ŞUAYB Ş. ARSLAN <suayb.arslan@bogazici.edu.tr>

Cell: +90(545)9050974 Personal:www.suaybarslan.com.tr

RESEARCH OF INTEREST

Information–reliability–system theory, Neural Networks, Distributed systems, Brain and Cognitive sciences, Coding theory applications (neuroscience, machine learning, cloud computing), Signal Processing, Time-series analysis and modeling, Federated/gossip learning, Fault tolerance, Network coding, Parallel processing, IoT, Wireless/wireline multimedia communications, Optimizations, Cross-layer design, Cloud storage for big data management/analytics, Quantum information/computing.

ACADEMIC POSITIONS

Bogazici University ,*Istanbul, Turkiye* *December 2024-Current*
(Institute for Data Science and Artificial Intelligence),
Director, (https://dsai.bogazici.edu.tr/people/sefik-suayb-arslan)

Bogazici University ,*Istanbul, Turkiye* *August 2024-Current*
(Department of Computer Engineering),
Professor, (http://www.bogazici.edu.tr/~sarslan/)

Massachusetts Institute of Technology ,*Cambridge, MA, USA* *Jul. 2024-Current*
(Department of Brain and Cognitive Sciences),
Research Affiliate, (https://sites.mit.edu/suaybarslan/)

Massachusetts Institute of Technology ,*Cambridge, MA, USA* *May. 2022- Jul. 2024*
(Department of Brain and Cognitive Sciences),
Visiting Associate Professor, (http://www.mit.edu/~sarslan/)

Head of DSNS Lab, Founding Member of MEF University, *Istanbul, Turkey* *Mar. 2015-Mar. 2022*
(Department of Computer Engineering),
Associate Professor, (https://www.dsnslab.com)

University of Nantes (LS2N), *Nantes, France* *Dec. 2015, Jul. 2016*
Visiting Professor, (https://www.ls2n.fr/membresequipe/rio/?lang=en)

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: 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: "Discerete Mathematics, Fields and Graph Theory".
- GPA: 3.84/4.00. (High Honors - Top student in the department)

High School:

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

PREVIOUS RESEARCH EXPERIENCE

Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology, Cambridge, MA, USA *May. 2022 - present*
Visiting Associate Professor, Sinha Lab

- Extensive experience with large foundation models and software tools to train and validate those models.
- Biometric Recognition and Identification at Altitude and Range (2022-2024). This work is supported by IARPA – US Goverment.
- Brain-Computer Interface design, brain channel characterization using artificial and biological neural networks.
- Fundamental limits on the accuracy and information transfer rates for brain-computer interfaces.
- Bio-inspired Neural Networks for vision, integration, perception and cognition.

Department of Computer Engineering, MEF University, Maslak, Sariyer *Sept. 2015 - May 2022*
Associate Professor, Head of Distributed Systems Lab

- 5GFEDL: Federated Learning For Secure Private 5G Networks (supported by EU BOSPHORE-TUBITAK 2235 joint Program)
- 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 *March 2007 - March 2012*
Graduate Student Researcher

♢ **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. *June 2011 - Sept. 2011*
Research Intern

♢ **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. *May 2009 - Sept 2009*
Research Intern

♢ **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 *June - Sept. 2005*
Coordinator & Engineer Intern

- 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

Bogazici University, Istanbul, Turkey.
Instructor

- **CMPE362**: *Introduction to Signal Proccessing for Computer Engineering* Fall 2025. (Undergraduate)
- **CMPE140**: *Introduction to Computing* Fall 2024. (Undergraduate)
- **CMPE58I**: *Human-Inspired Machine Intelligence* Fall 2024, 2025. (Graduate)

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,'20,'21. (Graduate)
- **MATH 224**: *Probability and Statistics* Spring'16,'17,'18,'19,'20,'21.
- **COMP 465**: *Fundamentals of Quantum Computing* Fall'20,'21.
- **COMP 206**: *Computer Architecture* Spring'16,'17,'18,'19,'20.
- **COMP 472**: *Parallel and Distributed Systems* Fall'17,'18,'19.
- **EE 203**: *Digital System Design* Fall'16,'17,'18,'19,'20,'21.
  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`.

University of California, 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.

Online Learning
Instructor

- **I host a Youtube channel dedicated to teaching.**
  Available Online: `https://www.youtube.com/@suaybarslan`
- **In memory of Dr. Richard Held, We, with a few other members of the Sinha Lab, host a Youtube channel dedicated to cognitive and computational neuroscience.**
  Available Online: `https://www.youtube.com/@heldmeetings`

PUBLICATIONS

• *Publication record and citation information available online:*
`http://scholar.google.com/citations?user=Tjrq9YEAAAAJ&hl=en`

Thesis:

[**T**]. **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:

[**R4**]. **S. S. Arslan**, Lukas Vogelsang, Michal Fux and Pawan Sinha "Uniform Resampling vs. Image Blur: Aliasing Approximation via Isotropic Gaussian Filtering," under review, *Pattern Recognition Letters,* 2025.

[**R3**]. **S. S. Arslan**, "Guessing Cost with Stopping: Data Regeneration in Cellular Networks," *IEEE Communications Letters*, to be submitted. 2025.

[**R2**]. **S. S. Arslan**, "Incremental Redundancy, Fountain Codes and Advanced Topics", in submission, *IEEE Communications Surveys and Tutorials*. This is a comprehensive study. Initial Version **Available Online:** `https://arxiv.org/abs/1402.6016`.

[**R1**]. **S. S. Arslan**, M. Fux, and P. Sinha. "Distance vs Resolution: Neuromapping of Effective Resolution onto Physical Distance." bioRxiv (2025): 2023-08. In submission, *Scie*. Initial Version **Available Online:** `https://www.biorxiv.org/content/10.1101/2023.08.03.551725v1`.

Book Chapters:

[**BC1**]. **S. S. Arslan**, "BCH and RS codes for DNA Data Storage," accepted, *DNA Data Storage*, Springer Nature, (2025).

Editorials:

[**E3**]. E. Haytaoglu, **S. S. Arslan**, O. Dagdeviren, H. U. Yildiz and Y. Ozturk,"Mass Connectivity and/or Communication Paradigms for the Internet of Things," *Internet of Things*, Elsevier, (2025):. (Q1)

[**E2**]. **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. (Q1)

[**E1**]. M. Turk, E. Zeydan, **S. S. Arslan** and Y. Turk,"The Future Role of Generative Artificial Intelligence (AI) in Medicine," *Journal of Clinical Practice and Research*, Erciyes University Press, (2024): 46(3): 211-213.

Refereed Journal Papers[1]**:**

[J40]. **S. S. Arslan**, "Artificial Human Intelligence: The role of Humans in the Development of Next Generation AI," Accepted to *IEEE Transactions on Emerging Topics in Computational Intelligence*. 2025. (Q1)

[J39]. E. Zeydan, J. Mangues-Bafalluy, **S. S. Arslan**, Y. Turk, T. Hewa, M. Liyanage and A. O'mahony, "Reconfigurable Production Lines for Industrial 5.0 Automation: An Intent-based Approach," Accepted to *IEEE Open Journal of the Computer Society*. 2025, doi: 10.1109/OJCS.2025.3599219. (Q1)

[J38]. E. Zeydan, **S. S. Arslan**, Y. Turk, T. Hewa and M. Liyanage, "The Role of Mobile Communications for Industrial Automation: Architecture, Applications and Challenges," Accepted to *IEEE Open Journal of the Communications Society*, doi: 10.1109/OJCOMS.2025.3595403. (Q1)

[J37]. E. Zeydan, J. Mangues-Bafalluy, **S. S. Arslan**, Y. Turk and Kiril Antevski, "Analysis and Performance Evaluation of Blockchain Consensus Mechanisms for Network Sharing," Accepted to *ACM Digital Ledger Technologies: Research and Practice*. 2025, doi: 10.1145/3756330.

[J36]. A. Aydeger, E. Zeydan, J. Mangues-Bafalluy, **S. S. Arslan** and Y. Turk, "Enhancing Electric Vehicle Security and Privacy through Decentralized Identity Management," Accepted to *ACM Digital Threats: Research and Practice*. 2025, doi:10.1145/3743151. (Q2)

[J35]. E. Zeydan, J. Mangues-Bafalluy, **S. S. Arslan**, Y. Turk and K. Antevski, "Self-Sovereign Identity and Blockchain Integration for Secure Network Sharing and Federation: Evaluation and Analysis," Accepted to *IEEE Reliability Magazine*, 2025, doi: 10.1109/MRL.2025.3569613.

[J34]. E. Zeydan, J. M.-Bafalluy, **S. S. Arslan**, Y. Turk and K. Dev, "IdNet: Identity-Based Networking," Accepted to *IEEE Internet of Things Magazine,* vol. 8, no. 4, pp. 140-146, July 2025. (Q2)

[J33]. E. Zeydan, J. M.-Bafalluy, **S. S. Arslan** and Y. Turk, "Decentralizing Authentication for Mobile Networks: Opportunities and Challenges in Web 3.0 Era," in *IEEE Wireless Communications Magazine,* vol. 32, no. 1, pp. 206-212, Feb. 2025.(Q1)

[J32]. E. Zeydan, J. M.-Bafalluy, **S. S. Arslan**, Y. Turk, A. K. Yadav and M. Liyanage, "Generative Artificial Intelligence for Intent-based Industrial Automation," in *IEEE Consumer Electronics Magazine,* 2024. doi: 10.1109/MCE.2024.3490780 (Q2)

[J31]. E. Zeydan, L. Blanco, J. M.-Bafalluy, **S. S. Arslan**, Y. Turk, A. K. Yadav and M. Liyanage, "Blockchain-based Self-Sovereign Identity: Taking Control of Identity in Federated Learning," in *IEEE Open Journal of the Communications Society,* vol. 5, pp. 5764-5781, 2024. (Q1) [Blockchain for Secure Communications: Selected as top 5 by OJCOMS editors for 2024-2025.]

[J30]. E. Zeydan, L. Blanco, J. M.-Bafalluy, **S. S. Arslan**, and Y. Turk, "Post-Quantum Blockchain-Based Decentralized Identity Management for Resource Sharing in Open Radio Access Networks," in *IEEE Transactions on Green Communications and Networking,* vol. 8, no. 3, pp. 895-909, Sept. 2024. (Q1)

[J29]. E. Zeydan, **S. S. Arslan**, and M. Liyanage, "Managing Distributed Machine Learning Lifecycle for Healthcare Data in the Cloud," in *IEEE Access,* vol. 12, pp. 115750-115774, 2024. (Q2)

[J28]. E. Zeydan, J. M.-Bafalluy, **S. S. Arslan**, and Y. Turk, "Data Sharing Control with Blockchain-based Self-Sovereign Identity Management System," in *IEEE Reliability Magazine,* vol. 1, no. 3, pp. 62-70, Sept. 2024.

[J27]. **S. S. Arslan**, J. Peng and T. Goker, "TALICS^3: Tape Library Cloud Storage System Simulator," in *Simulation Modelling Practice and Theory*, vol. 134, 102947, Apr. 2024. (Q1)

[J26]. E. Zeydan, J. M.-Bafalluy, **S. S. Arslan**, and Y. Turk, "Blockchain-based Self-Sovereign Identity Solution for Aerial Base Station Integrated Networks," in *Vehicular Communications,* vol. 47, 100759, 2024. (Q1)

[J25]. **S. S. Arslan**, and P. Sinha, "Information transfer rate in BCIs: Towards tightly integrated symbiosis," in *Biomedical Signal Processing and Control,* 87, p.105466, 2024. (Q1)

[J24]. E. Zeydan, J. Baranda, J. M.-Bafalluy, **S. S. Arslan**, and Y. Turk, "A Trustworthy Framework for Multi-Cloud Service Management: Self-Sovereign Identity Integration," in *IEEE Transactions on*

[1]Journal rankings are given according to SJR(Scimago Journal & Country Rank) - www.scimagojr.com at the time of publication.

Network Science and Engineering, vol. 11, no. 3, pp. 3135-3147, May-June 2024. (Q1)

[**J23**]. **S. S. Arslan**, and E. Haytaoglu, "Guessing Cost: Bounds and Applications to Data Repair in Distributed Storage," in *IEEE Transactions on Information Theory,* vol. 70, no. 10, pp. 6757-6779, Oct. 2024. (AI[2]:1.069) (Q1) **Available Online:** `https://arxiv.org/abs/2005.06666`

[**J22**]. E. Zeydan, **S. S. Arslan**, and Y. Turk, "Exploring Blockchain Architectures for Network Sharing: Advantages, Limitations, and Suitability," in *IEEE Transactions on Network and Service Management,* vol. 21, no. 2, pp. 1791-1801, April 2024. (Q1)

[**J21**]. E. Zeydan, J. Mangues-Bafalluy, **S. S. Arslan**, and Y. Turk, "Blockchain-based Self-Sovereign Identity for Routing in Inter-Domain Networks," in *IEEE Communications Magazine,* vol. 62, no. 1, pp. 96-102, Jan. 2024. (Q1)

[**J20**]. M. Yagan, S. Musellim, **S. S. Arslan**, T. Cakar, N. Alp and H. Ozkan, "A New Benchmark Dataset Towards Ubiquitous P300 ERP-based BCI Applications," *Digital Signal Processing,* 135 (2023): 103950, Elsevier. (Q2)

[**J19**]. M. Pourmandi, A. E. Pusane, **S. S. Arslan** and E. Haytaoglu, "Minimum Repair Bandwidth LDPC Codes for Distributed Storage Systems," in *IEEE Communications Letters*, vol. 27, no. 2, pp. 428-432, Feb. 2023. (Q1)

[**J18**]. **S. S. Arslan** "Optimal Data Decoding Strategies for Product-Coded Sequential Media Recording Via Latin Squares," in *IEEE Transactions on Magnetics*, vol. 59, no. 1, pp. 1-11, Jan. 2023. (Q2)

[**J17**]. **S. S. Arslan** and T. Goker, "Compress-Store on Blockchain: A Decentralized Data Processing and Immutable Storage for Multimedia Streaming," *Cluster Computing*, vol. 25, no. 3 (2022): 1957-1968. (Q2)

[**J16**]. E. Haytaoglu, E. Kaya and **S. S. Arslan**, "Data Repair-Efficient Fault Tolerance for Cellular Networks Using LDPC Codes", *IEEE Transactions on Communications*, vol. 70, no. 1, pp. 19-31, Jan. 2022. (AI:1.575) **Available Online:** `https://arxiv.org/abs/2010.14781` (Q1)

[**J15**]. **S. S. Arslan**, "Array BP-XOR Codes for Parallel Matrix Multiplication using Hierarchical Computing," *IEEE Transactions on Information Theory,* vol. 68, no. 3, pp. 2050-2066, March 2022. **Available Online:** `https://arxiv.org/abs/1904.11563` (AI:1.069) (Q1)

[**J14**]. **S. S. Arslan**, "Exact Construction of BS-assisted MSCR codes with Link Constraints," in *IEEE Communications Letters*, vol. 26, no. 2, pp. 225-228, Feb. 2022. (Q1)

[**J13**]. **S. S. Arslan**, "Founsure 1.0: An erasure code library with efficient repair and update features," *SoftwareX*, vol. 13, p. 100662, 2021. **Available Online:** `https://arxiv.org/abs/1702.07409` (Q2)

[**J12**]. **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*, vol. 70, no. 2, pp. 507-524, June 2021. (AI:1.01) (Q1)

[**J11**]. **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. (AI:1.037) (Q1)

[**J10**]. 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. (Q2)

[**J9**]. **S. S. Arslan**, "A Reliability Model for Dependent and Distributed MDS Disk Array Units," in *IEEE Transactions on Reliability*, vol. 68, no. 1, pp. 133-148, March 2019. (AI:1.01) (Q1)

[**J8**]. 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. (Q1)

[**J7**]. **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. (Q2)

[**J6**]. **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. (Q2)

[**J5**]. **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. (Q2)

[2]Article Influence score.

[J4]. **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. (Q2)

[J3]. **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. (AI:3.204) (Q1)

[J2]. **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. (AI:1.217) (Q1)

[J1]. **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. (AI:3.204) (Q1)

Refereed Conference Papers/Talks/Posters:

[C46]. Y. Ates, A. Sayar, I. U. Bozlar, S. Ertugrul, **S. S. Arslan**, "Semantic Chunking and Chain-of-Thought Reasoning for RAG-based Document Processing," Accepted to *IEEE International Workshop on Machine Learning for Signal Processing (MLSP),* Istanbul, 2025.

[C45]. E. Zeydan, L. Blanco, J. Mangues-Bafalluy, Abdullah Aydeger, **S. S. Arslan**, Y. Turk, "Integrating Quantum-Secured Blockchain Identity Management in Open RAN for 6G Networks," Accepted to *IEEE Conference on Local Computer Networks (LCN),* France, 2024.

[C44]. **S. S. Arslan**, Hojin Jang and Pawan Sinha "Internal Neural Noise Progression for Emergent Classification Robustness," Aug. 2024, *Cognitive Computational Neuroscience,* MIT, Cambridge, MA, USA.

[C43]. E. Zeydan, L. Blanco, J. Mangues-Bafalluy, **S. S. Arslan**, Y. Turk, "Next-Generation Orchestration: Quantum Computing for Network Services," Accepted to *International Conference on Computer, Information and Telecommunication Systems (CITS),* 2024.

[C42]. E. Zeydan, L. Blanco, J. Mangues-Bafalluy, A. Aydeger, **S. S. Arslan**, Y. Turk, J. Bas and S. K. Mishra, "Enhanced Security with Quantum Key Distribution and Blockchain for Digital Identities," accepted to *IEEE International Mediterranean Conference on Communications and Networking (MeditCom'24)* Madrid, Spain.

[C41]. M. Groth, M. Fux, H. Jang, **S. S. Arslan**, W. Dixon, J. Munshi and Pawan Sinha, "Comparing Human Face and Body Recognition at Various Distance and Rotation Viewing Conditions," accepted to *Vision Sciences Society (VSS) Conference, May 2024* Palm Beach, FL, USA.

[C40]. J. Munshi, H. Jang, M. Fux, **S. S. Arslan**, M. Groth, W. Dixon and Pawan Sinha, "Biomimetic-inspired resilient learning: Impact of progressive chromatic variations on the face recognition performance," accepted to *Vision Sciences Society (VSS) Conference, May 2024* Palm Beach, FL, USA.

[C39]. M. Fux, J. Munshi, H. Jang, C. H. Lahey, **S. S. Arslan**, W. Dixon, M. Groth and Pawan Sinha, "Comparing Human eye-tracking heatmaps with DNN saliency maps for faces at different spatial frequencies," accepted to *Vision Sciences Society (VSS) Conference, May 2024* Palm Beach, FL, USA. **(accepted as a Talk)**

[C38]. **S. S. Arslan**, M. Fux, H. Jang, M. Groth, J. Munshi, W. Dixon and Pawan Sinha, "Spatial Frequency Decoupling: Bio-inspired strategy for Network Robustness," accepted to *Vision Sciences Society (VSS) Conference, May 2024* Palm Beach, FL, USA.

[C37]. A. Sayar, **S. S. Arslan**, S. Ertuğrul, T. Çakar and A. Akçay, "Yüksek Performanslı Gerçek Zamanlı Veri İşleme: Debezium, Postgres, Kafka ve Redis Kullanarak Verilerin Yönetimi," accepted to *2023 Innovations in Intelligent Systems and Applications Conference (ASYU)* Sivas, Turkiye, 2023.

[C36]. E. Zeydan, L. Blanco, J. M-B., **S. S. Arslan** and Y. Turk, " Decentralized Identity Management for Secure Resource Sharing in O-RAN," accepted to *2023 IEEE 12th International Conference on Cloud Networking (CloudNet)* New York, NY, USA, 2023.

[C35]. E. Zeydan, J. M-Bafalluy, **S. S. Arslan** and Y. Turk, "Blockchain-Based Self-Sovereign Identity for Federated Learning in Vehicular Networks," accepted to *19th International Conference on Network and Service Management (CNSM)* Niagara Falls, ON, Canada, 2023, pp. 1-7.

[C34]. **S. S. Arslan**, M. Fux and Pawan Sinha, "What is the effective resolution of the retinal image of a distant face?," *Vision Sciences Society (VSS) Conference, May 2023* Palm Beach, FL, USA.

[C33]. M. Fux, **S. S. Arslan**, H. Jang, X. Boix, A. Cooper, M. J. Groth and P. Sinha, “Comparing Humans and Deep Neural Networks on Face Recognition Under Various Distance and Rotation Viewing Conditions," *Vision Sciences Society (VSS) Conference, May 2023* Palm Beach, FL, USA.

[C32]. E. Zeydan,J. M-Bafalluy, **S. S. Arslan** and Y. Turk,“Self-Sovereign Identity Management for Hierarchical Federated Learning in Vehicular Networks", accepted to *IEEE HPSR'23*, Albuquerque, NM, USA, 2023

[C31]. E. Zeydan,J. M-Bafalluy, **S. S. Arslan** and Y. Turk, “Blockchain-based Self-Sovereign Identity Solution for Vehicular Networks", accepted to *IEEE DRCN'23*, Barcelona, Spain,2023.

[C30]. A. Sayar, **S. S. Arslan** and T. Cakar, "SSQEM: Semi-Supervised Quantum Error Mitigation," 2022 *7th International Conference on Computer Science and Engineering (UBMK)*, 2022, pp. 474-478.

[C29]. E. Ertekin, B. B. Gunden, Y. Yilmaz, A. Sayar, T. Cakar and **S. S. Arslan**, "EMG-based BCI for PiCar Mobilization," 2022, *7th International Conference on Computer Science and Engineering (UBMK),* 2022, pp. 496-500.

[C28]. **S. S. Arslan** and E. Haytaoglu.“Improved Bounds on the Moments of Guessing Cost", *IEEE International Symposium of Information Theory (ISIT)*, Finland, 2022, pp. 3351-3356.

[C27]. **S. S. Arslan**, M. Pourmandi and E. Haytaoglu. "Base Station-Assisted Cooperative Network Coding for Cellular Systems with Link Constraints", *IEEE International Symposium of Information Theory (ISIT)*, Finland, 2022, pp. 3351-3356.

[C26]. E. Kaya, M. Pourmandi, E. Haytaoglu and **S. S. Arslan**, “Residual Data Usage in LDPC Codes ," 2022, *30th Signal Processing and Communications Applications Conference (SIU)*, 2022, pp. 1-4.

[C25]. O.B.Guney, C. Aksoy, E. Koc, Y. Catak, **S. S. Arslan** and H. Ozkan, “Adaptive Boosting of DNN Ensembles for Brain-Computer Interface Spellers", *IEEE Signal Processing and Communications Applications Conference (SIU)*, Accepted, 2021.

[C24]. M. Pourmandi, A.C. Tengiz, E. Haytaoglu, **S.S. Arslan** and A. E. Pusane, “Average Bandwidth-Cost v.s. Storage Trade-off for BS-assisted Distributed Storage Networks," *IEEE Signal Processing and Communications Applications Conference (SIU)*, Accepted, 2021.

[C23]. **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.

[C22]. 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.

[C21]. 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.

[C20]. E. Zeydan, **S. S. Arslan**, “Cloud^2 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.

[C19]. **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.

[C18]. 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.

[C17]. O. Yigit and **S. S. Arslan** “Disk Hasarlarinin Analizi ve Tahmini icin Bir Veri Analitigi Platformu" *2nd International Conference on Data Science and Applications, (ICONDATA)*, Edremit, Turkey, 2019.

[C16]. 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.

[C15]. **S. S. Arslan**, “Asymtotically MDS BP-XOR Codes," *IEEE International Conference on Information Theory (ISIT)*, Vail, Colorado, USA, 2018, pp. 1-5.

[C14]. 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.

[C13]. 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.

[**C12**]. I. O. Yigit, **S. S. Arslan** and E. Zeydan, "A Visualization Platfom for Disk Failure Analysis," *26th IEEE Signal Processing and Communications Applications Conference (SIU)*, Izmir, Turkey, 2018.

[**C11**]. 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.

[**C10**]. **S. S. Arslan**, Hoa Le, Joe Landman and Turguy Goker, "OpenMP and POSIX Threads Implementation of Jerasure 2.0," *6th IEEE Blacksea Conference*, Istanbul, Turkey, 2017.

[**C9**]. **S. S. Arslan**, Rod Wideman and Turguy Goker, "A joint dedupe-fountain coded archival storage," *IEEE International Conference on Communications (ICC),* 2017, pp. 1-7, Paris, France.

[**C8**]. **S. S. Arslan**, Benoit Perrain and Nicolas Normand, "Mojette transform based LDPC erasure correction codes for distributed storage systems," *25th IEEE Signal Processing and Communications Applications Conference*, Antalya, Turkey, 2017

[**C7**]. **S. S. Arslan**, "Implementation of Multi-threaded Erasure Coding under Multi-Processing Environments", *24th IEEE Signal Processing and Communications Applications Conference*, Zonguldak, Turkey, 2016.

[**C6**]. **S. S. Arslan**, "Minimum distortion variance concatenated block codes for embedded source transmission," *2014 International Conference on Computing, Networking and Communications (ICNC)*, 2014, pp. 386-392, (acceptance rate < 25%), Available Online: *arXiv:1210.2815v1 [cs.MM] 2012*.

[**C5**]. **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.

[**C4**]. **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)

[**C3**]. **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.

[**C2**]. 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.

[**C1**]. **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`

Patents (Selected Grant Publications - Not comprehensive):

[**PG15**]. T. Goker, J. Lee, H. Le, S. S. Arslan, J. Peng, "Network Attached Device for Accessing Removable Storage Media", **US12238169 B2**. (Date: Feb 25, 2025)

[**PG14**]. S. S. Arslan, T. Goker, "Artificial Intelligence Augmented Iterative Product Decoding", **US11990920 B2, 20230216522 A1**. (Date: May 21, 2024)

[**PG13**]. T. Goker, J. Peng, H. Le, S. S. Arslan, "Partitioned data-based TDS compensation using joint temporary encoding and environmental controls," **US11688426 B2**, (Date: June 27, 2023)

[**PG12**]. T. Goker, H. Le, Suayb S. Arslan, L. Almero, "End-to-end fixity check for archival storage based on high-performance integrity test with data quality using self-describing tape format", **US11615813 B1**, (Date: March 28, 2023)

[**PG11**]. T. Goker, S. S. Arslan, H. Le, J. Peng, C. Prigge, "Erasure Coding Magnetic Tapes for Minimum Latency and Adaptive Parity Protection Feedback", **US11216196 B2**, (Date: Jan 4, 2022)

[**PG10**]. R. B. Wideman, T. Goker and S. S. Arslan, "Removable media based object store", **US11042299 B2**, (Date: June 22, 2021), **US11656764 B2**, (Date: May 23, 2023)

[**PG9**]. S. S. Arslan, T. Goker and R. B. Wideman "Joint De-Duplication-erasure coded distributed storage", **US10853187 B2**, (Date: Dec 1, 2020)

[**PG8**]. S. S. Arslan, T. Goker and J. Lee "Efficient data storage across multiple storage volumes each rep-

resenting a track of a larger storage volume", **US10698616 B2**, (Date: Jun 30, 2020)

[**PG7**]. 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)

[**PG6**]. 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)

[**PG6**]. S. S. Arslan and T. Goker, "High/low energy zone data storage", **US10114692 B2**.

[**PG5**]. 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)

[**PG4**]. S. S. Arslan and T. Goker, "Adaptive Erasure Codes", **US10044374 B2**. (Date: Aug. 7, 2018)

[**PG3**]. S. S. Arslan and T. Goker, "Power savings in cold storage", **US9965351 B2**. (Date: May. 8, 2018)

[**PG2**]. S. S. Arslan and T. Goker, "Efficient High/low energy zone solid state device data storage", **US10114692 B2, US9846613 B2**. (Date: Oct. 30, 2018)

[**PG1**]. T. Goker, S. S. Arslan, D. Doerner and H. Le, "Doubly distributed erasure codes", **US9431054 B2** (Date: Aug. 30, 2016)

Patents (Selected Application Publications - Not comprehensive):

[**PA19**]. S. S. Arslan, T. Goker, "Joint Multi-Nanopore Sequencing for Reliable Data Retrieval in Nucleic Acid Storage", **20230215516 A1**.

[**PA18**]. S. S. Arslan, T. Goker, "Artificial Intelligence Augmented Iterative Product Decoding", **20230216522 A1**.

[**PA17**]. T. Goker, S. S. Arslan H. Le, J. Peng, "Partitioned data-based tds compensation using joint temporary encoding and environmental controls", **20220415357 A1**.

[**PA16**]. S. S. Arslan, T. Goker and J. Lee "Data storage across simplified storage volumes", **20200117375 A1**.

[**PA15**]. T. Goker, S. S. Arslan H. Le, J. Peng and P. Carsten, "Erasure Coding Magnetic Tapes for Minimum Layency and Adaptive Parity Feedback", **20190361606 A1**.

[**PA14**]. 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**.

[**PA13**]. S. S. Arslan, T. Goker, J. Lee and H. Le, "System and Method for Tape Layout Optimization", **20190027186 A1**.

[**PA12**]. T. Goker, J. Lee, H. Le, S. Arslan, J. Peng "Network Attached Device for Accesing Removable Storage Media", **20180302473 A1**.

[**PA11**]. T. Goker, J. Lee, H. Le, S. S. Arslan and J. Peng, "Efficient Data storage across multiple storage volumes", **20180302473 A1**.

[**PA10**]. S. S. Arslan and T. Goker , "Power savings in cold storage", **20180225172 A1**.

[**PA9**]. S. S. Arslan, T. Goker and J. Lee, "Efficient Data storage across multiple storage volumes", **20180136857 A1**.

[**PA8**]. S. S. Arslan, T. G. Goker and Rod Wideman, "Joint de-duplication-erasure coded distributed storage", **US 20180018235 A1**.

[**PA7**]. Rod Wideman, T. G. Goker and S. S. Arslan, "Removable media based object store", **US20170371543 A1**.

[**PA6**]. R. Wideman, S. S. Arslan, J. Lee and T. Goker, "Data Deduplication with adaptive Erasure Code Redundancy", **US20160013815 A1**.

[**PA5**]. S. S. Arslan and T. Goker, "Adaptive Erasure Codes", **US 20170033806 A1**.

[**PA4**]. S. S. Arslan and T. Goker, "High/low energy zone data storage", **US20160218751 A1**.

[**PA3**]. S. S. Arslan and T. Goker, "Power savings in cold storage", **US20160217823 A1**.

[**PA2**]. S. S. Arslan and T. Goker, "Efficient High/low energy zone solid state device data storage", **US20160217031 A1**.

[**PA1**]. 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:** `https://ppubs.uspto.gov/pubwebapp/static/pages/ppubsbasic.html`). Search for "Suayb Arslan".

Poster presentations, Seminars & Invited talks:

- S. S. Arslan “Making Neural Networks Exhibit Robustness under Adversarial Conditions: A Neuroscience Perspective", *Invited Speech* Boston University, May. 2024.
- S. S. Arslan “Recent advancements in Guessing with applications to distributed storage and machine learning" *Invited Speech* at 10th ICCCM 2022.
- 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.

Projects:

Below, I provide some of the national (TUBITAK(**T**)) as well as BAP and international projects (ongoing, completed, or onhold) to describe some of the research goals at the forefront.

- (**YOKADP-25**) Extensible Dataset Labeling and Contrastive Alignment for Cross-Modal Inference and Data Generation with a Multimodal LLM (A joint project with Dr. Mehmet Turan Dr. Taha Koçyiğit, Adem Almalıoğlu, Istanbul, Turkey.) [PI] (**ongoing**)

- (**T1001-25**) BIO-inspired Deep neural network and hybrid system design under degraded imaging conditions (A joint project with Dr. Tuna Çakar at MEF University, Istanbul, Turkey.) [PI] (**ongoing**)

- (**BAP-25**) Brain’s Spatial Frequency Processing and Frequency-decoupled Computational Model Development. [PI] (**ongoing**)

- (**T2219-22**) Evolution of Brain-Computer Interfaces: Temporal Stimuli and the Brain Channel with Guessing Functions in Online Games. (A Joint Project with Prof. Pawan Sinha at MIT.) [PI] (**completed**)

- (**IARPA-22**) BRIAR: Biometric Recognition and Identification at Altitude and Range (A Joint Project with MIT, General Electrics and IARPA - U.S. Government) [Researcher] (**completed**)

- (**FULBRIGHT-22**) Multi-Nanopore Sequencing: Modeling, Joint Signal Processing and Coding towards Practical DNA Data Storage (A Joint proposal with Lawrence National Lab at UC Berkeley, 2022) [PI] (**onhold**)

- (**T3501-20**) Development and testing of robust concurrent algorithms to solve mixed integer linear programming problems in distributed memory systems. (A joint project with Dr. Utku Koç at MEF University.) [Researcher] (**ongoing**)
- (**T1001-19**) DISCO-Proc: DIstributed Storage, near-optimal COding and Protocol design for data caching through device to device communications in cooperative cellular networks. (A Joint project with Dr. Elif Haytaoglu at Pamukkale Univ., Denizli, Turkey.) [PI] (**completed**)
- (**T2523-18**) C2B-DecStor: Clustered and Coded Blockchain System for Decentralized Storage. (Joint application with Dr. Jae Moon at KAIST, Korea.) [PI] (**completed**)
- (**T2232-17**) Cloud-Specialized Systematic Fountain Code Design and its application on Big data Streams. (Resulted in a software library: Founsure 1.0) [PI] (**completed**)
- (**T2545-16**) MOJCODE: Mojette Transform based Correction Coding for Data Science Applications. (Joint application with Dr. Benoit Parrein at University of Nantes, France.) [PI] (**completed**)

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.

Completed Theses:

- M. Pourmandi, "LDPC Code Design For Distributed Storage Sytems", Electrical & Electronics Engineering Ph.d. Thesis, Bogazici University, July, 2023.(funded by **T1001-19** and co-advised by Prof. Ali E. Pusane, 117 Pages)

Funding Organizations:

- 2025-today, YÖK
- 2022-2024, GE Electric & IARPA, US Government.
- 2019-today, TUBITAK 1001, 3501, 2219.
- 2020, 2022 - FulBright Turkey.
- 2016, 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

- **Executive Editor,** Elsevier Internet of Things Journal (Q1, IF:7.6), Oct. 2025–today.
- **Member Representative (Bogazici University),** SNIA (DNA storage) 2025–today.
- **Topic Advisory Panel Member,** MDPI Bioengineering, 2024
- **Refree & Panelist,** EU Commission CHISTERA Calls (2023).
- **Editor** IEEE Data Storage Technical Committee Newsletter, 2022-2023.

- **Secretary** IEEE Data Storage Technical Committee, 2022-2023.
- **Treasurer** IEEE Data Storage Technical Committee, 2021-2022.
- **Vice-Chair** IEEE ComSoc Turkey, 2021-2023.
- **Track Chair** Data Storage and Cloud Computing Track, IEEE ICC 2021.
- **Track Chair** Data Storage Track Special Session, IEEE SIU 2020.
- **Associate Editor** Elsevier book series: "Intelligent Data-Centric Systems: Sensor Collected Intelligence" online: https://www.elsevier.com/books-and-journals/book-series/intelligent-data-centric-systems-sensor-collected-intelligence.
- **Associate Editor** Bulletin of Electrical Engineering and Informatics (BEEI), iaes, 2019-2022.
- **Associate Editor** Internet of Things JOURNAL, ELSEVIER, 2018-2025.
- **Award Committee Member** IEEE ComSoc Student Competition, 2018-Today.
- **Active Committee Member** IEEE DSTC, 2018-2021.
- **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 1001, 1003, 1501/7, 2247 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, (2015-2022).
- **Consultant,** Huawei Technologies Co. Ltd. Turkey, (2016).
- **Quantum representative**, SNIA, Linear Tape Open (LTO) Technology, Logical TWG 2014.
- **Reviewer**, Many major IEEE Transactions journals {2013-present}

AWARDS & HONORS

- **Visiting Scholar Awards**, LS2N (2015), TUBITAK 2219 (2021), Fullbright (2022), IARPA (2023).
- Finalist, **IEEE ComSoc Turkey Best Paper Award**, IEEE SIU'21.
- **Distinguished Researcher Award** from London Journals Press (UK), recognized as honorary Rosalind Member of LJP, 2020. (ID# TL40779)
- **Publication Incentive Awards**, TUBITAK, 2016-2020.
- **Lifetime Achievement Award**, Marquis Who's Who, 2018-2020.
- **HORIZON 2020 Above-Threshold-Award**, TUBITAK, 2017-2018.
- 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++, LaTeX, Visual Basic, Javascript editor, HTML, Microsoft Outlook Express, Macromedia Fireworks, Swish, Corel Draw, Wings3D, Macromedia Dreamwaver , Videowave, Lightwave 3D, Ms-Dos, Microsoft Office tools.

Artificial Intelligence:

- Tensorflow, Keras, PyTorch, Numpy, Scipy, Pandas, Scikit-learn, FedML, Specktral, Psychopy.

Simulation Software:

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

Other:

- Jerasure 2.0, ISA-L, Founsure 1.0, PyTorch, TensorFlow, 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, Senior Member (16th year),
- Sigma Xi, Associate Member (12th year),
- IEEE Information Theory Society, (5th year)
- IEEE Communications Society, (8th year)
- IEEE Computer Society, (1st year)
- INSIC, Industry Member (8th year),
- ASME, Member (7th year)
- SNIA, Industry Member (6th year),

REFERENCES

Available upon request.