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RESEARCH OF INTEREST

Information–reliability–system theory, distributed data storage systems, coding theory applications (machine learning, cloud computing), fault tolerant systems, network coding, distributed/decentralized architectures, parallel processing, IoT, wireless/wireline multimedia communications, optimizations, data and failure modeling using stochastic processes, joint source–channel coding, image/video processing applications, cross-layer design optimizations and cloud storage for big data management/analytics, neuroscience, quantum information/computing.



ACADEMIC POSITIONS

MEF University (Department of Computer Engineering), Istanbul, Turkey
Associate Professor

Mar. 2015-Current

University of Nantes (LS2N), Nantes, France

Visiting Professor, (<https://www.ls2n.fr/membresequipe/rio/?lang=en>)

Dec. 2015, Jul. 2016

MEF University (Department of Computer Engineering), Istanbul, Turkey
Assistant Professor

Mar. 2014-Mar. 2015

EDUCATION HISTORY

Graduate:

University of California, San Diego, (Department of Electrical & Computer Engineering), La Jolla, CA, USA

Sept. 2006- March 2012

Doctorate of Philosophy

- Thesis topic: “Bandwidth and Rate Allocation Tradeoffs of Source-Channel Coding, Packetization and Modulation in Unequally Protected Multimedia Communication Systems”.
Advisors: Prof. Pamela C. Cosman and Prof. Laurence B. Milstein.
- GPA: 3.8/4.00. (High Honors)

University of California, San Diego, (Department of Electrical & Computer Engineering), La Jolla, CA, USA

March. 2009

Master of Science

- Project Title: “Progressive Source Transmissions using Joint Source-Channel Coding (JSCC) and Hierarchical Modulation in Packetized Networks”.
Advisors: Prof. Pamela C. Cosman and Prof. Laurence B. Milstein.

Undergraduate:

Bogazici University (Department of Electrical & Electronics Engineering), *Rumeli hisar üstü, Istanbul, Turkey* *Sept 2003 - June 2006*
Bachelor of Science

- Research concentration: “UWB Communications, Spread spectrum systems, Space Time block coding, Forward Error Correction (FEC) coding, Encrypted Mobile & Satellite communications/Networks”.
- GPA: 3.85/4.00. (High Honors)
- Senior Project: Robust Receiver Design for Alamouti STB Coded UWB systems under Non- Gaussian Noisy Environment”.

Advisors: Assoc.Prof. Mutlu Koca and Prof. Hakan Delic.

Bogazici University (Department of Mathematics), *Rumeli hisar üstü, Istanbul, Turkey* *Sept 2002 - 2003*

Bachelor of Science - Transfer Student

- Research interests: “Discrete Mathematics, Fields and Graph Theory”.
- GPA: 3.84/4.00. (High Honors)

High School:

Kabatas High School, (Kabatas Erkek Lisesi), Ortaköy, Istanbul. *Sept 1997 - June 2001*

PREVIOUS RESEARCH EXPERIENCE

Department of Computer Engineering, MEF University, Maslak, Sariyer *Sept. 2015 - present*
Associate Professor, Head of Distributed Systems Lab

- Brain-Computer Interface design with artificial and biological neural networks (joint work with Sabanci and Northeastern Universities, TUBITAK-NSF joint proposal)
- Network coding for next generation cellular networks (supported by TUBITAK 1001).
- Development of a purely XOR-based erasure coding library Founsure that allows excellent repair and update features. (supported by TUBITAK 2232).
- Generalized reliability modeling for cold and warm data storage systems. (supported by Quantum Corporation, USA)
- Distributed implementation of machine learning and mix-integer programming problems. (supported by TUBITAK 3501)
- Writing joint research project proposals including BCI-powered spellers, drone and gaming applications, decentralized applications, clustering, coding theory, internet of things, etc. with internationally renown institutions. (supported by CHIST-ERA)

Advanced Development Lab., Quantum Corp., Irvine, CA *Sept. 2011 - present*
Principal R & D Design Engineer

- Extensive expertise on Error Correction Coding (ECC), efficient code design and decoding architectures, reliability estimations of Disk and Tape Drives.
- Extensive expertise on software-defined Cold & Cloud storage system design and rateless/network coding.
- Expertise on signal processing for communication/magnetic channel modeling.
- Design and analyze the constrained codes such as Run Length Limited (RLL) and Maximum Transition Run (MTR) codes.
- Design and implement improved detector/decoding architectures such as Viterbi, MAP and Belief Propagation. Design of reduced complexity soft decision algorithms such as Chase.
- Efficient and accurate data modeling for reliability performance predictions of tapes using hidden markov models.
- Efficient and accurate disk failure modeling for distributed storage.

- Submit patent applications for next generation Linear Tape Open (LTO) drives and propose innovative format changes with IBM and HP as copartners.
- Submit patent applications for next generation cloud systems using deduplication and fountain codes.
- Implementation of simple post-processor of tape-out data on multicore GPU chips using CUDA-C and CUDA-MEX (for Matlab).

Wireless Comm. Lab., UC San Diego, La Jolla, CA
Graduate Student Researcher

March 2007 - March 2012

- ◇ **ADVISORS:** Prof. Pamela C. Cosman and Prof. Laurence B. Milstein.
 - Lossy and Lossless data compression techniques.
 - ◇ Image and Video source coding. Efficient entropy coding techniques.
 - Joint Source-Channel coding and optimal packetization methodologies for multimedia.
 - Hierarchical modulations for data transmission and storage for solid state drives.
 - Cross layer optimization of multimedia communication systems.
 - Efficient and capacity achieving coding techniques for multimedia storage and protection against noisy wireline and fade-dominated wireless channels.

Channel Group, Quantum Corp, Irvine, CA.
Research Intern

June 2011 - Sept. 2011

- ◇ **SUPERVISORS:** Turguy Goker, Dr. Jaewook Lee
 - Error Event Study for noise predictive maximum likelihood detection algorithms for tape drives.
 - Development of List-Noise predictive maximum likelihood detection (List-NPMLD) algorithm based on periodic error detections for magnetic recording channels.
 - Post-ECC performance evaluation based on low complexity estimation algorithms and the quantification of the Post-ECC SNR gains using various detection algorithms.

Imaging Group, Mitsubishi Electric Research Lab., Cambridge, MA.
Research Intern

May 2009 - Sept 2009

- ◇ **SUPERVISOR:** Dr. Fatih Porikli
 - Development of a fast C-MEX based tissue simulation program using bi-cubic interpolation methods and a Finite Element Method for object morphing (a tumor in our case) for a given 3D volume.
 - Image and Video processing algorithm development, generating synthetic images for tracking a visible or an invisible object,
 - Optimum spectral clustering for large dimensional data, robust nonlinear least squares regression for the improvement of segmentation algorithms,
 - Unsupervised multilevel segmentation algorithm based on confidence maps based on a set of random seed allocations,
 - 2D texture coding and tracking based on a subgroup of general linear group theory. Application to more complex motion models such as bilinear or planar surface flow models.

Transmission department of Turk Telekom A.S., Istanbul, Turkey
Coordinator & Engineer Intern

June - Sept. 2005

- Analyzed DWDM technology(Optical Networking) to increase the maximum multiple access under the given tolerable interference.
- Development of techniques used in analysis of SONET & SDH technologies.

TEACHING EXPERIENCE

Sabanci University, Istanbul, Turkey.
Instructor

- **ENS 211: Signals** Summer 2018. <http://www.suaybarslan.com/teaching/ens211.html>

MEF University, Istanbul, Turkey.

Instructor

- **ITC 501:** *Probability and Random Processes* Fall'18. (Graduate)
- **ITC 515:** *Quantum Computing* Fall'19. (Graduate)
- **MATH 224:** *Probability and Statistics* Spring'16,'17,'18,'19.
- **COMP 465:** *Fundamentals of Quantum Computing* Fall'20.
- **COMP 206:** *Computer Architecture* Spring'16,'17,'18,'19.
- **COMP 472:** *Parallel and Distributed Systems* Fall'17,'18,'19.
- **EE 203:** *Digital System Design* Fall'16,'17,'18,'19,'20.

More information about classes can be found at <http://suaybarslan.com/teaching.html>.

Channel Group, Quantum Corp, Irvine, CA.

Instructor

- **ECC 101:** *Fundamentals of Coding Theory* Summer 2013.
Algebraic and probabilistic codes and their performances.
Some of the class notes can be found at <http://suaybarslan.com/teaching.html>.

UC San Diego, La Jolla, CA

Teaching Assistant

- **ECE 53:** *Fundamentals of Electric Circuits* Electrical & Computer Engineering, UC San Diego, CA, **INSTRUCTOR:** Prof. Pamela Cosman, Fall 2009.
- **ECE 258B:** *Digital Communications* Electrical & Computer Engineering, UC San Diego, CA, **INSTRUCTOR:** Prof. Laurance Milstein, Spring 2008. (Graduate)
- **ECE 154A:** *Communications Systems I* Electrical & Computer Engineering, UC San Diego, CA, **INSTRUCTOR:** Prof. Laurance Milstein Fall 2007.
- **EE 374:** *Communication Engineering* Electrical & Electronics Engineering, Bogazici University, Turkey, **INSTRUCTOR:** Asistant Prof. Mutlu Koca, Oct. 2007.

I host a Youtube channel dedicated to teaching.

Available Online: <https://www.youtube.com/channel/UCbj6XVuhUh6ZTkpcwne5eWQ>

PUBLICATIONS

- *Publication record and citation information available online:*

<http://scholar.google.com/citations?user=Tjrq9YEAAAAJ&hl=en>

Thesis:

- **S. S. Arslan**, "Bandwidth and Rate Allocation Tradeoffs of Source-Channel Coding, Packetization and Modulation in Unequally Protected Multimedia Communication Systems" Ph.d. Thesis, Department of Electrical and Computer Engineering, University of California, San Diego, March 2012, Advisor: Prof. Pamela Cosman, Coadvisor: Prof. Laurence Milstein.
Available Online: <http://www.escholarship.org/uc/item/97c3938x>

Papers under revision:

- **S. S. Arslan**, M. Pourmandi and E. Haytaoglu "Cooperative Network Coding for Distributed Storage using Base Stations with Link Constraints," Submitted to *IEEE International Symposium of Information Theory*, 2021.
- O.B. Guney, C. Aksoy, E. Koc, Y. Catak, **S. S. Arslan** and H. Ozkan, "An Ensemble of DNNs for SSVEP BCI Spellers without User-Specific Training". Submitted to *29th European Signal Processing Conference*, 2021.

- **S. S. Arslan**, "Array BP-XOR Codes for Parallel Matrix Multiplication using Hierarchical Computing," Submitted to *IEEE Transactions on Information Theory*, 2020. **Available Online:** <https://arxiv.org/abs/1904.11563>
- E. Haytaoglu, E. Kaya and **S. S. Arslan**, "On the Fault Tolerant Distributed Data Caching using LDPC Codes in Cellular Networks". Submitted to *IEEE Transactions on Communications*, 2020. **Available Online:** <https://arxiv.org/abs/2010.14781>
- **S. S. Arslan** and E. Haytaoglu, "Cost of Guessing: Applications to Distributed Data Storage and Repair". Submitted to *IEEE Transactions on Information Theory*, 2020. **Available Online:** <https://arxiv.org/abs/2005.06666>
- B. Confais, **S. S. Arslan**, B. Parrein, "SToN: A New Fundamental Trade-off for Distributed Data Storage Systems," Submitted to *IEEE Trans. Network and Service Management*, 2020.
- **S. S. Arslan**, "Incremental Redundancy, Fountain Codes and Advanced Topics", in submission, *IEEE Communications Surveys and Tutorials*. This is a comprehensive study. Initial Version is available at <http://suaybarslan.com/FountainCodes.pdf>.

Editorials:

- **S. S. Arslan**, R. Jurdak, J. Jelitto and B. Krishnamachari, "Advancements in Distributed Ledger Technology for Internet of Things," *Internet of Things*, Elsevier, (2020): 100114.

Refereed Journal Papers:

- **S. S. Arslan**, "Founsure 1.0: Erasure Coding Software Library with Efficient repair and update features," accepted to *Elsevier Software X*, 2021. **Available Online:** <https://arxiv.org/abs/1702.07409>
- **S. S. Arslan** and E. Zeydan, "On the Distribution Modeling of Heavy-Tailed Disk Failure Lifetime in Big Data Centers," in *IEEE Transactions on Reliability*, 2020.
- **S. S. Arslan**, J. Peng, and T. Goker. "A data-assisted reliability model for carrier-assisted cold data storage systems." *Reliability Engineering & System Safety* 196 (2020): 106708.
- R. Ashrafi, **S. S. Arslan**, and A. E. Pusane. "On the distribution of the threshold voltage in multi-level cell flash memories." *Physical Communication* (2019): 100747.
- **S. S. Arslan**, "A Reliability Model for Dependent and Distributed MDS Disk Array Units," accepted to *IEEE Transactions on Reliability*, 2018.
- O. Narmanlioglu, E. Zeydan and **S. S. Arslan**, "Service-Aware Multi-Resource Allocation in Software-Defined Next Generation Cellular Networks," in *IEEE Access*, vol. 6, pp. 20348-20363, 2018.
- **S. S. Arslan**, Jaewook Lee, Jerry Hodges, James Peng, Hoa Le and Turguy Goker, "MDS Product Code Performance Estimations under Header CRC Check Failures and Missing Syncs", *IEEE Transactions on Device and Materials Reliability* Vol. 14, No. 3, pp. 921-930, Sept. 2014.
- **S. S. Arslan**, "Redundancy and Aging of Efficient MDS-Parity Protected Distributed Storage Systems," *IEEE Transactions on Device and Materials Reliability*, Vol. 14, No. 1, pp. 275-285, Mar. 2014.
- **S. S. Arslan**, J. Lee and T. Goker, "Cycle Slip Detection and Correction through Classification of Run Length Limited Code Failures," *IEEE Transactions on Magnetics*, Vol. 49, No. 9, pp. 4988-4998, Sept. 2013.
- **S. S. Arslan**, J. Lee and T. Goker, "Error Event Corrections Using List-NPMLD Decoding and Error Detection Codes," *IEEE Transactions on Magnetics*, Vol. 49, No. 7, pp. 3775-3778, July 2013.
- **S. S. Arslan**, P.C. Cosman, and L.B. Milstein, "Concatenated Block Codes for Unequal Error Protection of Embedded Bit Streams," *IEEE Transactions on Image Processing*, Vol. 21, No. 3, pp. 1111-1122, March 2012.
- **S. S. Arslan**, P.C. Cosman, and L.B. Milstein, "Coded Hierarchical Modulation for Wireless Progressive Image Transmission," *IEEE Transactions on Vehicular Technology*, vol.60, no.9, pp. 4299-4313, Nov. 2011.
- **S. S. Arslan**, P.C. Cosman and L.B. Milstein, "Generalized Unequal Error Protection LT Codes for Progressive Data Transmission," *IEEE Transactions on Image Processing*, Vol. 21, No. 8, pp. 3586-3597, August 2012.

Refereed Conference Papers:

- **S. S. Arslan** and E. Haytaoglu, "Cost of Guessing: Applications to Data Repair," *IEEE International Symposium on Information Theory (ISIT)*, Los Angeles, CA, USA, 2020, pp. 2194-2198.
- **S. S. Arslan** and T. Goker, "Compress-Store on Blockchain: A Decentralized Data Processing and Immutable Storage for Multimedia Streaming," accepted to *IEEE Second International Conference on Blockchain Computing and Applications (BCCA)* 2020.
- E. Kaya, E. Haytaoglu and **S. S. Arslan**, "Data Repair in BS-assisted Distributed Data Caching," *28th IEEE Signal Processing and Communications Applications Conference (SIU)*, Gaziantep, Turkey, 2020.
- O. B. Guney, M. Oblokulov and **S. S. Arslan**, "Fault-Tolerant Strassen-Like Matrix Multiplication," *28th IEEE Signal Processing and Communications Applications Conference (SIU)*, Gaziantep, Turkey, 2020.
- E. Zeydan, **S. S. Arslan**, "Cloud² HDD: Large-Scale HDD Data Analysis on Cloud for Cloud Data Centers" *23rd IEEE Conference on Innovation in Clouds, Internet and Networks and Workshops (ICIN)*, Paris, France, Feb., 2020.
- **S. S. Arslan**, "Distributed Matrix Multiplication with Array MDS BP-XOR Codes for Scaling Clusters," *IEEE International Conference on Information Theory (ISIT)*, Paris, France, 2019.
- R. A. Ashrafi and A. E. Pusane and **S. S. Arslan**, "Kernel Density Estimation for Optimal Detection in All-Bit-Line MLC Flash Memories," *27th IEEE Signal Processing and Communications Applications Conference (SIU)*, Sivas, Turkey, 2019.
- O. Yigit and **S. S. Arslan** "Disk Hasarlarının Analizi ve Tahmini için Bir Veri Analitigi Platformu" *2nd International Conference on Data Science and Applications (ICONDATA)*, Edremit, Turkey, 2019.
- O. B. Guney and **S. S. Arslan**, "Error Correction Output Codes: Overview, Challenges and Future Trends," *27th IEEE Signal Processing and Communications Applications Conference (SIU)*, Sivas, Turkey, 2019.
- **S. S. Arslan**, "Asymptotically MDS BP-XOR Codes," *IEEE International Conference on Information Theory (ISIT)*, Vail, Colorado, USA, 2018, pp. 1-5.
- O. Susam and **S. S. Arslan**, "Parallelization and Performance Analysis of Reversible Circuit Synthesis," *26th IEEE Signal Processing and Communications Applications Conference (SIU)*, Izmir, Turkey, 2018.
- R. A. Ashrafi and A. E. Pusane and **S. S. Arslan**, "Next-Generation Data Storage: Transistor and DNA," *26th IEEE Signal Processing and Communications Applications Conference (SIU)*, Izmir, Turkey, 2018.
- I. O. Yigit, **S. S. Arslan** and E. Zeydan, "A Visualization Platform for Disk Failure Analysis," *26th IEEE Signal Processing and Communications Applications Conference (SIU)*, Izmir, Turkey, 2018.
- G. B. Mermer, E. Zeydan and **S. S. Arslan**, "An Overview of Blockchain Technologies: Principles, Opportunities and Challenges," *26th IEEE Signal Processing and Communications Applications Conference (SIU)*, Izmir, Turkey, 2018.
- **S. S. Arslan**, Hoa Le, Joe Landman and Turguy Goker, "OpenMP and POSIX Threads Implementation of Jersasure 2.0," *6th IEEE Blacksea Conference*, Istanbul, Turkey, 2017.
- **S. S. Arslan**, Rod Wideman and Turguy Goker, "Joint Dedup-Fountain coded Archival Storage System," *IEEE ICC 2017*, Paris, France.
- **S. S. Arslan**, Benoit Perrain and Nicolas Normand, "LDPC Interpretation of Mojette Transform based Erasure Correction Codes," *25th IEEE Signal Processing and Communications Applications Conference*, Antalya, Turkey, 2017
- **S. S. Arslan**, "Implementation of Multi-threaded Erasure Coding under Multi-Processing Environments", *24th IEEE Signal Processing and Communications Applications Conference*, Zonguldak, Turkey, 2016.
- **S. S. Arslan**, "Minimum Distortion Variance Concatenated coding for Scalable Multimedia Transmission," accepted paper, *ICNC 2014* (acceptance rate < 25%), a draft of this paper is also available at *arXiv:1210.2815v1 [cs.MM] 2012*.
- **S. S. Arslan**, J. Lee and T. Goker, "Embedding Noise Prediction into List-Viterbi Decoding using

Error Detection Codes for Magnetic Tape Systems," *In proceedings of the ASME 2013 Conference on information storage and processing systems*, Jun. 24-25, Santa Clara, CA, USA, 2013.

- **S. S. Arslan**, P.C. Cosman, and L.B. Milstein, "Optimization of Generalized LT Codes for Progressive Image Transfer," *VCIP 2012*, San Diego. (Finalist, Best Paper Award)
- **S. S. Arslan**, P.C. Cosman, and L.B. Milstein, "On hard decision upper bounds for coded M-ary hierarchical modulation," *IEEE Conference on Information Sciences and Systems*, Baltimore, MD, USA, 2011.
- M. Hussein, F. Porikli, R. Li and **S. S. Arslan**, "CrossTrack: robust 3D tracking from two cross-sectional views," *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Colorado springs, CO, USA, 2011.
- **S. S. Arslan**, P.C. Cosman, and L.B. Milstein, "Progressive Source Transmissions using Joint Source-Channel Coding and Hierarchical Modulation in Packetized Networks," *IEEE Globecom 2009*, Hawaii, USA.

For more info: <http://suaybarslan.com/researchpub.html>

Poster presentations, Seminars & Invited talks:

- S. S. Arslan "Quantum Communications", Annual IEEE ComSoc Conference, 2020.
- S. S. Arslan "Network, Cloud and Fog: Next Generation IoT", Annual IEEE ComSoc Conference, 2019.
- S. S. Arslan, "Asymptotically MDS Array BP-XOR Codes for Distributed Data Storage and Coded Computation", *Koc University, March 2019*.
- S. S. Arslan, "Mojette Transform Codes as Array MDS BP-XOR Codes", *Mojette Day, 2018, Nantes, France*.
- S. S. Arslan, "Mojette Transform Codes as LDPC codes in storage", *University of Nantes, June. 2016*.
- S. S. Arslan, "The Evolution of Erasure Codes for Large Scale Data Storage and Multimedia Broadcast", *Bahcesehir University, Sept. 2013*.
- S. S. Arslan, "Magnetic Tape Recording: Future Projections, Challenges and Quantum's Research Focus", *Bogazici University, Jan. 2013*.
- S. S. Arslan "Challenges of Tape Recording: Past and Present", *Bilkent University, Feb. 2013*.
- S. S. Arslan, J. Lee and Turguy Goker, "Error Event Corrections Using List-Noise Predictive Maximum Likelihood Decoding and Error Detection Codes", *12th IEEE International Magnetics Conference, Chicago, IL. USA, Jan. 2013*.
- S. S. Arslan, P.C. Cosman, and L.B. Milstein "Concatenated Coding for Embedded Bit streams " *Center for Wireless Communications (CWC) Research Review*, UC San Diego, La Jolla, 2011.
Available Online: <http://www.youtube.com/watch?v=mstIuokbQX0>
- S. S. Arslan and Fatih Porikli, "Tumor Segmentations and Tracking (Visible/Invisible), *MERL Imaging Workshop*, Cambridge, MA, Sept 2009.
- S. S. Arslan, "Novel Ideas in Multiple Description Coding", *Network Information Theory mini-Workshop, Calit2, UC San Diego, La Jolla, June ,2007*.

Patents (Grant Publications - Not comprehensive):

- S. S. Arslan, T. Goker and R. B. Wideman "Joint De-Duplication-erasure coded distributed storage", **US10853187 B2**, (Date: Dec 1, 2020)
- S. S. Arslan, T. Goker and J. Lee "Efficient data storage across multiple storage volumes each representing a track of a larger storage volume", **US10698616 B2**, (Date: Jun 30, 2020)
- J. P. Peng, T. Goker, H. Le, S. S. Arslan, G. A. Saliba, "Diagnostic Tape Cartridge Patterned with predetermined head-media spacings for testing a tape head of a tape drive", **US10559332 B2**. (Date: Feb 11, 2020)
- R. Wideman, S. S. Arslan, J. Lee and T. Goker, "Data Deduplication with adaptive Erasure Code Redundancy", **US10484016 B2, US9692452 B2, US9503127 B2**. (Date: Nov 19, 2019)
- S. S. Arslan and T. Goker, "High/low energy zone data storage", **US10114692 B2**.
- S. S. Arslan, T. Goker, J. Lee and H. Le, "System and Method for Tape Layout Optimization", **US10014025 B2, US10319406 B2**. (Date: Jun 11, 2019)

- S. S. Arslan and T. Goker, "Adaptive Erasure Codes", **US10044374 B2**. (Date: Aug. 7, 2018)
- S. S. Arslan and T. Goker, "Power savings in cold storage", **US9965351 B2**. (Date: May. 8, 2018)
- S. S. Arslan and T. Goker, "Efficient High/low energy zone solid state device data storage", **US10114692 B2, US9846613 B2**. (Date: Oct. 30, 2018)
- T. Goker, S. S. Arslan, D. Doerner and H. Le, "Doubly distributed erasure codes", **US9431054 B2** (Date: Aug. 30, 2016)

Patents (Application Publications - Not comprehensive):

- S. S. Arslan, T. Goker and J. Lee "Data storage across simplified storage volumes", **20200117375 A1**.
- T. Goker, S. S. Arslan H. Le, J. Peng and P. Carsten, "Erasure Coding Magnetic Tapes for Minimum Latency and Adaptive Parity Feedback", **20190361606 A1**.
- J. Peng, T. goker, H. Le, S. Arslan, G.A.Saliba "Diagnostic Tape Cartridge Patterned with Predetermined Head-Media Spacings for Testing a Tape Head of a Tape Drive", **20190221234 A1**.
- S. S. Arslan, T. Goker, J. Lee and H. Le, "System and Method for Tape Layout Optimization", **20190027186 A1**.
- T. Goker, J. Lee, H. Le, S. Arslan, J. Peng "Network Attached Device for Accessing Removable Storage Media", **20180302473 A1**.
- T. Goker, J. Lee, H. Le, S. S. Arslan and J. Peng, "Efficient Data storage across multiple storage volumes", **20180302473 A1**.
- S. S. Arslan and T. Goker, "Power savings in cold storage", **20180225172 A1**.
- S. S. Arslan, T. Goker and J. Lee, "Efficient Data storage across multiple storage volumes", **20180136857 A1**.
- S. S. Arslan, T. G. Goker and Rod Wideman, "Joint de-duplication-erasure coded distributed storage", **US 20180018235 A1**.
- Rod Wideman, T. G. Goker and S. S. Arslan, "Removable media based object store", **US20170371543 A1**.
- R. Wideman, S. S. Arslan, J. Lee and T. Goker, "Data Deduplication with adaptive Erasure Code Redundancy", **US20160013815 A1**.
- S. S. Arslan and T. Goker, "Adaptive Erasure Codes", **US 20170033806 A1**.
- S. S. Arslan and T. Goker, "High/low energy zone data storage", **US20160218751 A1**.
- S. S. Arslan and T. Goker, "Power savings in cold storage", **US20160217823 A1**.
- S. S. Arslan and T. Goker, "Efficient High/low energy zone solid state device data storage", **US20160217031 A1**.
- S. S. Arslan, J. Lee and T. Goker, "Bit Error Detection and Correction with Error detection code and List-NPMLD", **US 20140173381 A1**.

(You can get more detail from the USPTO web page: <http://patft.uspto.gov/>)

Other Joint Research Projects Involved:

- IBM, HP and QTM – Joint Development Agreement (JDA), "Logical TWG for next generation LTO format", *2012-2016*.
- Jieun Oh, HyeGyeong Park, JS Ha and Jae Moon, "RS-LDPC concatenation: Simulation and Performance evaluation for the Tape Channel", A project funded by Information Storage Industry Consortium (INSIC), 2013.

Funding Organizations:

- 2019-present, TUBITAK 1001, 3501.
- 2016, MEF University BAP & EU Horizon 2020 & TUBITAK 2232.
- 2013, Hewlett-Packard Development Company, L.P.,
- 2013, Quantum Corporation, Irvine, CA,
- 2012, LG Electronics Inc., San Diego, CA
- 2006–2009, Intel Inc., Portland, OR

- 2006–2011, The Center for Wireless Communications at the University of California at San Diego,
- 2006–2011, The University of California Discovery Grant Program of the state of California,
- 2006–2011, The National Science Foundation (NSF) under Grant CCF-0915727.
- 2006 UCSD ECE Supplemental Departmental Fellowship. (Graduate studies)
- 2006 TUBITAK fellowship. (Graduate studies)

PROFESSIONAL SERVICES

- **Treasurer** IEEE Data Storage Technical Committee, 2021.
- **Vice-Chair** IEEE ComSoc Turkey, 2021.
- **Track Chair** Data Storage and Cloud Computing Track, IEEE ICC 2021.
- **Track Chair** Data Storage Track Special Session, IEEE SIU 2020.
- **Associate Editor** Bulletin of Electrical Engineering and Informatics (BEEI), iaes, 2019-2022.
- **Associate Editor** ELSEVIER IoT JOURNAL, 2018-2020.
- **Award Committee Member** IEEE ComSoc Student Competition, 2018.
- **Active Committee Member** IEEE DSTC, 2018.
- **Industry Member** INSIC Consortium, 2013-2018 (Tape Format Technical Team).
- **Session Chair** IEEE ICC 2017 – Data Storage Track.
- **Technical Program Committee (TPC) Member** IEEE ISITA 2020, IEEE GLOBECOM {2016 – 2020}, ICC {2017 – 2020} – Data Storage Track, VTC {2020} – All tracks.
- **Technical Program Committee (TPC) Member** ICW-TELKOMNIKA 2018, ICRAMET 2018, EIDWT 2018, ICN 2018, INNOV 2018, INAIT 2019, ICSCC 2019, EIDWT 2019, INNOV 2019.
- **Special Session Chair** IEEE SIU {2017, 2018, 2019} – Signal Processing and Coding for Data Storage and Computing Systems.
- **Refree & Panelist & Panel Moderator**, TUBITAK TEYDEB and 1001, 1003 Calls (2017–present).
- **External Consultant**, TUBITAK 1001, 1003, 2538 TUBITAK-RaEng Calls (2018–present).
- **Refree**, TUSIAD-TUBITAK 13th Technology Awards (2018).
- **Refree**, CONICYT FONDECYT-CHILE Calls (2018–present).
- **Founding Academic Member**, MEF University, Turkey. (2015-Present).
- **Consultant**, Quantum Corp. USA, (2015-Present).
- **Consultant**, Huawei Technologies Co. Ltd. Turkey, (2016).
- **Quantum representative**, SNIA, Linear Tape Open (LTO) Technology, Logical TWG 2014.
- **Reviewer**, IEEE TRANSACTIONS ON MAGNETICS. {2013-present}
- **Reviewer**, ELSEVIER JOURNAL OF PHYSICAL COMMUNICATION. {2013-present}
- **Reviewer**, IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS. {2012-present}
- **Reviewer**, IEEE TRANSACTIONS ON COMMUNICATIONS. {2012-present}
- **Reviewer**, IEEE COMMUNICATION LETTERS. {2012-present}
- **Reviewer**, IEEE TRANSACTIONS ON IMAGE PROCESSING. {2010-present}
- **Reviewer**, HINDAWI PUBLISHING CORPORATION, “Journal of Electrical and Computer Engineering” {2009-present}
- **Reviewer**, IEEE TRANSACTIONS ON VEHICULAR TECHNOLOGY. {2009-present}

AWARDS & HONORS

- **Distinguished Researcher Award** from London Journals Press (UK), recognized as honorary Rosalind Member of LJP, 2020. (ID# TL40779)
- **Publication Incentive Awards**, TUBITAK, 2016-2020.
- **Visiting Scholar Award**, Fullbright, 2020.
- **Lifetime Achievement Award**, Marquis Who’s Who, 2018.
- Recipient of **Quantum Outstanding Research Award**, Dec. 2012, Nov. 2013, Dec. 2014.
- Finalist, **Best Paper Award**, VCIP 2012.
- Intel and LG Electronics (LGE) Research fellow during the graduate study at UC San Diego.
- Recipient of ECE departmental **Fellowship** Supplement, University of California, San Diego (July 2006).

- Selected for the **Dean's office high honor list** in all semesters completed in Bogazici University (2002-2006) and 5th standing in 2006 graduates of engineering faculty.
- Recipient of **Fellowship** of US \$ 35,000 by TUBITAK, (2006)
- **First** standing in Department of Mathematics, Bogazici University.(June-2002).

SPECIAL SKILLS

Language:

- Turkish (native), English (fluent), French(fair), Spanish(Beginner)

Computer Software:

- C, C++, Python, C-MEX, CUDA C-MEX, R, QT C++, L^AT_EX, Visual Basic, Javascript editor, HTML, Microsoft Outlook Express, Macromedia Fireworks, Swish, Corel Draw, Wings3D, Macromedia Dreamwaver , Videowave, Lightwave 3D, Ms-Dos, Microsoft Office tools.

Simulation Software:

- Matlab, DesignLab, NS-3, Pspice, NVIDIA's CUDA SDK, Multism, Modelsim, Catapult, Labview.

Other:

- Jersasure 2.0, ISA-L, Founsure, H.264/AVC, MPEG 2 Part 2/10, EZW, SPIHT, JPEG2000, SDMP programming, openMP, openMPI, Linux device drivers, Random walker & Graphcut segmentation algorithms, Adaboost, SVM, Histogram classification, All channel coding algorithms (Linear block codes like Reed-solomon codes, Convolutional codes, Turbo codes, LDPC, IRA, Online, LT, Raptor, etc...), Linear Tape Open (LTO) Format, Distributed Storage Systems, ML (Noise predictive and list architectures) and MAP detectors, 60-GHz channel modeling with link breaks, Linear/Dynamic Programming, CDMA, LTE, WiMax.

PROFESSIONAL MEMBERSHIPS

- IEEE, Member (15th year),
- Sigma Xi, Associate Member (11th year),
- IEEE Information Theory Society, (4th year)
- IEEE Communications Society, (7th year)
- INSIC, Industry Member (8th year),
- ASME, Member (7th year)
- SNIA, Industry Member (6th year),