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- EDUCATION** **Stanford University**, Stanford, CA, USA
Ph.D., Electrical Engineering, May 2007 - Mar. 2011.
Thesis title: Fast Algorithms for the Digital Computation of Linear Canonical Transforms
Advisor: Prof. Lambertus Hesselink
M.S., Management Science & Engineering, Sept. 2007 - Jan. 2009.
M.S., Electrical Engineering, Sept. 2005 - Apr. 2007.
Bilkent University, Ankara, Turkey
B.S., Electrical and Electronics Engineering, Sept. 2001 - May 2005.
- ACADEMIC EXPERIENCE** **Bilkent University**, Department of Electrical & Electronics Engineering, and National Magnetic Resonance Research Center (UMRAM), Ankara, TURKEY
Assistant Professor, Aug. 2019 - Present.
Interuniversity Council of the Republic of Turkey, Electrical & Electronics Engineering
Associate Professor, June 2020 - Present.
Middle East Technical University, Electrical & Electronics Engineering, Ankara, TURKEY
Part-time Lecturer, Sept. 2016 - Dec. 2017.
Stanford University, Department of Electrical Engineering, Stanford, CA, USA
Research Assistant, Jan. 2006 - Mar. 2011.
Teaching Assistant, EE366: Fourier Optics (Graduate Level).
Stanford University, Department of Management Science & Engineering, Stanford, CA, USA
Teaching Assistant, MS&E 241: Economic Analysis (Graduate Level).
Teaching Assistant, MS&E 154: Business Strategy and Public Policy Decision Making.
- PROFESSIONAL EXPERIENCE** **Aselsan Research Center**, Ankara, TURKEY
Manager / Principal Investigator, Mar. 2015 - Jul. 2019.
Applied research on machine learning, signal/image processing, and artificial intelligence.
Expert/Senior Expert Engineer, Technical Manager, Project Manager, June 2011 - Feb. 2015.
R&D projects on image processing.
- OTHER ACADEMIC DUTIES**
- Associate Editor and Member of the Editorial Board
IEEE Signal Processing Letters, Jul. 2023 - Present.
 - Associate Editor and Member of the Editorial Board
IEEE Transactions on Signal and Information Processing over Networks, Mar. 2023 - Present.
 - Associate Editor and Member of the Editorial Board
IEEE Transactions on Circuits and Systems for Video Technology, Jan. 2023 - Present.

HONORS AND AWARDS

- Science Academy Young Scientists Award (BAGEP), 2023.
- Senior Member, IEEE, 2020.
- IEEE Signal Processing Society’s top 25 downloaded articles from Sept. 2022 - Sept. 2023. (IEEE SPL Article “Multivariate Time Series Imputation with Transformers”.)
- Stanford University Electrical Engineering Fellowship for graduate study.
- Ranked 2nd out of approximately 100 graduates in the Department of Electrical & Electronics Engineering, Bilkent University, 2005.
- Full scholarship from Bilkent University Board of Trustees for undergraduate study, 2000-2005.
- Ranked 22nd in the Nationwide University Entrance Exam among ~ 1,500,000 students, 2000.
- Scholarship for undergraduate and graduate studies overseas of the Ministry of Education of the Republic of Turkey due to the ranking at the Nationwide University Entrance Exam, 2000.

RESEARCH PROJECTS

- “Natural Language Processing and Machine Learning Techniques for Applications of Artificial Intelligence in Legal Texts”, **Principal Investigator**, TUBITAK 1001 Project, 120E346, 2021-2023.
- “Learning-based Ambulance Redeployment and Management Simulator Development”, **Principal Investigator**, TUBITAK 1501 Project, ASELSAN, 2017-2019.
- “Artificial-Intelligence Models Using Magnetic Resonance Imaging Data for Genotype-Based World Health Organization 2020 Tumor Classification of Adult-type Diffuse Gliomas”, **Researcher**, TUBITAK 1001 Project, 220S249, 2021-2024.
- “Detection of Microplastic Waste by Using a Novel Microfluidic System with an Integrated Machine Learning Algorithm”, **Researcher**, TUBITAK 1001 Project, 122M847, 2022-2025.
- “Urban Security and Surveillance Systems Algorithm Development”, **Researcher**, TUBITAK 1007 Project, ASELSAN, 2016-2019.

PATENTS

- [P4] **A. Koç**, B. Solmaz, E. Gündoğdu, and V. Yücesoy. “Deniz araçları için bir nitelik belirleme yöntemi”. Status: Granted. 23.11.2020 TR 2017 16043 B / Patent with Examination.
- [P3] V. Yücesoy, E. Gündoğdu, **A. Koç**, and B. Solmaz. “Bir deniz aracı tanıma yöntemi”. Status: Granted. 21.08.2020 / TR 2016 14118 B / Patent with Examination.
- [P2] E. Gündoğdu, **A. Koç**, and B. Bartan. “Bir veri sıkıştırma yöntemi”. Status: Granted. 21.08.2020 / TR 2016 08516 B / Patent with Examination.
- [P1] **A. Koç** and A. A. Alatan. “Bir dönmeye bağlı hedef takip yöntemi”. Status: Granted. 21.02.2017 / TR 2014 00650 B / Patent with Examination.

BOOK CHAPTERS

- [B1] **A. Koç**, F. S. Oktem, H. M. Ozaktas, and M. A. Kutay, “Fast Algorithms for Digital Computation of Linear Canonical Transforms”. In J. J. Healy et al. editors, *Linear Canonical Transforms*, pages 293-327, Springer, New York, 2016.

JOURNAL PUBLICATIONS

- [J42] T. Alikasifoglu, B. Kartal, and **A. Koç**, “Wiener Filtering in Joint Time-Vertex Fractional Fourier Domains”, *IEEE Signal Processing Letters*, vol. 31, pp. 1319-1323, 2024. doi: 10.1109/lsp.2024.3396664.
- [J41] A. C. Aras, T. Alikasifoglu, and **A. Koç**, “Graph Receptive Transformer Encoder for Text Classification”, *IEEE Transactions on Signal and Information Processing over Networks*, vol. 10, pp. 347-359, 2024. doi: 10.1109/tsipn.2024.3380362.
- [J40] E. Koç, T. Alikasifoglu, A. C. Aras, and **A. Koç**, “Trainable Fractional Fourier Transform”, *IEEE Signal Processing Letters*, vol. 31, pp. 751-755, 2024. doi: 10.1109/lsp.2024.3372779.
- [J39] T. Cabuk, N. Sevim, E. Mutlu, E. A. Yagcioglu, **A. Koç**, and T. Touloupoulou, “Natural Language Processing for Defining Linguistic Features in Schizophrenia: A Sample from Turkish Speakers”, *Schizophrenia Research*, vol. 266, pp. 183-189, 2024. doi: 10.1016/j.schres.2024.02.026.

- [J38] O. M. Battal and **A. Koç**, “Automatic Construction of Sememe Knowledge Bases from Machine Readable Dictionaries”, *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol. 32, pp. 1023-1035, 2024. doi: 10.1109/taslp.2023.3347927.
- [J37] M. Bozdog, N. Sevim, and **A. Koç**, “Measuring and Mitigating Gender Bias in Legal Contextualized Language Models”, *ACM Transactions on Knowledge Discovery from Data*, vol. 18, no. 4, article no.: 79, pp 1–26, 2024. doi: 10.1145/3628602.
- [J36] R. A. Sevimli, M. Üçüncü, and **A. Koç**, “RadGT: Graph and Transformer-based Automotive Radar Point Cloud Segmentation”, *IEEE Sensors Letters*, vol. 7, no. 11, pp. 1-4, Art no. 6008904, 2023. doi: 10.1109/lens.2023.3327593.
- [J35] C. Çetindağ, B. Yazıcıoğlu, and **A. Koç**, “Named Entity Recognition in Turkish Legal Texts”, *Natural Language Engineering*, vol. 29, pp. 615-642, 2023. doi: 10.1017/S1351324922000304.
- [J34] R. A. Sevimli, M. Üçüncü, and **A. Koç**, “Graph Signal Processing Based Object Classification for Automotive RADAR Point Clouds”, *Digital Signal Processing*, vol. 137, 104045, 2023. doi: 10.1016/j.dsp.2023.104045.
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- [J32] S. F. Yılmaz, E. Kaynak, **A. Koç**, H. Dibeklioğlu, and S. S. Kozat, “Multi-Label Sentiment Analysis on 100 Languages with Dynamic Weighting for Label Imbalance”, *IEEE Transactions on Neural Networks and Learning Systems*, vol. 34, no. 1, pp. 331-343, 2023. doi: 10.1109/tnnls.2021.3094304.
- [J31] F. Şahinuç, E. H. Yılmaz, C. Toraman, and **A. Koç**, “The Effect of Gender Bias on Hate Speech Detection”, *Signal, Image and Video Processing (SIViP)*, vol. 17, pages 1591–1597, 2023. doi: 10.1007/s11760-022-02368-z.
- [J30] E. Koç and **A. Koç**, “Fractional Fourier Transform in Time Series Prediction”, *IEEE Signal Processing Letters*, vol. 29, pp. 2542-2546, 2022. doi: 10.1109/lsp.2022.3228131.
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- [J28] **A. Koç** and H. M. Ozaktas, “Relationship Between the Beam Propagation Method and Linear Canonical and fractional Fourier Transforms”, *Applied Optics*, 61 (34), 10275-10282, 2022. doi: 10.1364/ao.472113.
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- [J26] L. K. Şenel, F. Şahinuç, V. Yücesoy, H. Schütze, T. Çukur, and **A. Koç**, “Learning Interpretable Word Embeddings via Bidirectional Alignment of Dimensions With Semantic Concepts”, *Information Processing and Management*, vol. 59, No. 3, 102925, 2022. doi: 10.1016/j.ipm.2022.102925.
- [J25] A. Yüksel, B. Uğurlu, and **A. Koç**, “Semantic Change Detection with Gaussian Word Embeddings”, *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol. 29, 3349-3361, 2021. doi: 10.1109/taslp.2021.3120645.
- [J24] **A. Koç** and H. M. Ozaktas, “Operator Theory-Based Computation of Linear Canonical Transforms”, *Signal Processing*, vol. 189, 108291, 2021. doi: 10.1016/j.sigpro.2021.108291.
- [J23] E. Mumcuoğlu, C. E. Öztürk, H. M. Ozaktas, and **A. Koç**, “Natural Language Processing in Law: Prediction of outcomes in the Higher Courts of Turkey”, *Information Processing and Management*, vol. 58, No. 5, 102684, 2021. doi: 10.1016/j.ipm.2021.102684.
- [J22] B. Kartal, Y. E. Bayız, and **A. Koç**, “Graph Signal Processing: Vertex Multiplication”, *IEEE Signal Processing Letters*, vol. 28, pp. 1270-1274, 2021. doi: 10.1109/lsp.2021.3086391.
- [J21] C. Öztürk, H. M. Ozaktas, S. Gezici, and **A. Koç**, “Optimal Fractional Fourier Filtering for Graph Signals”, *IEEE Transactions on Signal Processing*, vol. 69, pp. 2902-2912, 2021. doi: 10.1109/tsp.2021.3079804.
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- [J15] Ç. Işıl, F. S. Öktem, and **A. Koç**, “Deep Iterative Reconstruction for Phase Retrieval”, *Applied Optics*, 58 (20), 5422-5431, 2019. doi: doi.org/10.1364/AO.58.005422.
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- [J13] L. K. Şenel, T. Kılıç, A. Güngör, E. Kopanoğlu, H. E. Guven, E. U. Saritas, **A. Koç**, and T. Cukur, “Statistically Segregated k-Space Sampling for Accelerating Multiple-Acquisition MRI”, *IEEE Transactions on Medical Imaging*, vol. 38, no. 7, pp. 1701-1714, 2019. doi: 10.1109/tmi.2019.2892378.
- [J12] V. Yücesoy and **A. Koç**, “Co-occurrence Weight Selection in Generation of Word Embeddings for Low Resource Languages”, *ACM Transactions on Asian and Low-Resource Language Information Processing*, vol. 18, no. 3, Article 22, 2019. doi: 10.1145/3282443.
- [J11] B. Solmaz, E. Gündoğdu, V. Yücesoy, **A. Koç**, and A. A. Alatan, “Fine-Grained Recognition of Maritime Vessels and Land Vehicles by Deep Feature Embedding”, *IET Computer Vision*, 12 (8), 1121-1132, 2018. doi: 10.1049/iet-cvi.2018.5187.
- [J10] L. K. Şenel, I. Utlü, V. Yücesoy, **A. Koç**, and T. Çukur, “Semantic Structure and Interpretability of Word Embeddings”, *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, vol. 26, no. 10, pp. 1769-1779, Oct. 2018. doi: 10.1109/taslp.2018.2837384.
- [J9] Ç. Işıl, M. Yorulmaz, B. Solmaz, A. Turhan, C. Yurdakul, S. Unlu, E. Ozbay, and **A. Koç**, “Resolution Enhancement of Wide-field Interferometric Microscopy by Coupled Deep Autoencoders”, *Applied Optics*, 57 (10), 2545-2552, 2018. doi: 10.1364/ao.57.002545.
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- [J5] **A. Koç**, B. Bartan, E. Gündoğdu, T. Çukur, and H. M. Ozaktas, “Sparse Representation of Two- and Three-Dimensional Images with Fractional Fourier, Hartley, Linear Canonical, and Haar Wavelet Transforms”, *Expert Systems with Applications*, Vol. 77, pp. 247-255, 2017. doi: 10.1016/j.eswa.2017.01.046.
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- [J1] H. M. Ozaktas, **A. Koç**, I. Sari, and M. A. Kutay, “Efficient Computation of Quadratic-Phase Integrals in Optics”, *Optics Letters*, vol. 31, pp. 35-37, Jan. 2006. doi: 10.1364/ol.31.000035.
- [C42] E. Koç and **A. Koç**, “Fractional Fourier Transform in Time Series Prediction”, 49th IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Seoul, Korea, April 14-19, 2024. (Poster - Journal Presentation)
- [C41] A. Y. Yıldız, E. Koç, and **A. Koç**, “Multivariate Time Series Imputation with Transformers”, 30th IEEE International Conference on Image Processing (ICIP), Kuala Lumpur, Malaysia, October 8-11, 2023. (Oral - Journal Presentation)
- [C40] F. Şahinuç and **A. Koç**, “Fractional Fourier Transform Meets Transformer Encoder”, 30th IEEE International Conference on Image Processing (ICIP), Kuala Lumpur, Malaysia, October 8-11, 2023. (Oral - Journal Presentation)
- [C39] C. E. Öztürk, S. B. Özçelik, and **A. Koç**, “A Transformer-based Prior Legal Case Retrieval Method”, 31th IEEE Signal Processing and Communications Applications Conference (SIU), Istanbul, Turkey, July 5-8, 2023. (Oral)
- [C38] C. E. Ozturk, E. H. Yilmaz, O. Koksalsal, and **A. Koç**, “Software Module Classification for Commercial Bug Reports”, ICASSP’23 Satellite Workshop: the 11th International Workshop on Computational Intelligence Multimedia Understanding (IWCIM), Rhodes, Greece, 2023.
- [C37] B. Kartal, Y. E. Bayız, and **A. Koç**, “Graph Signal Processing: Vertex Multiplication”, 29th IEEE International Conference on Image Processing (ICIP), Bordeaux, France, October 16-19, 2022. (Poster - Journal Presentation)
- [C36] C. Ozturk, H. M. Ozaktas, S. Gezici, and **A. Koç**, “Optimal Fractional Fourier Filtering for Graph Signals”, 29th IEEE International Conference on Image Processing (ICIP), Bordeaux, France, October 16-19, 2022. (Poster - Journal Presentation)
- [C35] C. E. Öztürk, O. Köksal, S. B. Özçelik, and **A. Koç**, “Prior Case Retrieval for the Court of Cassation of Turkey”, 16th IEEE International Conference on Signal Image Technology & Internet Based Systems (SITIS), Dijon, France, October 19-21, 2022. (Oral)
- [C34] A. C. Aras, C. E. Öztürk, and **A. Koç**, “Feedforward Neural Network Based Case Prediction in Turkish Higher Courts”, 30th IEEE Signal Processing and Communications Applications Conference (SIU), Safranbolu, Turkey, May 15-18, 2022. (Oral)
- [C33] C. E. Öztürk, Ş. B. Özçelik, and **A. Koç**, “Predicting Outcomes of the Court of Cassation of Turkey with Recurrent Neural Networks”, 30th IEEE Signal Processing and Communications Applications Conference (SIU), Safranbolu, Turkey, May 15-18, 2022. (Oral)
- [C32] N. Sevim and **A. Koç**, “Investigation of Gender Bias in Turkish Word Embeddings”, 29th IEEE Signal Processing and Communications Applications Conference (SIU), online, Turkey, 2021. (Oral)
- [C31] F. Şahinuç, Ç. Toraman, and **A. Koç**, “Topic Detection based on Deep Learning Language Model in Turkish Microblogs”, 29th IEEE Signal Processing and Communications Applications Conference (SIU), online, Turkey, 2021. (Oral)
- [C30] F. Şahinuç, V. Yücesoy, and **A. Koç**, “Intent Classification and Slot Filling for Turkish Dialogue Systems” 28th IEEE Signal Processing and Communications Applications Conference (SIU), online, Turkey, 2020. (Oral)
- [C29] K. Karaman, E. Gundogdu, **A. Koç**, and A. A. Alatan, “Quadruplet Selection Methods for Deep Embedding Learning”, 26th IEEE International Conference on Image Processing (ICIP), Taipei, Taiwan, 2019. (Poster)
- [C28] Ç. Işıl, F. S. Öktem, and **A. Koç**, “Deep learning-based hybrid approach for phase retrieval”, OSA Imaging and Applied Optics Congress, Munich, Germany, 2019. (Oral)

- [C27] L. K. Şenel, V. Yücesoy, **A. Koç**, and T. Çukur “Topic Change Detection on Dialog Based Text” 27th IEEE Signal Processing and Communications Applications Conference (SIU), Sivas, Turkey, 2019. (Oral)
- [C26] L. K. Şenel, I. Utlu, V. Yücesoy, **A. Koç**, and T. Cukur, “Generating Semantic Similarity Atlas for Natural Languages”, IEEE Workshop on Spoken Language Technologies (SLT), Athens, Greece, 2018. (Poster)
- [C25] K. Karaman, B. Solmaz, **A. Koç**, and A. A. Alatan, “Face recognition based on embedding learning”, SPIE Defense and Security International Conference, Counterterrorism, Crime Fighting, Forensics, and Surveillance, Berlin, Germany, 2018. (Oral)
- [C24] Ç. Işıl, B. Solmaz, and **A. Koç**, “Variational Autoencoders with Triplet Loss for Representation Learning” 26th IEEE Signal Processing and Communications Applications Conference (SIU), İzmir, Turkey, 2018. (Oral)
- [C23] Ü. Şahin, V. Yücesoy, **A. Koç**, and C. Tekin, “Risk-averse Ambulance Redeployment via Multi-armed Bandits” 26th IEEE Signal Processing and Communications Applications Conference (SIU), İzmir, Turkey, 2018. (Oral)
- [C22] L. K. Şenel, V. Yücesoy, **A. Koç**, and T. Çukur “Interpretability Analysis for Turkish Word Embeddings” 26th IEEE Signal Processing and Communications Applications Conference (SIU), İzmir, Turkey, 2018. (Oral)
- [C21] K. Karaman, E. Gündoğdu, **A. Koç**, and A. A. Alatan, “A Method for Quadruplet Sample Selection in Deep Feature Learning” 26th IEEE Signal Processing and Communications Applications Conference (SIU), İzmir, Turkey, 2018. (Oral)
- [C20] **A. Koç**, H. M. Ozaktas, B. Bartan, E. Gündoğdu, and T. Cukur, “Digital Computation of Fractional Fourier and Linear Canonical Transforms and Sparse Image Representation” 9th Asia-Pacific Signal and Information Processing Association Conference (APSIPA), Kuala Lumpur, Malaysia, 2017. (Oral - Invited)
- [C19] L. K. Şenel, V. Yücesoy, **A. Koç**, and T. Çukur, “Measuring cross-lingual semantic similarity across European languages”, 40th IEEE International Conference on Telecommunications and Signal Processing (TSP), Barcelona, Spain, 2017. (Oral)
- [C18] M. Yorulmaz, C. Işıl, E. Seymour, C. Yurdakul, B. Solmaz, **A. Koç**, and M. S. Unlu, “Single Particle Imaging for Biosensor Applications”, SPIE Defense and Security International Conference, Emerging Imaging and Sensing Technologies for Security and Defence, Warsaw, Poland, 2017. (Oral)
- [C17] E. Gündoğdu, E. S. Parıldı, B. Solmaz, V. Yücesoy, and **A. Koç**, “Deep Learning Based Fine-grained Car Make/Model Classification for Visual Surveillance”, SPIE Defense and Security International Conference, Counterterrorism, Crime Fighting, Forensics, and Surveillance, Warsaw, Poland, 2017. (Oral)
- [C16] E. Gündoğdu, **A. Koç**, and A. A. Alatan, “Automatic Target Recognition and Detection in Infrared Imagery Under Cluttered Background”, SPIE Defense and Security International Conference, Target and Background Signatures, Warsaw, Poland, 2017. (Oral)
- [C15] B. Solmaz, E. Gündoğdu, K. Karaman, and **A. Koç**, “Fine-grained Visual Marine Vessel Classification for Coastal Surveillance and Defense Applications”, SPIE Defense and Security International Conference, Electro-optical Remote Sensing, Warsaw, Poland, 2017. (Oral)
- [C14] E. Gündoğdu, B. Solmaz, **A. Koç**, and A. A. Alatan “Deep Distance Metric Learning for Maritime Vessel Identification” 25th IEEE Signal Processing and Communications Applications Conference (SIU), Antalya, Turkey, 2017. (Oral)
- [C13] L. K. Şenel, V. Yücesoy, **A. Koç**, and T. Çukur, “Semantic Similarity between Turkish and European Languages Using Word Embeddings” 25th IEEE Signal Processing and Communications Applications Conference (SIU), Antalya, Turkey, 2017. (Oral)
- [C12] V. Yücesoy and **A. Koç**, “Effect of Cooccurrence Weighting to English Word Embeddings”, 25th IEEE Signal Processing and Communications Applications Conference (SIU), Antalya, Turkey, 2017. (Oral)

- [C11] Ü. Şahin, V. Yücesoy, **A. Koç**, and C. Tekin, “Learning Traffic Congestion by Contextual Bandit Problems for Optimum Localization”, 25th IEEE Signal Processing and Communications Applications Conference (SIU), Antalya, Turkey, 2017. (Oral)
- [C10] B. Solmaz, V. Yücesoy, and **A. Koç**, “Automated Visual Classification of Indoor Scenes and Architectural Styles”, 25th IEEE Signal Processing and Communications Applications Conference (SIU), Antalya, Turkey, 2017. (Oral)
- [C9] E. Gündoğdu, B. Solmaz, V. Yücesoy, and **A. Koç**, “MARVEL: A Large Scale Image Dataset for Maritime Vessels”, 16th Asian Conference on Computer Vision (ACCV), Taipei, Taiwan, 2016. (Poster)
- [C8] E. Gündoğdu, **A. Koç**, B. Solmaz, R. I. Hammoud, and A. A. Alatan, “Evaluation of Feature Channels For Correlation-Filter-Based Visual Object Tracking In Infrared Spectrum”, 29th IEEE International Conference on Computer Vision and Pattern Recognition (CVPR) Workshops, Las Vegas, Nevada, USA, 2016. (Oral)
- [C7] E. Gündoğdu, **A. Koç**, and A. A. Alatan, “Object classification in infrared images using deep representations”, 23rd IEEE International Conference on Image Processing (ICIP), Phoenix, Arizona, USA, 2016. (Oral)
- [C6] E. Gündoğdu, **A. Koç**, and A. A. Alatan, “Infrared Object Classification Using Decision Tree Based Deep Neural Networks”, 24th IEEE Signal Processing and Communications Applications Conference (SIU), Zonguldak, Turkey, 2016. (Oral)
- [C5] V. Yücesoy and **A. Koç**, “Effect of the Training Set on the Word Embeddings and Similarity Test Set for Turkish”, 24th IEEE Signal Processing and Communications Applications Conference (SIU), Zonguldak, Turkey, 2016. (Oral)
- [C4] H. M. Ozaktas and **A. Koç**, “Fast and accurate linear canonical transform algorithms”, IEEE 23rd Signal Processing and Communications Applications Conference (SIU), Malatya, Turkey, 2015. (Oral)
- [C3] **A. Koç**, H. M. Ozaktas, and L. Hesselink, “Fast and Accurate Algorithms for Quadratic Phase Integrals in Optics and Signal Processing”, SPIE Defense, Security, and Sensing International Conference, (Innovative Defense and Security Applications for Displays, Three-Dimensional Imaging, Visualization, and Display Program Track), Orlando, Florida, USA, 2011. (Oral - Invited)
- [C2] **A. Koç**, Y. Takashima, and L. Hesselink, “Systematic analysis of the validity regions of scalar diffraction integral and angular spectrum method”, Biomedical Optics and 3-D Imaging: OSA Optics and Photonics Congress, Miami, Florida, USA, 2010. (Poster)
- [C1] **A. Koç**, X. Yin, and L. Hesselink, “Phase detection based surface plasmon resonance biosensor in infrared with increased sensitivity and dynamic range”, CLEO/QELS 2007 International Conference, Baltimore, Maryland, USA. 2007. (Poster)

INVITED TALKS

- “Devising Transformers as an Autoencoder for Unsupervised Multivariate Time Series Imputation”, as part of IEEE Signal Processing Society (IEEE-SPS) Webinar Series, worldwide online, June 12th, 2024.
- “Diachronic Natural Language Processing”, Department of Electrical and Electronics Engineering, Bilkent University, Ankara, Turkey, March 4th, 2022.
- “Interpretability of Word Embeddings”, National Magnetic Resonance Research Center (UM-RAM), Ankara, Turkey, December 21st, 2018.
- “On Discrete Linear Canonical Transforms - A Review and New Approaches”, Beijing Institute of Technology, Beijing, China, June 30th, 2018.
- “Digital Computation of Fractional Fourier and Linear Canonical Transforms and Sparse Image Representation”, Asia-Pacific Signal and Information Processing Association, Kuala Lumpur, Malaysia, December 13th, 2017.
- “Machine Learning Efforts at Aselsan Research Center”, Department of Electrical and Electronics Engineering, Bilkent University, Ankara, Turkey, December 13th, 2016.

- “Visualization of Single Viruses by Interferometric Reflectance Imaging”, 2nd International Congress on Biomaterials-Biosensors, Istanbul, Turkey, June 1st, 2016.
- “Fast and Accurate Algorithms for Quadratic Phase Integrals in Optics and Signal Processing”, SPIE Defense, Security, and Sensing International Conference, Orlando, Florida, USA, 2011.

COURSES TAUGHT

- EEE 424 Digital Signal Processing
Spring 2021, Fall 2021, Fall 2022, Fall 2023.
- EEE 351 Engineering Electromagnetics
Fall 2019, Fall 2020.
- EEE 212 Microprocessors
Fall 2022, Spring 2023, Fall 2023, Spring 2024.
- EEE 486/586 Statistical Foundations of Natural Language Processing
Spring 2020, Spring 2022, Spring 2023.
- EE 635 Fourier Optics (Middle East Technical University (METU))
Fall 2016, Fall 2017.

PAST ADVISEES

- Ömer Musa Battal, *M.Sc. Thesis*, “Automatic Method for Generation of Sememe Knowledge Bases from Machine Readable Dictionaries”, Advisor, Bilkent University, September 2023.
- Rasim Akin Sevimli, *Ph.D. Thesis*, “Graph-based Object Classification Techniques for Autonomous Vehicle Radar Sensors”, Co-Advisor, Başkent University, September 2023.
- Nurullah Sevim, *M.Sc. Thesis*, “Analysis of Gender Bias in Legal Texts Using Natural Language Processing Methods”, Advisor, Bilkent University, July 2023.
- Ceyhun Emre Öztürk, *M.Sc. Thesis*, “Retrieving Turkish Prior Legal Cases with Deep Learning”, Advisor, Bilkent University, June 2023.
- Emre Mumcuoğlu, *M.Sc. Thesis*, “Prediction of Outcomes in Higher Courts of Turkey Using Natural Language Processing”, Co-Advisor, Bilkent University, April 2022.
- Furkan Şahinuç, *M.Sc. Thesis*, “Disclosing Zipfian Regularities in Semantic Breadth of Words via Multimodal Gaussian Embeddings”, Advisor, Bilkent University, November 2021.
- Lütfi Kerem Şenel, *M.Sc. Thesis*, “Measuring and Improving Interpretability of Word Embeddings Using Lexical Resources”, Co-Advisor, Bilkent University, August 2019.
- Çagatay Işıl, *M.Sc. Thesis*, “Development of Novel Analysis and Reconstruction Techniques for Coherent Optical Imaging Systems”, Co-Advisor, Middle East Technical University (METU), July 2019.

CURRENT ADVISEES

- Tuna Alikışifoğlu, *M.Sc. Student*, September 2021 - ongoing.
- Emirhan Koç, *M.Sc. Student*, September 2021 - ongoing.
- Arda Can Aras, *M.Sc. Student*, January 2022 - ongoing.
- Cihan Eralp Kumbasar, *M.Sc. Student*, September 2022 - ongoing.
- Tuna Özateş, *M.Sc. Student*, September 2022 - ongoing.
- Ecem Şimşek, *M.Sc. Student*, September 2023 - ongoing.
- İbrahim Ertürk, *M.Sc. Student (Co-advisor)*, January 2024 - ongoing.

ADVISEE

ACCOMPLISHMENTS

- IEEE Best Paper Award: Furkan Sahinuc. Awarded at the 30th IEEE Signal Processing and Communications Applications Conference (SIU), Safranbolu, Turkey, May 2022.
- Best Oral Presentation Award: Emre Mumcuoglu. Awarded to best 5 oral presentations at Graduate Research Conference (GRC), Department of Electrical and Electronics Engineering, Bilkent University, January 2021.

CONFERENCE
COMMITTEES

- Program Committee Member, *Natural Legal Language Processing - NLLP Workshop 2023, the 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Singapore, 6-10 December 2023.
- Session Chair, *30th IEEE International Conference on Image Processing (IEEE ICIP)*, Kuala Lumpur, Malaysia, 8-11 October 2023.
- Session Chair, *29th IEEE International Conference on Image Processing (IEEE ICIP)*, Bordeaux, France, 16-19 October 2022.
- Session Chair, *30th IEEE Signal Processing and Communications Applications Conference (SIU)*, Safranbolu, Turkey, 15-18 May, 2022.
- Program Committee Member, *26th IEEE Conference on Signal Processing and Communications Applications Conference (SIU)*, İzmir, Turkey, 2-5 May 2018.

ACADEMIC JOURNAL
REVIEWERSHIP

- *IEEE Transactions on Signal Processing.*
- *IEEE Signal Processing Letters.*
- *IEEE Transactions on Neural Networks and Learning Systems.*
- *IEEE Transactions on Signal and Information Processing over Networks.*
- *IEEE Transactions on Circuits and Systems for Video Technology.*
- *IEEE Transactions on Circuits and Systems II: Express Briefs.*
- *IEEE Transactions on Computational Social Systems.*
- *IEEE Transactions on Systems, Man and Cybernetics: Systems.*
- *IEEE Transactions on Cybernetics.*
- *IEEE Transactions on Aerospace and Electronic Systems.*
- *IEEE Transactions on Intelligent Transportation Systems.*
- *IEEE Access.*
- *Journal of Optical Society of America – A (JOSA A).*
- *Optics Letters.*
- *Optics Express.*
- *Applied Optics.*
- *Natural Language Engineering.*
- *ACM Transactions on Asian and Low-Resource Language Information Processing (TALLIP).*
- *Artificial Intelligence and Law.*
- *Signal Processing.*
- *Digital Signal Processing.*
- *Signal, Image and Video Processing (SIVP).*
- *Information Processing and Management.*
- *IET Signal Processing.*
- *Applied Soft Computing.*
- *International Journal of Electronics.*
- *Computational and Applied Mathematics (COAM).*
- *Computers and Electronics in Agriculture.*
- *TUBITAK - Turkish Journal of Electrical Engineering & Computer Sciences.*
- *John Wiley & Sons, Inc. (Scientific Reviewer for book proposals).*

MEMBERSHIPS

- IEEE Senior Member.
- IEEE Signal Processing Society (IEEE-SPS), Member.
- IEEE Computational Intelligence Society (IEEE-CIS), Member.
- IEEE Circuits and Systems Society (IEEE-CAS), Member.
- Association for Computing Machinery (ACM), Member.

LAST UPDATED

June 12, 2024