Nilgun Donmez

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Current

Post-Doctoral Fellow at the Vancouver Prostate Centre (visiting scholar at Simon Fraser University).

Education

Ph. D. in Computer Science, University of Toronto
2012
- Thesis title: "Polymorphism and Genome Assembly"
- GPA 3.96/4.00

M. Sc in Computer Science, University of Toronto
2008
- Thesis title: "Protein Contact Map prediction using Neural Networks and Associative Markov Networks"
- GPA 3.94/4.00

B. Sc in Computer Science and Engineering, Sabanci University
2006
- Minor in Mathematics
- GPA 3.77/4.00

Publications

Malikic S., McPherson A., Donmez N., Sahinalp C. S. "Clonality inference in multiple tumor samples using phylogeny"; Bioinformatics. 2015 May; 31(9):1349-56. doi: 10.1093/bioinformatics/btv003.

Dao P., Numanagic I., Lin Y., Hach F., Karakoc E., Donmez N., Collins C., Eichler E. E., Sahinalp C. S. "Optimal resolution of ambiguous RNA-Seq multimappings in the presence of novel isoforms "; Bioinformatics. 2014 Mar; 30(5):644-51. doi: 10.1093/bioinformatics/btt591.

Donmez N., Brudno M. "SCARPA: scaffolding reads with practical algorithms"; Bioinformatics. 2013 Feb; 29(4):428-34. doi: 10.1093/bioinformatics/bts716.

Donmez N., Singh K. "Concepture: a regular language based framework for recognizing gestures with repetitive and variational patterns"; Proceedings of the International Symposium on Sketch-Based Interfaces and Modeling (SBIM) 2012, pp. 29-37, Best Paper Award.

Donmez N., Brudno M. "Hapsembler: An assembler for highly polymorphic genomes"; International Conference of Research in Computational Biology (RECOMB) 2011, V. Bafna and S.C. Sahinalp (Eds.), LNBI 6577:38-52, 2011.

Donmez N., Bazykin G., Brudno M., Kondrashov A.S. "Polymorphism due to multiple amino acid substitutions at a codon site within *Ciona savignyi*"; Genetics 181:685-690, 2009.

Talks and Poster Presentations	**Malikic S., McPherson A., Donmez N., Sahinalp C. S.** "Clonality inference in multiple tumor samples using phylogeny"; (conference talk) Late Breaking Research - ISMB, Boston, MA, USA, 2014.

Donmez N., Brudno M. "Hapsembler: An assembler for highly polymorphic genomes"; (conference talk) RECOMB, Vancouver, BC, Canada, 2011.

Donmez N., Brudno M. "Genome assembly with Sanger and High Throughput Sequencing"; (poster) HiTSeq - ISMB, Boston, MA, USA, 2010.

Donmez N., Brudno M. "Haplotype-sensitive assembly using paired-end reads"; (poster) Genome Informatics, Cold Spring Harbor, NY, USA, 2008.

Academic Service

Program committee member:
RECOMB satellite workshop on massively parallel sequencing (RECOMB-seq) 2012

Peer review for journals:
Bioinformatics, Genome Biology, Genome Research, PLOS ONE, Algorithms for Molecular Biology (AMB)

Peer review for conferences:
International Conference on Intelligent Systems for Molecular Biology (ISMB), International Conference of Research in Computational Biology (RECOMB), Workshop on Algorithms in Bioinformatics (WABI), Pacific Symposium on Biocomputing (PSB), Asia Pacific Bioinformatics Conference (APBC)

Experience

Post-Doctoral Fellow, Vancouver Prostate Centre, Vancouver, BC, Canada
November 2012 - present
- Development and implementation of algorithms for detection of alternative splicing using RNA-Seq data from cancer and healthy tissues.
- Responsible for the processing and clinical analysis of RNA-Seq data from several large scale internal and collaborative cancer sequencing studies (CPC-GENE, West Coast Dream Team).
- Supervision of graduate students for a cancer heterogeneity pilot project (as a participating member of the PANCANCER working group of ICGC) in collaboration with Dr. Cenk Sahinalp.

Teaching and Research Assistant, University of Toronto, Toronto, ON, Canada
2006 - 2012
- Development, implementation and assessment of a genome assembly toolkit for highly polymorphic organisms using next-generation sequencing technologies, supervised by Dr. Michael Brudno.
- CSC263: Data Structures and Analysis (4 terms) – teaching assistant
- CSC148: Introduction to Computer Science (3 terms) – teaching assistant

Graduation Project, Sabanci University, Istanbul, Turkey
October 2005 - July 2006

- Design and implementation of the speech recognition module of interactive entertainment and education software for toddlers, supervised by Dr. Berrin Yanikoglu, Dr. Selim Balcisoy and Dr. Hakan Erdogan.

Internship, Carnegie Mellon University, Pittsburgh, PA, USA
July - August 2005

- Research assistant for a project on probabilistic evolutionary models of cis-regulatory modules in *Drosophila*, supervised by Dr. Eric Xing.

Independent Research, Sabanci University, Istanbul, Turkey
Fall 2004

- Motif based classification of G-Protein Coupled Receptors using decision trees, supervised by Dr. Ugur Sezerman.

Project, Sabanci University, Istanbul, Turkey
Summer 2004

- Participated in CASP6 (the 6th Community Wide Experiment on the Critical Assessment of Techniques for Protein Structure Prediction) as a team (SUPred), supervised by Dr. Ugur Sezerman.

Awards & Scholarships

2012 - 2014
- Ebco/Epic Visiting Chairs, Simon Fraser University, Vancouver, BC, Canada

2002 - 2006
- Certificate of High Honor, Sabanci University, Istanbul, Turkey

Coursework & Programming

Undergraduate Level
Introduction to Bioinformatics
Computational Biology
Organic Chemistry
Artificial Intelligence
Statistical Modeling

Graduate Level
Algorithms in Genomic Sequence Analysis
Topics in Computational Molecular Biology
Introduction to Machine Learning
Numerical Methods in Optimization Problems
Constraint Satisfaction Problems
Algorithms in Graph Theory

Programming
C/C++, Perl, Java, Python, Matlab, R, Shell scripting, Awk

References

Available upon request.