CSBW), IEEE Int'l Conference on Bioinformatics and Biomedicine (IEEE BIBM), Philadelphia, PA, 2012.

- B. Akbal-Delibas, I. Hashmi, A. Shehu and N. Haspel, "Refinement of Docked Protein Complex Structures Using Evolutionary Traces", In Proc. of the Computational Structural Biology Workshop (CSBW), IEEE International Conference on Bioinformatics and Biomedicine (IEEE BIBM), Atlanta, GA, 2011.

- I. Hashmi, B. Akbal-Delibas, A. Shehu and N. Haspel, "Evolutionary-guided Sampling of Protein Complex Structures", In Proc. of the Computational Structural Biology Workshop (CSBW), IEEE International Conference on Bioinformatics and Biomedicine (IEEE BIBM), Atlanta, GA, 2011.

- B. Akbal-Delibas, P. Boonma, and J. Suzuki, "Extensible and Precise Modeling for Wireless Sensor Networks", In Proc. of the 2nd International Workshop on Model-Based Software and Data Integration (MBSDI), Sydney, Australia, April 2009.

**PhD Dissertation**
- Bahar Delibas, "Protein Docking Refinement Using Evolutionary Information and Artificial Intelligence". University of Massachusetts at Boston, 2014.


## SELECTED INVITED TALKS

- "Evolutionary Information Guided Modeling of Protein-Protein Interactions", Bogazici University, Istanbul Technical University, Istanbul Bilgi University, Bahcesehir University, March 2015.

- Science Engineering Technology (S.E.T.) in the City College/Grad Student Panel, Microsoft NERD Center, Cambridge, MA, April 2014

- "Using Evolutionary Conservation Information for Protein Complex Refinement and Detecting Critical Residues", UMass Boston Colloquium Talk, December 12, 2012.

- "An Evolutionary Conservation Based Method for Refining and Reranking Protein Complex Structures", Graduate Students' Research Symposium, UMass Boston, MA, May 4, 2012.

- "Exploration of Protein Complex Structures", Women in Science Workshop, Boston, MA, December 8, 2010.


## AWARDS

- Outstanding Achievement Award in Modern Languages, Literatures and Cultures, May, 2015
- Distinction in Italian, May, 2015
- Beacon Graduate Student Leadership Award, April 2014
- Research Excellence Award, First Place, The 5th Graduate Research Symposium, UMass Boston Dept. of Comp. Sci., May 4, 2012
- UMass Boston International Graduate Scholarship, 2006

**SERVICE**

**College and University**

- Kadir Has University Graduate School of Science and Engineering Board Member

- 2017-2020 Graduate Program Interviews Jury Member

- Computer Engineering PhD Comprehensive Exam Commission Member
    - Coordinated the preparation of the exam guide for the students

- MS and PhD Thesis Committee Member
    - Sercan Beytur, "Factors Affecting the amino acid distribution in complex proteins' interior, surface and interface regions: cell membrane environment, secondary structure and number of monomer units in the complex". Advisor: Demet Akten, Bioinformatics and Genetics Department.

    - Nuray Söğünmez, "Identification of the Direction of Signal Flow in Allosteric Motion of Adrenergic β2 Receptor". Advisor: Demet Akten, Bioinformatics and Genetics Department.

    - Waqar Ishaq, "Data quality in Big Data". Advisor: Eliya Büyükkaya, Computer Engineering Department.

    - Muhammed Aktolun, "Loop modeling and MD simulations of apo and ligand bound NMDA receptors". Advisor: Şebnem Eşsiz Gökhan, Bioinformatics and Genetics Department.

- President, Women in Science at UMass Boston, 2012 - 2014

**Journal and Conference Reviewer**
- The International Symposium on Health Informatics and Bioinformatics (HIBIT), 2018
- Advances in Bioinformatics, March 2018
- ACM BCB Computational Structural Biology Workshop (CSBW), 2017
- IEEE ICDM (International Conference on Data Mining) PhD Forum, 2015

**Conference Organization**
- Session co-chair, Computational Structural Biology Workshop (CSBW), IEEE BIBM, 2011

**LANGUAGES**

- Turkish (native)
- English (fluent)
- Italian (advanced)