

Prof. TOLGA CAN

Personal Information

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Biography

Tolga Can received his BS degree in computer engineering from Middle East Technical University, Turkey, in 1998 and his PhD degree in computer science from the University of California at Santa Barbara in 2004. He is currently a professor in the Computer Engineering Department, Middle East Technical University, Turkey. His main research interests include bioinformatics and scientific visualization. He has worked on protein structure visualization and alignment and on construction and analysis of large-scale protein-protein interaction networks.

Education Information

Doctorate, University Of California, Santa Barbara, Bilgisayar Bilimleri, United States Of America 2000 - 2004

Under Graduate, Middle East Technical University, Faculty of Engineering, Department of Environmental Engineering, Turkey 1994 - 1998

Research Areas

Computer Sciences, bioinformatics, Engineering and Technology

Academic Titles / Tasks

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2011 - Continues

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2007 - 2011

Lecturer, Middle East Technical University, Faculty of Engineering, Department of Computer Engineering, 2006 - 2007

Research Assistant, University Of California, Santa Barbara, College Of Engineering, Computer Science, 2000 - 2005

Professional Experience

Deputy Head of Department, Middle East Technical University, Faculty of Engineering, Department of Environmental Engineering, 2007 - 2010

Advising Theses

TARI Z. S., CAN T., Shape models based on elliptic pdes, associated energies, and their applications in 2d and 3d,

Doctorate, A.GENÇTAV(Student), 2018

CAN T., A layout algorithm for visualization of graph alignments, Post Graduate, A.AKARSU(Student), 2017

CAN T., Tools and techniques for assessing functional relevance of genomic loci, Doctorate, B.OTLU(Student), 2017

CAN T., A multiplex primer design algorithm for target amplification of continuous genomic regions, Doctorate, A.RAŞİT(Student), 2016

ÖZCENGİZ G., CAN T., Pattern search in pathogenic bacterial proteins for localization and secretory systems, Doctorate, O.ÖZCAN(Student), 2015

CAN T., ERSON BENSAN A. E. , Alternative polyadenylation dependent 3'-UTR changes in triple negative breast cancers, Doctorate, T.TUNCER(Student), 2015

CAN T., AYDIN SON Y., A multi-layered graphical model of the relation among SNPs, genes, and pathways based on subgraph search, Post Graduate, G.ERSOY(Student), 2015

CAN T., Determination of the effect of polyadenylation SLR values on microarray data classification, Post Graduate, Ü.ASLAN(Student), 2014

CAN T., Identification of interaction sites of G protein-coupled receptors using machine learning techniques, Doctorate, M.EMRE(Student), 2014

CAN T., A database query based solution for chemical compound and drug name recognition, Post Graduate, Ç.ATA(Student), 2014

CAN T., Integer linear programming based solutions for construction of biological networks, Doctorate, Ö.EREN(Student), 2014

ŞENER C., CAN T., Modeling of split step parabolic wave equation using the graphics processing unit, Post Graduate, S.SEKMEK(Student), 2014

ŞENER C., CAN T., GPU accelerated radio wave propagation modeling using ray tracing, Post Graduate, A.ZUBAROĞLU(Student), 2014

CAN T., Machine learning methods for using network based information in microRNA target prediction, Doctorate, M.SUALP(Student), 2013

CAN T., Prediction of polyadenylation sites by probe level analysis of microarray data, Post Graduate, Y.İLGÜNER(Student), 2013

CAN T., Analysis of 3'UTR shortening events in breast cancer, Post Graduate, O.BALOĞLU(Student), 2013

CAN T., AYDIN SON Y., A framework for gene co-expression network analysis of lung cancer, Post Graduate, E.AKDEMİR(Student), 2013

CAN T., Mining fungal effector candidates in biotrophic plant pathogens; rusts and mildews, Post Graduate, S.UĞUR(Student), 2012

CAN T., SINEC: Large scale signaling network topology reconstruction using protein-protein interactions and RNAi data, Post Graduate, S.HASHEMİKHABİR(Student), 2012

CAN T., Parallelization of functional flow to predict protein functions, Post Graduate, E.AKKOYUN(Student), 2011

CAN T., Machine learning methods for promoter region prediction, Post Graduate, H.ARSLAN(Student), 2011

CAN T., Reconstructing signaling pathways from RNAi data using genetic algorithms, Post Graduate, E.SERDAR(Student), 2011

CAN T., Identification of functionally orthologous protein groups in different species based on protein network alignment, Post Graduate, Ö.NEBİL(Student), 2010

CAN T., A distributed graph mining framework based on mapreduce, Post Graduate, S.ALKAN(Student), 2010

CAN T., A 3D topological tracking system for augmented reality, Post Graduate, M.ERCAN(Student), 2010

CAN T., A new approach for better load balancing of visibility detection and target acquisition calculations, Post Graduate, A.YİĞİT(Student), 2010

CAN T., A script based modular game engine framework for augmented reality applications, Post Graduate, M.FURKAN(Student), 2009

CAN T., Multi-resolution visualization of large scale protein networks enriched with gene ontology annotations, Post Graduate, S.YAŞAR(Student), 2009

CAN T., Prediction of protein-protein interactions from sequence using evolutionary relations of proteins and species, Post Graduate, T.DOĞACAN(Student), 2009

CAN T., Text classification in Turkish marketing domain and context-sensitive ad distribution, Post Graduate,

M.ENGİN(Student), 2009

CAN T., Coevolution based prediction of protein-protein interactions with reduced training data, Post Graduate, B.PAMUK(Student), 2009

ATALAY M. V. , CAN T., A classification system for the problem of protein subcellular localization, Post Graduate, G.ALAY(Student), 2007

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- **JOA: Joint Overlap Analysis of multiple genomic interval sets**
Otlu B., Can T.
BMC BIOINFORMATICS, vol.20, 2019 (Journal Indexed in SCI)
- **Alternative Polyadenylation Patterns for Novel Gene Discovery and Classification in Cancer**
BEGİK O., ÖYKEN M., ALICAN T. C. , CAN T., Erson-Bensan A. E.
NEOPLASIA, vol.19, pp.574-582, 2017 (Journal Indexed in SCI)
- **A multiplex primer design algorithm for target amplification of continuous genomic regions**
OZTURK A. R. , CAN T.
BMC BIOINFORMATICS, vol.18, 2017 (Journal Indexed in SCI)
- **Comparison of tissue/disease specific integrated networks using directed graphlet signatures**
Sonmez A. B. , Can T.
BMC BIOINFORMATICS, vol.18, 2017 (Journal Indexed in SCI)
- **SUMONA: A supervised method for optimizing network alignment**
TUNCAY E. G. , Can T.
COMPUTATIONAL BIOLOGY AND CHEMISTRY, vol.63, pp.41-51, 2016 (Journal Indexed in SCI)
- **Alternative Polyadenylation: Another Foe in Cancer**
Erson-Bensan A. E. , CAN T.
MOLECULAR CANCER RESEARCH, vol.14, pp.507-517, 2016 (Journal Indexed in SCI)
- **3 ' UTR shortening and EGF signaling: implications for breast cancer**
AKMAN H. B. , ÖYKEN M., TUNCER T., CAN T., Erson-Bensan A. E.
HUMAN MOLECULAR GENETICS, vol.24, pp.6910-6920, 2015 (Journal Indexed in SCI)
- **Reconstruction of the temporal signaling network in Salmonella-infected human cells**
Budak G., Ozsoy O. E. , Son Y., Can T., Tunçbağ N.
FRONTIERS IN MICROBIOLOGY, vol.6, 2015 (Journal Indexed in SCI)
- **The ChEMBL corpus of chemicals and drugs and its annotation principles**
Krallinger M., Rabal O., Leitner F., Vazquez M., Salgado D., Lu Z., Leaman R., Lu Y., Ji D., Lowe D. M. , et al.
JOURNAL OF CHEMINFORMATICS, vol.7, 2015 (Journal Indexed in SCI)
- **Div-BLAST: Diversification of Sequence Search Results**
Eser E., CAN T., Ferhatosmanoglu H.
PLOS ONE, vol.9, 2014 (Journal Indexed in SCI)
- **GPCRsort-Responding to the Next Generation Sequencing Data Challenge: Prediction of G Protein-Coupled Receptor Classes Using Only Structural Region Lengths**
Sahin M. E. , Can T., Son Ç. D.
OMICS-A JOURNAL OF INTEGRATIVE BIOLOGY, vol.18, pp.636-644, 2014 (Journal Indexed in SCI)
- **Identification of Novel Reference Genes Based on MeSH Categories**
Ersahin T., ÇARKACIOĞLU L., CAN T., Konu O., Atalay V., Cetin-Atalay R.
PLOS ONE, vol.9, 2014 (Journal Indexed in SCI)
- **A Divide and Conquer Approach for Construction of Large-Scale Signaling Networks from PPI and RNAi Data Using Linear Programming**
Ozsoy O. E. , Can T.
IEEE-ACM TRANSACTIONS ON COMPUTATIONAL BIOLOGY AND BIOINFORMATICS, vol.10, pp.869-883, 2013 (Journal Indexed in SCI)

- **Estrogen-induced upregulation and 3'-UTR shortening of CDC6**
AKMAN B. H. , CAN T., Erson-Bensan A. E.
NUCLEIC ACIDS RESEARCH, vol.40, pp.10679-10688, 2012 (Journal Indexed in SCI)
- **Large-Scale Signaling Network Reconstruction**
Hashemikhabir S., Ayaz E. S. , Kavurucu Y., Can T., Kahveci T.
IEEE-ACM TRANSACTIONS ON COMPUTATIONAL BIOLOGY AND BIOINFORMATICS, vol.9, pp.1696-1708, 2012
(Journal Indexed in SCI)
- **Using network context as a filter for miRNA target prediction**
Sualp M., Can T.
BIOSYSTEMS, vol.105, pp.201-209, 2011 (Journal Indexed in SCI)
- **METADATA MANAGEMENT AND SEMANTICS IN MICROARRAY REPOSITORIES**
Kocabas F., CAN T., BAYKAL N.
BALKAN JOURNAL OF MEDICAL GENETICS, vol.14, pp.49-63, 2011 (Journal Indexed in SCI)
- **Bi-k-bi clustering: mining large scale gene expression data using two-level biclustering**
Carkacioglu L., Atalay R. C. , KONU KARAKAYALI Ö., Atalay V., CAN T.
INTERNATIONAL JOURNAL OF DATA MINING AND BIOINFORMATICS, vol.4, pp.701-721, 2010 (Journal Indexed in SCI)
- **RRW: repeated random walks on genome-scale protein networks for local cluster discovery**
MACROPOL K., Can T., Singh A. K.
BMC BIOINFORMATICS, vol.10, 2009 (Journal Indexed in SCI)
- **Integration of topological measures for eliminating non-specific interactions in protein interaction networks**
BAYIR M. A. , GUNAY T. D. , Can T.
DISCRETE APPLIED MATHEMATICS, vol.157, pp.2416-2424, 2009 (Journal Indexed in SCI)
- **Discovering functional interaction patterns in protein-protein interaction networks**
Turanalp M. E. , Can T.
BMC BIOINFORMATICS, vol.9, 2008 (Journal Indexed in SCI)
- **Efficient molecular surface generation using level-set methods**
Can T., Chen C., Wang Y.
JOURNAL OF MOLECULAR GRAPHICS & MODELLING, vol.25, pp.442-454, 2006 (Journal Indexed in SCI)
- **Integrating multi-attribute similarity networks for robust representation of the protein space**
Camoglu O., Can T., Singh A. K.
BIOINFORMATICS, vol.22, pp.1585-1592, 2006 (Journal Indexed in SCI)

Books & Book Chapters

- **Introduction to Bioinformatics**
CAN T.
in: miRNomics MicroRNA Biology and Computational Analysis, Yousef Malik, Allmer Jens, Editor, Springer
Protocols, pp.51-71, 2013

Refereed Congress / Symposium Publications in Proceedings

- **Transcription Elongation in Connection to 3'UTR Ends**
ÖZGÜL İ., CAN T., ERSON BENSAN A. E.
Moleküler Biyoloji Kongresi MolBiyokON18, İzmir, Turkey, 5 - 08 September 2018, pp.20
- **Deregulated APA and cancer specific APA isoforms**
Begik O., Ercan M., Cingoz H., CAN T., ÖYKEN M., Erson-Bensan A. E.
Annual Meeting of the American-Association-for-Cancer-Research (AACR), Illinois, United States Of America, 14 -

18 April 2018, vol.78

APA isoform diversity in triple negative breast cancers

AKMAN TUNCER H. B. , ÖYKEN M., AĞUŞ H. H. , ERDEM M., YAVUZ E., CAN T., ERSON BENSAN A. E.

AACR Annual Meeting, USA, Washington, United States Of America, 1 - 05 April 2017, vol.77, pp.3374

3 ' UTR lengths change in connection with estrogen receptor-alpha in breast cancer

ÖYKEN M., CAN T., Erson-Bensan A. E.

41st FEBS Congress on Molecular and Systems Biology for a Better Life, Kusadasi, Turkey, 3 - 08 September 2016, vol.283, pp.207

Unsupervised identification of redundant domain entries in InterPro database using clustering techniques

RİFAİOĞLU A. S. , DOĞAN T., CAN T.

6th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics, BCB 2015, Georgia, United States Of America, 9 - 12 September 2015, pp.505-506

Dbchem A database query based solution for the chemical compound and drug name recognition task

ATA Ç., CAN T.

Proceedings of the Fourth BioCreative Challenge Evaluation Workshop, BioCreative IV,, 1 - 03 October 2013, vol.2, pp.42-46

CONSTRUCTING SIGNALING PATHWAYS FROM RNAI DATA USING GENETIC ALGORITHMS

Ayaz E. S. , CAN T.

6th International Symposium on Health Informatics and Bioinformatics (HIBIT), İzmir, Turkey, 2 - 05 May 2011, pp.95-98

Parallel SPICi

Hashemikhabir S., CAN T.

6th International Symposium on Health Informatics and Bioinformatics (HIBIT), İzmir, Turkey, 2 - 05 May 2011, pp.86-90

The effect of representative training dataset selection on the classification performance of the promoter sequences

YAMAN A. G. , CAN T.

6th International Symposium on Health Informatics and Bioinformatics, HIBIT 2011, İzmir, Turkey, 2 - 05 May 2011, pp.55-58

Text Classification in the Turkish Marketing Domain for Context Sensitive Ad Distribution

Engin M., Can T.

24th International Symposium on Computer and Information Sciences, Güzelyurt, Cyprus (Kktc), 14 - 16 September 2009, pp.105-110

Human Skeletal and Muscle Deformation Animation Using Motion Capture Data

Bayer A. O. , Sevinc A. M. , CAN T.

16th International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision, Plzen, Czech Republic, 4 - 07 February 2008, pp.167-168

Analysis of protein-protein interaction networks using random walks

Can T., Orhan Ç., Singh A. K.

5th International Workshop on Bioinformatics, BIODDD 2005 - In Conjunction with 11th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, KDD 2005, Chicago, IL, United States Of America, 21 August 2005, pp.61-68

CTSS: A robust and efficient method for protein structure alignment based on local geometrical and biological features

Can T., WANG Y.

2nd International Computational Systems Bioinformatics Conference, California, United States Of America, 11 - 14 August 2003, pp.169-179

Supported Projects

ERSON BENSAN A. E. , GÜLEZ B., ÖZKAN S., BANERJEE S., CAN T., Project Supported by Higher Education Institutions, Yaygın kanser tiplerinde transkriptom 3'UTR isoform çeşitliliğinin incelenmesi, 2017 - 2019

CAN T., Project Supported by Higher Education Institutions, G-Proteini Kenetli Reseptörlerin Etkileşimleri:hesaplamalı Yöntemlerin Ve Deneysel Çalışmaların Sentezlenmesi., 2010 - 2019

SON Ç. D. , ÇELEBİ M., CAN T., Project Supported by Higher Education Institutions, G-proteine kenetli reseptörlerin etkileşim bölgelerinin işlemsel olarak 3D modellenmesi, 2017 - 2017

MUYAN M., ERSON BENSAN A. E. , CAN T., Project Supported by Higher Education Institutions, Meme Kanseri Model Hücrelerinde Tüm Genom Düzeyinde RNA Ekspresyon Analizleri, 2015 - 2016

ERSON BENSAN A. E. , ozdemir n., CAN T., Project Supported by Higher Education Institutions, CDC6 alternatif poliadenilasyonunun meme kanseri hücrelerinde incelenmesi, 2013 - 2015

Patent

CAN T., APADetect: Alternatif Poliadenilasyon Tespiti, Patent, CHAPTER G Physics, Initial Registration, 2016

Citations

Total Citations (WOS):438

h-index (WOS):11