PART I: General Information

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Education:

Year	*Degree*	*Institution*
1996	B.S.	Electrical and Electronics Engineering, Bogazici University, Istanbul, Turkey
1997	M.S.	Electrical and Electronics Engineering, Bogazici University, Istanbul, Turkey
2002	Ph.D.	Electrical Engineering, University of Nebraska-Lincoln, USA

Academic Appointments:

Year	*Title*	*Institution*
1996-1997	Teaching Asst.	Bogazici University, Department of Electrical and Electronics Engineering
1997-2000	Teaching Asst.	University of Nebraska-Lincoln, Department of Electrical Engineering
2000-2002	Instructor of EE	University of Nebraska-Lincoln, Department of Electrical Engineering
2002-2003	Research Fellow	Harvard Medical School, Boston, MA
2003- 2012	Instructor of Medicine	Harvard Medical School, Boston, MA
2010-2013	Assistant Prof.	Istanbul Bilgi University Department of Bioengineering, Istanbul, Turkey
2013-	Professor	University of Nebraska-Lincoln, Department of Electrical Engineering (Tenure 2013)

Visiting and Other Academic Appointments:

Year	*Title*	*Institution*
2005- 2008	Adjunct Instructor	Boston Uni. Bioinformatics Program, Boston, MA
2005- 2006	Teaching Instructor	Northeastern University Department of Biology, Graduate Program in Bionformatics, Boston, MA
2006-2007	Assistant Prof.	Yeditepe University Department of Genetics and Bioengineering, Istanbul, Turkey
2008	Assistant Prof.	Sabanci University Department of Biological Sciences and Bioengineering, Istanbul, Turkey

Major Administrative Responsibilities:

Year	*Title*	*Institution*
2003-2007	Director	Bioinformatics Core, BIDMC Genomics Center
2004-2012	Associate Director	Dana-Farber/Harvard Cancer Center Proteomics Core
2006-2008	Steering Committee	Biotechnology Institute, Yeditepe University
2007-2012	Associate Director	Bioinformatics Core, BIDMC Genomics Center
2010-2013	Chair	Department of Bioengineering, Istanbul Bilgi U.
2016-	Advisory Committee	Department of Bioengineering, Istanbul Bilgi U.

Professional Societies:

Year	*Role*	*Society*
2004-	Member	American Association for the Advancement of Science
2004-	Member	International Society for Computational Biology

Editorial Boards and Program Committees:

Year	*Role*	*Journal/Conference*
2000-	Ad hoc reviewer	IEEE Transactions on Communications, Bioinformatics, Systematic Biology, Journal of Computational Chemistry, Journal of Molecular Modeling, Cancer Informatics, Journal of Molecular Evolution, BMC Bioinformatics, BMC Medical Genomics, Journal of Computational Biology, Molecular Simulation, The Computer Journal, African Journal of Biotechnology, European Journal of Human Genetics, Journal of Theoretical Biology, Acta Biotheoretica, Journal of Heredity, IEEE/ACM Transactions on Computational Biology and Bioinformatics, Anatolian Journal of Cardiology, Biometrical Journal, Data Compression Conference, Entropy, Electro-Information Technology Conference, Nature Scientific Reports, PLOS One, Statistical Bioscience, Current Bioinformatics
2010-2017	Associate Editor	EURASIP Journal on Bioinformatics and Systems Biology
2011	PC Co-chair	The 6th International Symposium on Health Informatics and Bioinformatics, (HIBIT)
2012	Organizer	Workshop, “Bioinformatics Approaches for Analysis of High-throughput Biological Data”, International Centre for Genetic Engineering and Biotechnology
2013-2017	Associate Editor	Advances in Biology
2014-	Editor in Chief	Journal of Bioinformatics, Computational and Systems Biology
2014-	Associate Editor	Journal of Bioinformatics, Proteomics and Imaging Analysis

2017	Member	Technical Program Committee Electro-Information Technology Conference
2017	Member	Program Committee International Symposium on Integrative Bioinformatics
2018-	Associate Editor	Advances in Bioinformatics

Awards and Honors:

Year	*Name of Award*
1992	Turkish Government scholarship for undergraduate studies (Ranked 27th Nationwide)
1997	Turkish Oil Foundation monetary award for graduate studies
2001	Ranked 1st in Graduate Student Research Paper Competition, Department of Electrical Engineering, University of Nebraska-Lincoln
2001	Travel Award, 3rd Georgia Tech-Emory International Conference on Bioinformatics
2003	Cited by the National Physical Laboratory of the United Kingdom in its recommendations to the UK government as work that should be studied in order to meet future challenges in the bioinformatics area in NPL Report CMSC 23/03 Report to the National Measurement System Directorate, Department of Trade and Industry New Directions – Software Issues in Bioinformatics
2003	Invited Presentation and Travel Award, International Stem Cell Conference, Singapore
2003	Best Study Award, "Transcriptional Profiling for Detection of a Gene Signature in Renal Cell Cancer" 55th Congress of the German Urological Society, Hamburg.
2004	Second Best Study Award, "Gene expression profiles in Renal Cell Cancer: Characterization of gene signatures in various histological subtypes and application of a metastatic signature" 56th Congress of the German Urological Society, Hamburg.
2008	Research Grant Award, Dubai Harvard Foundation for Medical Research
2017	Outstanding Paper, Second Place Award, The International Conference on Electro-Information Technology.

Part II: Research, Teaching, and Clinical Contributions

A. Narrative Report of Research, Teaching, and Clinical Contributions.

My career to date has involved research in Information Theory and Bioinformatics, which involves computational methods to organize and analyze biological data. My earlier work was in the areas of image compression and joint source/channel coding. With the availability of genomic sequences, my interest shifted into bioinformatics by trying to understand how information is organized in DNA sequences. Using Information Theory, I developed characterizations of this organization, with applications to fragment assembly and phylogeny reconstruction which led to two US patents.

My research at Harvard Medical School (HMS) focused on management and analysis of high-throughput biological data (HTBD) in the context of functional genomics and proteomics. These included, but were not limited to, transcription profiling (e.g. Affymetrix GeneChip system), proteomics (e.g. SELDI TOF, MALDI TOF/TOF), and genotyping (e.g. Affymetrix SNP arrays) efforts targeting questions in computational biology, systems biology, cancer, stem cells, heart disease, diabetes, and obesity. As the director of Bioinformatics Core at BIDMC Genomics Center, I managed the core to establish a state-of-the-art computer infrastructure and a research web portal (www.bidmcgenomics.org), which functioned as the front end for automated experiment ordering, data storage and analysis. As part of this portal, we designed databases for various data types

including gene microarrays and protein chips. We developed embedded analysis tools and analytical methods for HTBD, which resulted in two stand alone computer programs. Specifically, I focused on problems regarding data normalization, differential expression, clustering, functional group/pathway analysis and biomarker discovery.

Currently I have been working on analysis of HTBD within the context of networks, along the lines of systems biology. We use probabilistic graph models, e.g Bayesian Networks, to answer two questions: (i) what are the active known pathways given experimental data? (ii) what are the interaction networks based on observed data? Our goal is to incorporate existing biological knowledge in interpreting specific experimental results in the context of pathways. I have also recently led next-generation sequencing projects regarding whole genome sequencing and metagenomics.

In addition to research efforts, I have supervised and trained summer interns, IT personnel, BS, MS, and PhD students totaling around 30 people over the last 16 years. My teaching experience involves assisting in undergraduate Electrical Engineering (EE) courses at Bogazici University and University of Nebraska-Lincoln (UNL), teaching undergraduate/graduate EE, Bioinformatics, and Bioengineering courses at UNL, Northeastern University, Yeditepe University, Sabanci University, Acibadem University and Istanbul Bilgi University.

B. Funding Information

2002-2003	NIH/NIDDK; Project No: 5U24DK058739-03; "NIDDK Biotechnology Center"; Libermann (PI); $595,856; Role: Investigator
2002-2007	NIH/NCI; Project No: PO1 CA92664-03; "Spatial and Temporal Regulation of Angiogenesis"; Dvorak (PI); $141,237; Role: Investigator
2003-2005	NIH/NIAID; Project No: P01 AI041521; "Costimulation and Cytokines in Tolerance"; Turka (PI); $1,459,884; Role: Investigator
2003-2005	NIH/NCI; Project No: 1R21 CA108303-01; "Proteomics and Biomarkers for Hepatocellular Cancer"; Afdahl (PI); $100,000; Role: Investigator
2004-2009	NIH/NCI; Project No: P01 HL076540; "Endothelial Cell Phenotypes in Health and Disease", Aird (PI); $80,000; Role: Investigator
2005-2007	NIH/NIAID; Project No: R21 CA107352-01; "Novel Approaches to Gene Profiling in Ovarian Cancer"; Libermann (PI); $86,000; Role: Investigator
2006-2010	Michigan State University-NAY Project; Project No: MSU 95464; "Direct Dedifferentiation of Primary Somatic Cells", Cibelli (PI); Role: Consultant
2007-2010	King Abdulaziz City for Science and Technology; Project No: 26-64; "Camel Genome Project Phase I"; Al-Swailem (PI), Otu (Co-PI); $519,281.
2009-2012	The Dubai Harvard Foundation for Medical Research; "Analysis of high-throughput genomic data using an integrated approach; Otu (PI); $182,000
2011-2013	Istanbul Bilgi University Research Fund; "Human Whole Genome Sequencing" Otu (PI); $25,000
2011-2013	The Scientific and Technological Research Council of Turkey; Project No: 111E042; "Bayesian Network Analysis of High Throughput Biological Data: A Systems Biology Approach"; Otu (PI); $85,000
2016-2019	NIH/NIA; Project No: R01AG051658; "Advancing the Understanding of Postoperative Delirium Mechanisms via Multi-Omics"; Marcantonio/Libermann (MPI's), Otu (Co-PI); ~$2.3M

2018-2020 NIH/NLM; Project No: R21LM012759; "Identification and characterization of interaction atlases in human"; Otu (PI); $443,862

2018-2024 NIH/NIA; Project No: P01AG031720; "Delirium, Dementia, and the Vulnerable Brain: An Integrative Approach"; Inouye (PI); "The role of inflammation in the pathophysiology of delirium and its associated long term cognitive decline (Project 2)"; Marcantonio/Libermann (MPI's), Otu (Co-PI); ~$13.6M

Pending/In Preparation:

Electrochemical Chip to Profile Circulating miRNA at Attomolar Level with Zero Background (Submitted as a BRG R01, Saraf – PI, Otu – Co-PI)

Identification of Multi-Species and Next-Generation Probiotics Using Interaction and Association Networks (NIH R21, Can – PI, Otu – Co-PI)

Increasing the Efficiency of Zebrafish Somatic Cell Nuclear Transfer Using Multi-Omic-Based Methods (NIH R21, Cibelli – PI, Otu – Co-PI)

Pathway Connectivity Maps: Bisociation of Interaction Networks Using Network Pruning and Compressive Sensing (To be submitted as an NIH R01, Otu – PI)

C. Report of Current Research Activities

Project	*Role*
Gene Interaction Atlas Generation	Method Development/Supervision
Applications of Random Matrix Theory on Biological Networks	Method Development/Supervision
Predictive Models for Methylation Disposition of CpG Islands	Method Development/Supervision
Probabilistic Graph Representations for Multi-omic Data Integration	Method Development/Supervision
Comparative Analysis of Gastrointestinal Cancers using Network Theory	Method Development/Supervision
Correlation Network/Pathway Analysis using Network Pruning, Bisociation, and Compressive Sensing	Method Development/Supervision
Biomarker discovery in NASH disease	Method Development/ Data Analysis (w/Harvard Medical School)
TGFB3 involvement in cleft palate	Method Development/ Data Analysis (w/UNMC)
Effect of Simvastatin in Bone Regenaration Following Dental Grafts	Method Development/ Data Analysis (w/UNMC)
Exosome Proteomics	Method Development/ Data Analysis (w/Harvard Medical Scool)
Multi-omics of Delirium	Method Development/ Data Analysis/Leadership/Training (w/Harvard Medical School)

Mechanisms of Cellular Reprogramming	Method Development/Data Analysis (w/Michigan State University)
Probiotic Identification	Method Development/ Data Analysis
Proteomics of IBD	Method Development/ Data Analysis (w/Harvard Medical School)

D. Report of Teaching

Graduate and Undergraduate Courses

i. Bogazici University, Istanbul, Turkey

1996 Department of Electrical and Electronics Engineering. EE 374 Communication Engineering (current listing). Lecturer. ~20 senior EE students. Teaching: 2 hrs/week. Preparation: 3hrs/week. Duration: Fall Semester.

1997 Department of Electrical and Electronics Engineering. EE 477 Digital Communications (current listing). Lecturer. ~20 senior EE students. Teaching: 2 hrs/week. Preparation: 3hrs/week. Duration: Spring Semester.

1997 Department of Electrical and Electronics Engineering. EE 210 Introduction to Electrical Engineering (current listing). Lecturer. ~50 sophomore/junior EE students. Teaching: 2 hrs/week. Preparation: 3hrs/week. Duration: Spring Semester.

ii. University of Nebraska-Lincoln, Lincoln, NE USA

2000-2002 Department of Electrical Engineering ELEC 464/864 Digital Communication Systems. Core Faculty. ~10 senior Electrical Engineering students and ~10 Electrical Engineering graduate students. Teaching: 3hrs/week. Preparation: 5hrs/week. Duration: Spring Semester (each year).

2000-2002 Department of Electrical Engineering. ELEC 462/862 Communication Systems. Core Faculty. ~10 senior Electrical Engineering students and ~10 Electrical Engineering graduate students. Teaching: 3hrs/week. Preparation: 5hrs/week. Duration: Fall Semester (each year).

2013- Department of Electrical and Computer Engineering. ELEC 450/850 Bioinformatics. Core Faculty. ~15 senior/graduate engineering students. Teaching: 3hrs/week. Preparation: 5hrs/week. Duration: Fall Semester (each year).

2013- Department of Electrical and Computer Engineering. ELEC 498/898 (later received the permanent course number ELEC 453/853) Computational and Systems Biology. Core Faculty. ~15 senior/graduate engineering students. Teaching: 3hrs/week. Preparation: 5hrs/week. Duration: Spring Semester (each year).

2016-	Department of Electrical and Computer Engineering. ELEC 996 Bayesian Networks. Core Faculty. ~15 graduate engineering/sciences students, Teaching: 3hrs/week. Preparation: 5hrs/week. Duration: Spring Semester (each odd year).
2016-	Department of Electrical and Computer Engineering. ECEN 215 Electronics and Circuits I. Core Faculty. ~90 undergraduate engineering/sciences students, Teaching: 3hrs/week. Preparation: 5hrs/week. Duration: Fall Semester (each year).
iii.	Northeastern University, Boston, MA USA
2005	Biology Department, Graduate Program in Bioinformatics. BIO G385, Seminar in Bioinformatics. Core Faculty. ~5 Bioinformatics graduate students. Teaching: 2hrs/week. Preparation: 5hrs/week. Duration: Fall Semester.
iv.	Yeditepe University Istanbul, Turkey
2006	Department of Genetics and Bioengineering GBE 313, Experimental Bioengineering Lab. Core Faculty. 6 GBE undergraduate students. Teaching: 4hrs/week. Preparation: 5hrs/week. Duration: Fall Semester.
2007	Department of Genetics and Bioengineering GBE 311, Principles of Bioengineering. Core Faculty. 13 GBE undergraduate students. Teaching: 3hrs/week. Preparation: 5hrs/week. Duration: Spring Semester.
v.	Sabanci University Istanbul, Turkey
2008	Department of Biological Sciences and Bioengineering BIO 512, Advanced Computational Biology. Core Faculty. 3 graduate students; 9 participants. Teaching: 3hrs/week. Preparation: 7hrs/week. Duration: Spring Semester.
vi.	Acibadem University Istanbul, Turkey
2010	Medical School, MED 106, Medical Informatics. Core Faculty. 23 undergraduate students. Teaching: 5hrs/week. Preparation: 5hrs/week. Duration: Spring Semester.
vii.	Istanbul Bilgi University Istanbul, Turkey
2010	College of Engineering, ENG 179, Engineering in Society. Guest Lecturer. 12 undergraduate students. Teaching: 3hrs lecture on Human Genome Project. Duration: Fall Semester.
2011	College of Engineering, ENG 180, Engineering and Sciences. Adjunct Faculty. 43 undergraduate students. Teaching: 10hrs lecture on Introduction to Bioengineering. Duration: Spring Semester.

2011	College of Engineering, PHYS 101 Physics I. Adjunct Faculty. 43 undergraduate students. Teaching: Problem Sessions 2hrs/week. Duration: Spring Semester.
2011	College of Engineering, PHYS 100 Physics for Scientists and Engineers. Faculty. ~60 undergraduate students. Teaching: Lecture, 2 sections, 3 hrs/week per section. Problem Sessions / Laboratory, 3 sections, 2hrs/week per section. Duration: Fall Semester.
2012	College of Engineering, PHYS 100 Physics for Scientists and Engineers. Faculty. ~45 undergraduate students. Teaching: Lecture, 3 hrs/week. Duration: Spring Semester.
2012	College of Engineering, ENGR 230 Probability and Random Processes. Faculty. ~30 undergraduate students. Teaching: Lecture, 2 hrs/week. PS / Lab, 2hrs/week. Duration: Spring Semester.
2012	College of Engineering, PHYS 100 Physics for Scientists and Engineers. Faculty. ~65 undergraduate students. Teaching: Lecture, 3 hrs/week. Duration: Fall Semester.
2012	College of Engineering, BIOE 341 Bioinformatics. Faculty. ~10 undergraduate students. Teaching: Lecture, 2 hrs/week. PS / Lab, 2hrs/week. Duration: Fall Semester.
2013	College of Engineering, BIOE 346 Microarrays. Faculty. 8 undergraduate students. Teaching: Lecture, 3 hrs/week. Duration: Spring Semester.
2013	College of Engineering, BIOE 241 Fundamentals of Biostatistics and Experimental Design. Faculty. ~30 undergraduate students. Teaching: Lecture, 3 hrs/week. PS / Lab, 2hrs/week. Duration: Spring Semester.

Local Invited Teaching Presentations

2002	Characterization of DNA Sequences. BIDMC Genomics Center Invited Lecture. Attending: ~20 HMS Faculty, Post-doctoral Fellows and Residents. Presentation and Follow-up: 5 hrs. Preparation: 20 hrs.
2003	Networks. BIDMC Genomics Center Core Meeting. Attending ~15 Post-doctoral Fellows and Residents. Presentation: 1 hr. Preparation: 10 hrs.
2004	Bioinformatics Core at BIDMC Genomics Center. MIT CSBI BioMicro Center. ~50 Faculty, Post-doctoral fellows and graduate students. Presentation and Follow-up: 2 hrs. Preparation: 10 hrs.
2005	Progress of Challenges in Bioinformatics: From Sequence to Function to Networks. Boston University Bioinformatics Program. ~20 Faculty, Post-doctoral fellows and graduate students. Presentation and Follow-up:5 hrs. Preparation: 20 hrs.

Advisees and trainees

2003	Jian Li	PhD student at Baylor College of Medicine
2003	Charles Bailey	Student at Tufts School of Veterinary Medicine
2003	Chris Porter	Children's Hospital IT department
2003	Osman Osman	Student at MIT EECS Dept.

2003-2006	Shakir A. Kolia	Research Associate at BIDMC Genomics Center Bioinformatics Core
2005-2006	Taehyun Park	Research Associate at BIDMC Genomics Center
2006-2008	Al-Arawi MS, Al-Khider AY, Al-Muhaimeed AN, Al-Qahtani FH, Al-Manee MM, Al-Shomrani BM (KACST Bioinformatics Group)	
2007-2013	Senol Isci	PhD student at Bogazici University Biomedical Engineering Institute
2007-2009	Caner Akdemir	Undergraduate student at Yeditepe University Department of Computer Engineering and Department of Genetics and Bioengineering
2007-2011	Cem Meydan	PhD student at Sabanci University Department of Biological Sciences and Bioengineering
2007-2011	Aydin Albayrak	PhD student at Sabanci University Department of Biological Sciences and Bioengineering
2007-2011	Yasin Bakis	PhD student at Sabanci University Department of Biological Sciences and Bioengineering
2010-2013	Haluk Dogan	Teaching Assistant at Istanbul Bilgi University, Department of Bioengineering and MS student at Bogazici University Department of Computer Engineering
2011-2013	Umut Agyuz	MS Student, Bogazici University Institute of Biomedical Engineering
2011-2013	Melike Korucuoglu	MS Student, Bogazici University Department of Computer Engineering
2013-2016	Haluk Dogan	PhD student at University of Nebraska-Lincoln, Department of Electrical and Computer Engineering
2014-2016	Zeynep Hakguder	PhD student at University of Nebraska-Lincoln, Department of Electrical and Computer Engineering
2014-	Dicle Yalcin	PhD student at University of Nebraska-Lincoln, Department of Electrical and Computer Engineering
2016-	Sree Chanumolu	Postdoctoral researcher at University of Nebraska-Lincoln, Department of Electrical and Computer Engineering
2017-	Mustafa Albahrani	Adjunct Research Scientist
2017-	Bridget Tripp	PhD student at University of Nebraska-Lincoln, Program in Complex Biosystems
2018	Yu Shi	PhD student at University of Nebraska-Lincoln, Program in Complex Biosystems (rotation)
2018-	Beibei Xong	Undergrad researcher through UCARE

Regional, national, or international contributions

1997	A Compression Algorithm that Preserves NDVI and NDWI Values. Conference Presentation. Asilomar Conference on Circuits, Systems and Computers. Monterey, California, USA.
1998	A Joint Source Channel Coder with Block Constraints. Conference Presentation. IEEE International Conference on Acoustics, Speech, and Signal Processing. Seattle, Washington, USA.
1999	Issues in Joint Source Channel Coding. Seminar. UNL EE Dept. Journal Club. Lincoln, NE USA.
2001	A New Approach to Sequence Assembly Using Divide and Conquer Algorithms. Conference Presentation. 3rd Georgia Tech-Emory International Conference on Bioinformatics. Atlanta, Georgia, USA.
2002	An Information-theoretic Sequence Distance Measure with applications to Phylogeny Analysis. Seminar. UNL EE Dept. Journal Club. Lincoln, NE USA.
2004	A Seminar in Bioinformatics: Looking for Familiar Faces in the Neighborhood. Invited Lecture. Bogazici University, Institute of Biomedical Engineering, Istanbul, Turkey.
2004	Challenges in Bioinformatics: DNA Sequence Analysis and Frontiers in Functional Genomics. Invited Lecture. Sabanci University, Faculty of Engineering and Natural Sciences, Istanbul, Turkey.
2004	From Sequence to Function: Issues in Computational Biology. Invited Lecture. Koc University, Department of Chemical and Biological Engineering, Istanbul, Turkey.
2006	Progress of Challenges in Bioinformatics: From Sequence to Function to Networks. Invited Lecture. Yeditepe University, Department of Genetics and Bioengineering, Istanbul, Turkey.
2007	Challenges in Bioinformatics: Invited Lecture. King Abdulaziz City for Science and Technology, Riyadh, KSA.
2007	Experimental Design and Analysis of High-Throughput Biological Data. Invited Lecture. Sabanci University, Faculty of Engineering and Natural Sciences, Istanbul, Turkey.
2007	DNA Sequence Analysis and Applications in Functional Genomics. Seminar. Bogazici University, Institute of Biomedical Engineering, Istanbul, Turkey.
2007	Algorithmic and practical approaches to issues in Bioinformatics. Seminar. Izmir Institute of Technology, Izmir, Turkey.
2008	Computational Approaches in DNA Sequence Analysis and Functional Genomics and Proteomics. Seminar. Bilgi University, Istanbul, Turkey.
2008	Computational Approaches in DNA Sequence Analysis and Functional Genomics and Proteomics. Seminar. Halic University, Istanbul, Turkey.
2009	Biomarker Discovery – Pregnancy Success. Seminar. Michigan State University, East Lansing, MI USA
2009	Analysis and Applications of High-throughput Biological Data. Seminar. University of Nebraska Medical Center, Lincoln/Omaha, NE USA
2009	Bioinformatic Approaches for High-throughput Biological Data Analysis. Seminar. Middle East Technical University, Ankara, Turkey

2010	Looking for Familiar Faces in the Old Neighborhood. Invited Lecture. Bogazici University, Department of Electrical and Electronics Engineering, Istanbul, Turkey.
2010	From Sequence to Function to Networks: Analysis Issues in Bioinformatics. Istanbul Technical University, Program in Biomedical Engineering, Istanbul, Turkey.
2010	Sequence, Function, and Networks based Analysis Issues in Bioinformatics. Istanbul University, Institute for Experimental Medicine, Istanbul, Turkey. Similar talk is given at N.K.U. Faculty of Engineering Corlu, Tekirdag, Kadir Has University, Fatih University, Bogazici University (Department of Computer Engineering), Bilgi University, Pakize Tarzi Laboratories, all in Istanbul, Turkey
2010	Algorithms in Bioinformatics, 9th National Medical Genetics Congress, Istanbul Turkey
2011	Contemporary Issues in and Applications of Computational Biology, Inonu University, School of Medicine, Malatya, Turkey
2011	Bioengineering Education in Turkey, Yildiz Technical University, Bioengineering Days.
2011	Bayesian Network based pathway analysis of microarray data, European Biotechnology Congress, Istanbul, Turkey
2012	Systems Biology, Bogazici University, Molecular Biology and Genetics Weekend, Istanbul, Turkey
2012	Bioinformatics, ITU Biotech, Istanbul, Turkey
2012	A Crash Course on Microarray Data Analysis, DONE Genetics and Bioinformatics, Istanbul, Turkey
2012	Bayesian Pathway Analysis, Sabanci University, Istanbul, Turkey
2012	HTBD Analysis within a BN Framework, Istanbul University, Institute for Experimental Medicine, Istanbul, Turkey.
2014	Pathway Analysis of Biological Data using Bayesian Networks. University of Nebraska Medical Center, Omaha, NE USA
2018	Keynote Speaker, UNL Plant Science Retreat Network Analysis of Multiomic Data Using Probabilistic Graph Representations
2019	Probabilistic Graph Models for Biological Data Analysis Using External Knowledge. Northwestern University, Evanston, IL USA
2019	Bioinformatics @ ECE, External Advisory Board Meeting, Electrical and Computer Engineering, UNL, Lincoln, NE USA

Description of major curriculum offerings, teaching cases or innovative educational programs developed

2007	Development of Undergraduate Curriculum at Yeditepe Univeristy, Department of Genetics and Bioengineering, Istanbul, Turkey.
2007	Development of Graduate Curriculum (both MS and PhD) at Yeditepe University, Bioengineering Institute, Istanbul, Turkey.
2010	Development of Undergraduate Curriculum at Istanbul Bilgi Univeristy, Department of Bioengineering, Istanbul, Turkey.
2013	Development of Bioinformatics Program at University of Nebraska-Lincoln, Department of Electrical and Computer Engineering.

Part III: Bibliography

Original Articles

1. Otu HH, Sayood K. "A joint source/channel coder with block constraints" *IEEE Transactions on Communications* 1999; 47(11):1615-1618.
2. Sayood K, Otu HH, Demir N. "Joint source/channel coding for variable length codes" *IEEE Transactions on Communications* 2000; 48(5):787-794.
3. Otu HH, Sayood K. "A divide and conquer approach to fragment assembly" *Bioinformatics* 2003; 19(1):22-29.
4. Otu HH*, Fortunel NO*, Ng HH*, Chen J, Mu X, Chevassut T, Li X, Joseph M, Bailey C, Hatzfeld JA, Usta F, Vega VB, Long PM, Liberman TA, Lim B. "Comment on 'Stemness: Transcriptional Profiling of Embryonic and Adult Stem Cells' and 'A Stem Cell Molecular Signature'" *Science* 2003; 302:393b.
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6. Bastola DR, Otu HH, Doukas SE, Sayood K, Hinrichs SH, Iwen PC. "Utilization of the relative complexity measure to construct a phylogenetic tree for fungi" *Mycological Research* 2004; 108(2):117-125. [This journal is called "Fungal Biology" as of Jan. 2010].
7. Voisine P, Ruel M, Khan TA, Bianchi C, Xu SH, Kohane I, Libermann TA, Otu HH, Saltiel AR, Sellke FW "Differences in gene expression profiles of diabetic and non-diabetic patients undergoing cardiopulmonary bypass and cardioplegic arrest" *Circulation* 2004; 110:II-280-286.
8. von Stechow D, Zurakowski D, Pettit AR, Muller R, Gronowicz G, Otu HH, Libermann TA, Alexander JM "Differential transcriptional effects of PTH and estrogen during anabolic bone formation" *J. Cell. Biochem.* 2004; 93:476-490.
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11. Spentzos D, Levine DA, Kolia S, Otu HH, Boyd J, Libermann TA, Cannistra SA. "Unique gene expression profile based upon pathologic response in epithelial ovarian cancer" *Journal of Clinical Oncology* 2005; 23(31):7911-7918.
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13. Ijiri K, Zerbini LF, Peng H, Correa RG, Lu B, Walsh N, Zhao Y, Taniguchi N, Huang XL, Otu HH, Hong W, Wang JF, Komiya S, Ducy P,. Rahman MU, Flavell RA, Libermann TA, Goldring MB. "A novel role for GADD45β as a mediator of MMP-13 gene expression during chondrocyte terminal differentiation" *Journal of Biological Chemistry* 2005; 280 (46): 38544-38555.
14. Ramnarain DB, Park S, Lee DY, Hatanpaa KJ, Scoggin SO, Otu HH, Libermann TA, Raisanen JM, Ashfaq R, Wong ET, Wu J, Elliott R, Habib AA. "Differential gene

*These authors contributed equally to this work

expression analysis reveals generation of an autocrine loop by a mutant EGFR in glioma cells" *Cancer Research* 2006; 66(2): 867-874.
15. El Essawy B, Otu HH, Choy B, Xiao XZ, Libermann TA, Strom T. "Proteomic analysis of the allograft response" *Transplantation* 2006; 82(2): 267-274.
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1. Otu HH and Libermann TA. “From Microarrays to Gene Networks”. In: Appasani K., editor. Bioarrays: From Basics to Diagnostics, pp. 45-61. Humana Press Totowa, NJ. 2007 ISBN: 1588294765.
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Nonprint Materials (refer to http://otulab.unl.edu/**)**

1. Otu HH. Fr-As, 2002. A computer program to calculate the contigs resulting from a shotgun sequencing data. Distributed as academic freeware.
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Patents

1. Divide and Conquer System and Method of DNA Sequence Assembly. File Number: 20030224384.
2. System and Method for Sequence Distance Measure for Phylogenetic Tree Construction. File Number: 20070225918.
3. Human Transcriptome Corresponding To Human Oocytes And Use Of Said Genes Or The Corresponding Polypeptides To Trans-Differentiate Somatic Cells. File Number: 20090028835.
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Abstracts (not listed)