Assoc. Prof. Oguz Bayat

Web: www.oguzbayat.com

Education

Massachusetts Institute of Technology, Boston, MA
Executive certificate in Management and Leadership, March 2009

Northeastern University, Boston, MA
PhD, concentration in Electrical engineering, September 2006
Dissertation: Adaptive and Iterative Equalization Transceiver Designs for Wireless Communication Applications

University of Hartford, West Hartford, CT
Master of Engineering, concentration in Electrical Engineering, May 2002
Master Thesis: Performance of Turbo Coded Signals in Satellite Channels

Istanbul Technical University, Istanbul, Turkey
Bachelor of Science in Electrical Engineering, June 2000

Work Experience

Istanbul Kemerburgaz University, Istanbul, Turkey 04/11 – Present
Advisor to the President
Director of Graduate School of Science and Engineering
Associate Professor, Electrical and Electronics Engineering Department

- Leading R&D and IT projects of the University.
- Established ECE and IT master and PhD Programs
- Established Wireless Communication lab.
- Teaching Digital and wireless Communication, Digital Design and programming courses.
- Research on CDMA 1x EVDO, WCDMA, UMTS macro and smallcell technologies.

Byte Tech Inc., Boston and Istanbul Locations 01/10
Founder

- Established 3G and 4G macrocell and smallcell services and Smallcell applications
- Startup company partnered with Operators

Airvana Inc., Chelmsford, MA, USA 01/05 – 03/11
Technical Leader/Manager, Nortel/Ericsson Unit

- Technical Lead for LAV/RF systems Performance group to improve the performance of air link and RF signaling for 1xCDMA EV-DO wireless networks in Nortel projects. RF Performance team with my lead (15 R&D engineers) supported R5.0, 6.0, 7.0, 8.0, 9.0 programs (Rev A, VoIP enhancement) and Rev B Nortel projects.
- Performed research on Airvana/Nortel base station and base station controller software to improve its overall system performance and functionality. Characterized and optimized EVDO radio access network for RF related enhancements.
- Weekly communicate/sync up with partner Nortel /Qualcomm engineers to resolve wireless network issues and plan on delivering high quality products.
- Lab Czar for R3.0, 3.2 programs and Prime for R 4.0 Rev A- mobility component.

Assistant Professor, Electronics and Communications Engineering Department 02/08 - 08/09

- Appointed in February 2008 and assigned to do research at Airvana Inc. until August 2009.
- Published 4 research articles on CDMA networks and channel coding/equalization techniques.
- Co-advised a PhD student at UMASS and a master student at Northeastern University.

Northeastern University, Boston, MA 09/02 - 12/04
Research & Teaching Assistant, Electrical and Computer Engineering Department

- Performed TA work for ECE department.

- Researched novel techniques in communication and signal processing such as decision feedback equalization, Turbo equalization, TTCM design. Progressing novel equalization techniques over AWGN, Rician, Rayleigh, Proakis channels.
- *Designed innovative models* to improve noise cancellation in frequency selective fading channels and to create powerful codes. (MLTEQ, MLTEQ-CPM, DDFE schemes)

University of Hartford, West Hartford, CT 01/02 - 06/02
Adjunct Faculty, College of Engineering (part-time)
- Teaching Electrical Circuit Analysis I (EE213).
- Teaching Electrical Circuit Analysis I Laboratory (EE215).
- Teaching MATLAB, Workbench, ORCAD, PSPICE circuit simulation program.

University of Hartford, West Hartford, CT 09/00 - 01/02
Technical Consultant, Information Technology Center (part-time)
- Responsible for setting up new users, assigning TCP/IP addresses, tape backups and remote installations.
- Resolve computer hardware and software problems for users.
- Train other staff members on various software.

Projects and Patents

- Patents on wireless communication models, Macrocell and Femtocell applications.
- Founder of 3G and 4G Smallcell devices and its Applications
- Established a live radio access network and developed/Lead RF engineering group at Airvana USA. Installed and configured BTSs cell sites with RNCs to establish a research over the air live network setup
- Hired and trained engineers to analyze and to improve overall 1xCDMA network performance for several novel features and protocols such as ISSHO, A13, A16. Network parameters were characterized and optimized for 7 consecutive programs for Nortel project. Lab reports were generated and published for operators and partners successfully for several projects.
- Created innovative wireless communication models to provide more reliable and efficient communication over the air by improving channel coding and channel equalization techniques such as MLTC, MLTEQ, MLTEQ-CPM, DDFE schemes
- Designed and modeled joint decoding and equalization schemes for various modems
- Implemented and analyzed various kinds of filters onto TI chip for DSP hardware project.
- Designed and controlled mechatronics systems for industrial products
- Designed control systems for helicopter and aero-engine.

Selected Publications

- O. Bayat, Inter-Symbol interferenece calcellation in CDMA 1xEVDO, *Journal of Communication* 10.1002/dac.2418, September 2012

- V. Sevindik, O. Bayat, Packet Scheduling and Traffic Differentiation in Femtocell Environment, *IEICE Transactions on Communications*, Vol. E94-B, No:11, Pages 3018-3025, DOI: 10.1587/transcom.E94.B.3018, 2011

- V. Sevindik, O. Bayat, J. Weitzen, Scheduler Design for Traffic Classification in CDMA2000 1xEVDO Network, *Journal of Wireless Network (WINET)*, Vol. 17, No: 8, Pages 1731-1744, DOI 10.1007/s11276-011-0337-8, 2011

- V. Sevindik, O. Bayat, Packet Scheduling in Home and Business Femtocells, *Chapter in Wireless Multi-Access Environments and Quality of Service Provisioning: Solutions and Application*, IGI Global, PA,

- V. Sevindik, O. Bayat, J. Weitzen, Characterization of CDMA 1xEVDO Network for Inter-User class Users, *International Journal of Multimedia Tools and Applications, DOI: 10.1007/s11042-010-0563-6 , July 2010*

- V. Sevindik, O. Bayat, J. Weitzen, Performance Analysis of Inter-User Best Effort Class Users in CDMA 1xEVDO Network, *IEEE proceedings of International Symposium on Performance Analysis of Systems and Software*, Boston, MA, USA, April 2009

- O. Bayat, N. Odabasioglu, O. Osman, O. N. Ucan, M. Salehi and B. Shafai, Joint Multilevel Turbo Equalization and Continuous Phase Frequency Shift Keying, *EURASIP Journal on Wireless Communications and Networking*, doi:10.1155/2008/458785, 8 pages, December 2008

- O. Bayat, B. Shafai, M. Salehi, O. N. Ucan and O. Osman, Signalling Enhancement on Multilevel Turbo Codes, *International Journal of Communication Systems*, Volume 21, Issue 7 , Pages791 - 798, January 2008

- O. Bayat, W. Montlouis, B. Shafai, O. N. Ucan and O. Osman, Channel Estimation and Tracking of Wireless Communication, *IEEE proceedings of Military Communication Conf.*, Atlantic City, NJ, USA, Oct. 2005.

- W. Montlouis, O. Bayat and B. Shafai, DOA and Angular Velocity Estimation using Planar Array with Subspace Based Initialization, *IEEE proceedings* of *Military Communication Conf.*, Atlantic City, NJ, USA, Oct. 2005..

- O. Bayat, B. Shafai and O. N. Ucan, Iterative Equalization of Frequency Selective Channels, *IEEE proceedings of Sarnoff Symposium*, Princeton, USA, April 2005.

- O. Bayat, B. Shafai and O. N. Ucan, Reduced State Equalization of MLTC Signals, *IEEE proceedings of ICASSP, Philadelphia, PA, USA*, March 2005.

- O. Bayat, B. Shafai and O. N. Ucan, An Efficient Channel Equalization on the Transmission of Turbo Coded Signals, *proceedings of CIC Conference*, Las Vegas, Nevada, USA, June 2004.

- O. Bayat, H. Alnajjar, O. N. Ucan and O. Osman, Performance of Turbo Coded Signals over Fading Channels, *Journal of Electrical & Electronics*, Vol. 2, Num. 1, P. 417-422, (2002)

- O. Bayat and O. N. Ucan, Multivariable Control in Helicopters, *Journal of Electrical & Electronics*, Vol. 2, Num. 1, P. 437-446, (2002)

Computer Skills

Matlab, Pspice, Vissim, Workbench, JMP IN, C/C++, Mathematica, SPSS, ORCAD, Fortran77
AutoCAD, Remedy IR System, Lotus Notes, Freehand MX, Photoshop, Dreamweaver
Qualcomm Products (CAIT, QXDM, QPST), CLI, IBM Products (ClearCase, ClearQuest)
DOS, Unix, Windows 3.x, 95/98, Windows NT, MS Office XP.
(Microsoft Word, Excel, Power Point, FrontPage, Access), Microsoft Project

Language Skills

Fluent in English and Turkish and basic knowledge of German

Activities

ICEMIS 2015 Conference Chair, Editor of electrical and electronics Journal, Reviewer of IEEE ICC, IEEE Trans. on Wireless Comm., IEEE ACC and IEEE CDC-ECC, IU-JEE

Awards

- Patents on Smallcell, femtocell and its applications 2010-2015
- Research Award by University , 2008-2009

- Who'sWho in America 63rd Edition, 2009
- Certificate of Achievement for 8 consecutive projects by Airvana, 2005-2010
- Appointed as Assist. Professor in 2007 as Assoc. in 2013.
- Patents application on MLTEQ and MLTEQ-CPM designs by Northeastern University - 2006
- Outstanding Research Poster Award by Northeastern University - 2005
- Teaching Assistantship by Northeastern University - 2004
- Adjunct Faculty Position at University of Hartford - 2002
- Teaching Assistantship by University of Hartford - 2001