

Yasin Yilmaz

CONTACT INFORMATION

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RESEARCH INTERESTS

Big data analytics, Cybersecurity, Machine learning, Statistical signal processing, IoT

EDUCATIONAL BACKGROUND

Ph.D. in Electrical Engineering (August 2014),
Columbia University, New York, NY, USA
Advisor: [Prof. Xiaodong Wang](#)
Co-Advisor: [Prof. George V. Moustakides](#)
Thesis: “Sequential Statistical Signal Processing with Applications to Distributed Systems”

M.Sc. in Electrical and Computer Engineering (June 2010),
Koc University, Istanbul, TURKEY
Advisor: [Prof. S. Serdar Kozat](#)
Thesis: “New Adaptive Algorithms for Linear Filtering and Nonlinear Prediction”

B.Sc. in Electrical and Electronics Engineering (June 2008),
Middle East Technical University, Ankara, TURKEY

PROFESSIONAL EXPERIENCE

Assistant Professor, University of South Florida (2016-)
Postdoctoral Research Fellow, University of Michigan (2014-2016)
Graduate Assistant, Columbia University (2010-2014)
Graduate Assistant, Koc University, Istanbul, Turkey (2008-2010)

RECOGNITIONS

- Affiliated Faculty, Florida Center for Cybersecurity (2016)
- Collaborative Research Award, Electrical Engineering Department, Columbia University (2015)
- Postdoctoral Fellow, Consortium for Verification Technology, University of Michigan (2014)
- Valedictorian (GPA 4.0), Koc University (2010)
- Ranked 58th among 132,000 students in Turkey (0.04%) in the Academic staff and graduate level education exam (2007)
- Ranked 117th among 1.5 million students in Turkey (0.01%) in the University entrance exam (2003)

PUBLICATIONS

Big Data Analytics & Machine Learning (1 Journal, 1 Conference, 5 Invited Talk, 2 Journal in progress)

- (JP5) Y. Yilmaz and A. Hero, “Event-Driven Anomaly Detection in Multimodal Systems via Deep Learning”, *in progress*
- (JP4) Y. Yilmaz and A. Hero, “Unsupervised Feature Learning in Multimodal Large Datasets”, *in progress*
- (J13) Y. Yilmaz and A. Hero, “Multimodal Event Detection in Twitter Hashtag Networks”, *Journal of Signal Processing Systems*, DOI 10.1007/s11265-016-1151-4
- (C17) Y. Yilmaz and A. Hero, “Multimodal Factor Analysis”, *IEEE International Workshop on Machine Learning for Signal Processing*, Sep. 2015

- (IT7) “A Preliminary Work on Predicting Travel Times and Optimal Routes Using Istanbul’s Real Traffic Data”, *Transist 2016, 9th Istanbul Transport Congress and Exhibition, Dec. 2016*
- (IT6) “Multi-modal Factor Analysis: Unsupervised Feature Learning in Heterogeneous Big Datasets”, *Information Theory and Applications Workshop, Feb. 2016*
- (IT5) “Data-Driven Statistical Inference in Intelligent Systems”, *University of North Texas, Mar. 2016*
- (IT4) “Multimodal Data Fusion and Online Statistical Inference”, *Schlumberger-Doll Research Center, Cambridge, MA, Mar. 2016*
- (IT3) “Data-Driven Statistical Inference in Intelligent Systems”, *University of California, Riverside, Feb. 2016*

Cyber-Physical Security (1 Journal, 5 Conference, 1 Invited Talk, 3 Journal in progress)

- (JP3) Y. Yilmaz, E. Hou and A. Hero, “Quickest Detection of Data Manipulation in Cyber-Physical Systems”, *in progress*
- (JP2) E. Hou, Y. Yilmaz, T. Van and A. Hero, “Poisson Network Tomography and Anomaly Detection”, *in progress*
- (JP1) Y. Yilmaz, M. McGarry, E. Hou, P. Wilson and A. Hero, “Diversion Detection in Nuclear Fuel Cycle Networks”, *in progress*
- (J12) S. Li, Y. Yilmaz and X. Wang, “Quickest Detection of False Data Injection Attack in Wide-Area Smart Grids”, *IEEE Transactions on Smart Grid, vol. 6, no. 6, pp. 2725-2735, Nov. 2015.*
- (C16) E. Hou, Y. Yilmaz and A. Hero, “Diversion Detection in Partially Observed Nuclear Fuel Cycle Networks”, *ANS Advances in Nuclear Nonproliferation Technology and Policy Conference, 2016*
- (C15) Y. Yilmaz, E. Hou and A. Hero, “Online Diversion Detection in Nuclear Fuel Cycles via Multimodal Observations”, *ANS Advances in Nuclear Nonproliferation Technology and Policy Conference, 2016*
- (C14) S. Li, Y. Yilmaz and X. Wang, “Sequential Cyber-Attack Detection in the Large-Scale Smart Grid System”, *IEEE International Conference on Smart Grid Communications, 2015*
- (C13) Y. Yilmaz, E. Hou, T. Banerjee and A. Hero, “Quickest Change Detection in Nuclear Fuel Cycles”, *Consortium for Verification Technology Workshop, 2015 (invited)*
- (C12) E. Hou, T. Van, Y. Yilmaz and A. Hero, “Anomaly Detection in Nuclear Fuel Cycle Networks”, *National Nuclear Security Administration UITI Meeting, 2015 (invited)*
- (IT2) “Online Statistical Methods for Cybersecurity”, *City University of New York, Mar. 2014*

Statistical Signal Processing (1 Patent, 1 Book Chapter, 11 Journal, 11 Conference, 1 Invited Talk, 1 Journal submitted)

- (JS1) Y. Yilmaz and X. Wang, “LQG Control in Resource-Constrained Networked Systems over Unreliable Communication Channels”, *submitted, IEEE Transactions on Control Systems Technology*
- (J11) Y. Yilmaz, S. Li and X. Wang, “Sequential Joint Detection and Estimation: Optimum Tests and Applications”, *IEEE Transactions on Signal Processing, vol. 64, no. 20, pp. 5311-5326, Oct. 2016*
- (J10) Z. Guo, Y. Yilmaz and X. Wang, “Transmitter-Centric Channel Estimation and Low-PAPR Precoding for Millimeter-Wave MIMO Systems”, *IEEE Transactions on Communications, vol. 64, no. 7, pp. 2925-2938, July 2016*
- (J9) Y. Yilmaz, G. Moustakides and X. Wang, “Sequential and Decentralized Estimation of Linear Regression Parameters in Wireless Sensor Networks”, *IEEE Transactions on Aerospace and Electronic Systems, vol. 52, no. 1, pp. 288-306, Feb. 2016*

- (BC1) Y. Yilmaz, G.V. Moustakides, X. Wang and Alfred O. Hero, “Event-Based Statistical Signal Processing”, in Marek Miskowicz (Ed.), “Event-Based Control and Signal Processing”, CRC Press, 2015
- (J8) Y. Yilmaz, G. Moustakides and X. Wang, “Sequential Joint Detection and Estimation”, *SIAM Theory of Probability and Its Applications*, vol. 59, no. 3, pp. 452-465, 2015 (also in *Teor. Veroyatnost. i Primenen.*, vol. 59, no. 3, pp. 562-578, 2014)
- (C11) Y. Yilmaz, G. Moustakides, S. Li, X. Wang and A. Hero, “Sequential Joint Detection and Estimation: Optimum Tests and Applications”, *International Workshop on Sequential Methodologies, 2015 (invited)*
- (J7) M. Sayin, Y. Yilmaz, A. Demir and S. Kozat, “The Krylov-proportionate normalized least mean fourth approach: Formulation and performance analysis”, *Signal Processing*, vol. 109, pp. 1-13, Apr. 2015.
- (J6) Y. Yilmaz, Z. Guo and X. Wang, “Sequential Joint Spectrum Sensing and Channel Estimation for Dynamic Spectrum Access”, *IEEE Journal on Selected Areas in Communications*, vol. 32, no. 11, pp. 2000 - 2012, Nov. 2014
- (J5) Y. Yilmaz and X. Wang, “Sequential Distributed Detection in Energy-Constrained Wireless Sensor Networks”, *IEEE Transactions on Signal Processing*, vol. 62, no. 12, pp. 3180-3193, June 2014.
- (IT1) “Online Statistical Methods for Cyber-physical Systems”, *King Abdullah University of Science and Technology, Thuwal, KSA, Mar. 2014*
- (J4) Y. Yilmaz and X. Wang, “Sequential Decentralized Parameter Estimation under Randomly Observed Fisher Information”, *IEEE Transactions on Information Theory*, vol. 60, no. 2, pp. 1281-1300, Feb. 2014.
- (P1) Y. Yilmaz, G.V. Moustakides and X. Wang, “Methods, systems, and media for determining whether a signal of interest is present”, US20150103958, filed on 3/8/2013, [more information](#)
- (J3) Y. Yilmaz, G. Moustakides and X. Wang, “Channel-aware Decentralized Detection via Level-triggered Sampling”, *IEEE Transactions on Signal Processing*, vol. 61, no. 2, pp. 300-315, Jan. 2013.
- (C10) Z. Chen, Y. Yilmaz, Z. Guo, X. Wang and X. Zhang, “Continuous Power Allocation for Sensing-based Spectrum Sharing”, *European Signal Processing Conference, 2013, (invited)*
- (C9) Y. Yilmaz, G.V. Moustakides and X. Wang, “Optimum Sequential Joint Detection and Estimation”, *International Workshop on Sequential Methodologies, 2013 (invited)*
- (C8) Y. Yilmaz, G.V. Moustakides and X. Wang, “Optimal Sequential Parameter Estimation”, *IEEE International Symposium on Information Theory, 2013*
- (C7) Y. Yilmaz and X. Wang, “Asymptotically Optimal and Bandwidth-efficient Decentralized Detection”, *IEEE International Symposium on Information Theory, 2013*
- (J2) Y. Yilmaz, G. Moustakides and X. Wang, “Cooperative Sequential Spectrum Sensing Based on Level-triggered Sampling”, *IEEE Transactions on Signal Processing*, vol. 60, no. 9, pp. 4509-4524, Sep. 2012.
- (C6) Y. Yilmaz, G. Moustakides and X. Wang, “Sequential Decentralized Detection under Noisy Channels”, *Allerton Conference on Communication, Control, and Computing, 2012*
- (C5) Y. Yilmaz, G. Moustakides and X. Wang, “Adaptive Spectrum Sensing for Agile Cognitive Radios”, *Cognitive Radio Summit, 2012 (invited)*
- (C4) Y. Yilmaz, G. Moustakides and X. Wang, “Collaborative Spectrum Sensing based on Event-driven Sampling”, *Information Theory and Applications Workshop, 2012, (invited)*
- (C3) Y. Yilmaz, G. Moustakides and X. Wang, “Spectrum Sensing via Event-triggered Sampling”, *Asilomar Conference on Signals, Systems and Computers, 2011*
- (J1) Y. Yilmaz and S. Kozat, “Competitive Nonlinear Randomized Prediction under Additive Noise”, *IEEE Signal Processing Letters*, vol. 17, no. 4, pp. 335-339, Apr. 2010
- (C2) Y. Yilmaz and S. Kozat, “Toplanir Gurultu Altinda Yarismaci Dogrusal Olmayan Ongoru”, *IEEE Signal Processing and Communications Applications Conference (SIU)*,

2010

- (C1) Y. Yilmaz and S. Kozat, “An Extended Version of the NLMF Algorithm Based on Proportionate Krylov Subspace Projections”, *IEEE International Conference on Machine Learning and Applications, 2009*

TECHNICAL
ACTIVITIES

- Program Committee Member for *IEEE International Workshop on Machine Learning for Signal Processing 2015, IEEE Global Conference on Signal and Information Processing 2015*
- Reviewer for *IEEE Transactions on Signal Processing, IEEE Transactions on Information Theory, IEEE Transactions on Communications, IEEE Journal on Selected Areas in Communications, IEEE Signal Processing Letters, IEEE Wireless Communications Letters, IEEE Communications Letters, Signal Processing, NIPS, ISIT, ICC, Globecom, ICASSP*
- IEEE Member