# SELIM AKSOY


Department of Computer Engineering
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## PERSONAL

Born in 1976 in Ankara, Turkey. Citizen of the Republic of Turkey. Speaks Turkish (native) and English (fluent).

## INTERESTS

Computer vision, statistical and structural pattern recognition, machine learning and data mining with applications to remote sensing, medical imaging and multimedia data analysis.

## EDUCATION

**09/1998 – 06/2001** **Ph.D., Electrical Engineering**
University of Washington, Seattle, WA, USA
*Advisor:* Prof. Robert M. Haralick
*Thesis:* A Probabilistic Similarity Framework for Content-Based Image Retrieval

**09/1996 – 06/1998** **M.S., Electrical Engineering**
University of Washington, Seattle, WA, USA
*Advisor:* Prof. Robert M. Haralick
*Thesis:* Textural Features for Content-Based Image Database Retrieval

**09/1992 – 07/1996** **B.S., Electrical and Electronics Engineering**
Middle East Technical University, Ankara, Turkey
*B.S. Project:* Fingerprint Classification Using Wavelets

## EMPLOYMENT

**12/2021 – Present** **Chair**
Department of Computer Engineering,
Bilkent University, Ankara, Turkey

**07/2021 – 12/2021** **Vice Chair**
Department of Computer Engineering,
Bilkent University, Ankara, Turkey

**03/2021 – Present** **Professor**
Department of Computer Engineering,
Bilkent University, Ankara, Turkey

**03/2013 – 02/2021** **Associate Professor**
Department of Computer Engineering,
Bilkent University, Ankara, Turkey

**02/2013 – 01/2014** **Visiting Associate Professor**
Department of Computer Science and Engineering,
University of Washington, Seattle, WA, USA

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|---|---|
| **01/2004 – 02/2013** | **Assistant Professor**<br>Department of Computer Engineering,<br>Bilkent University, Ankara, Turkey |
| **09/2001 – 12/2003** | **Research Scientist**<br>Research Department,<br>Insightful Corporation, Seattle, WA, USA |
| **09/1996 – 06/2001** | **Research Assistant**<br>Intelligent Systems Laboratory,<br>University of Washington, Seattle, WA, USA |
| **06/2000 – 09/2000** | **Research Intern**<br>Data Analysis and Products Division,<br>MathSoft Inc. (currently Insightful Corp.), Seattle, WA, USA |
| **06/1998 – 08/1998**<br>**06/1999 – 09/1999** | **Visiting Researcher**<br>Tampere International Center for Signal Processing,<br>Tampere University of Technology, Tampere, Finland |

## RESEARCH EXPERIENCE

▷ **Bilkent University, 01/2004 – Present**

- Researching multi-scale image segmentation, structural scene models and spatial relationships for geospatial object recognition, content-based classification and mining in remote sensing image archives.
- Researching image segmentation, statistical and structural texture analysis, and machine learning algorithms for cell detection and cancer grading in microscopic images.
- Researching multi-modal information, context models, and relevance feedback for scene classification and object recognition for content-based classification and retrieval in image and video archives.
- Also participated in European Commission COST 292 Action on Semantic Multimodal Analysis of Digital Media; European Commission FP6 Network of Excellence, MUSCLE: Multimedia Understanding Through Semantics, Computation and Learning; U.S. National Institute of Standards and Technology, TREC Video Retrieval Evaluation (TRECVID).

▷ **Insightful Corporation, 09/2001 – 12/2003**

- Researched statistical and structural pattern recognition, computer vision, machine learning and data mining algorithms with applications to interactive analysis, classification and content-based retrieval of remote sensing and medical images.
- Project work included image classification using decision tree, rule-based, naive Bayes and maximum likelihood classifiers; image segmentation; data fusion and robustness to missing data; automatic scene modeling using attributed relational graphs.
- Lead developer for the machine learning library of the VisiMine product for interactive mining in large image databases.
- Developed image enhancement and post-processing algorithms for the optical character recognition (OCR) module of the InFact search engine for natural language question answering and information retrieval.

▷ **University of Washington, 09/1996 – 06/2001**

- Developed and implemented algorithms, and designed the user interface for a content-based image database retrieval (CBIR) system.

- Researched image texture and color feature extraction algorithms, probabilistic similarity models, graph-theoretic clustering and probabilistic relevance feedback for CBIR.
- Designed a Bayesian framework for fusion of different features and similarity models.
- Investigated parametric and non-parametric statistical modeling, estimation and statistical inference, classifier design, machine learning, Bayesian methods, quantization, clustering and mathematical morphology.
- Researched object recognition, model-based shape recognition, automatic target recognition.

▷ **MathSoft Inc., 06/2000 – 09/2000**

- Participated in the GeoBrowse project for content-based retrieval from remote sensing archives and added textural feature extraction and quantization algorithms.
- Worked on Bayesian interactive land cover label training algorithm using relevance feedback.
- Wrote functions and documentation for MathSoft Imaging C Library and Imaging Module for S-Plus statistical software.

▷ **Tampere University of Technology, Summer 1998 and Summer 1999**

Collaborated in a content-based multimedia database retrieval project and conducted research on texture feature extraction, system integration and relevance feedback.

## STUDENT SUPERVISION

▷ **Current Graduate Students**

- Sinan Çavdar, Ph.D. student, "Remote Sensing Image Analysis," 08/2025–Present.
- Vahid Namakshenas, Ph.D. student, "Remote Sensing Image Analysis," 09/2022–Present.
- Utku Oktay, M.S. student, "Remote Sensing Image Analysis," 09/2022–Present.
- Sude Önder, M.S. student, "Breast Histopathology Image Analysis," 09/2024–Present.
- Emir Türkölmez, M.S. student, "PET-MR Image Analysis," 09/2023–Present.

▷ **Past Graduate Students**

- Sinan Çavdar, M.S., "Contextual Object Detection via Image Inpainting," 09/2022–07/2025.
- Cihan Erkan, M.S., "Modeling the Spatial Context in Transformer-Based Whole Slide Image Classification," 09/2020–09/2023.
- Bayram Berdiyev, M.S., "Use of Subgraph Mining in Histopathology Image Classification," 09/2019–09/2022.
- Atakan Serbes, M.S., "One-Stage Oriented Object Detection in Remote Sensing Images," 02/2019–03/2022.
- Bulut Aygüneş, M.S., "Weakly Supervised Approaches for Image Classification in Remote Sensing and Medical Image Analysis," 09/2017–12/2020.
- Yigit Özen, M.S., "Self-supervised Representation Learning with Graph Neural Networks for Region of Interest Analysis in Breast Histopathology," 09/2017–12/2020.
- Caner Mercan, Ph.D., "Deep Feature Representations and Multi-Instance Multi-Label Learning of Whole Slide Breast Histopathology Images," 09/2014–03/2019. (Currently a Postdoctoral Researcher at Radboud University, the Netherlands)
- Gencer Sümbül, M.S., "Fine-Grained Object Recognition in Remote Sensing Imagery," 09/2016–06/2018. (Currently a Ph.D. student at Technical University of Berlin, Germany)
- Onur Taşar, M.S., "Object Detection Using Optical and Lidar Data Fusion with Graph-cuts," 09/2014–03/2017. (Currently a Ph.D. student at Inria Sophia-Antipolis, France)

- Hüseyin Gökhan Akçay, Ph.D., "Automatic Detection of Compound Structures by Joint Selection of Region Groups from Multiple Hierarchical Segmentations," 09/2007–09/2016. (Currently an Assistant Professor at the Department of Computer Engineering, Akdeniz University)
- Barış Geçer, M.S., "Detection and Classification of Breast Cancer in Whole Slide Histopathology Images Using Deep Convolutional Networks," 09/2014–07/2016. (Currently a Ph.D. student at Imperial College, London)
- Acar Erdinç, M.S., "Anomaly Detection with Sparse Unmixing and Gaussian Mixture Modeling of Hyperspectral Images," 09/2012–07/2015.
- Caner Mercan, M.S., "Iterative Estimation of Robust Gaussian Mixture Models in Heterogeneous Data Sets," 09/2011–07/2014.
- Nermin Samet, M.S., "Unsupervised Segmentation and Ordering of Cervical Cells," 09/2011–07/2014.
- Çağlar Arı, Ph.D., "Maximum Likelihood Estimation of Robust Constrained Gaussian Mixture Models," 03/2007–01/2013. (Currently a Postdoctoral Researcher at Koc University)
- Fatih Karakuş, M.S., "Image Information Mining Using Spatial Relationship Constraints," 09/2009–09/2012. (Currently at Microsoft)
- Bahadır Özdemir, M.S., "Structural Scene Analysis of Remotely Sensed Images Using Graph Mining," 09/2008–07/2010. (Was a Ph.D. student at the University of Maryland, College Park; currently at Google)
- Aslı Kale, M.S., "Segmentation and Classification of Cervical Cell Images," 09/2007–01/2010. (Was a Ph.D. student at Middle East Technical University; currently an Assistant Professor at the Department of Computer Engineering, TED University)
- Daniya Zamalieva, M.S., "Unsupervised Detection of Compound Structures Using Image Segmentation and Graph-Based Texture Analysis," 09/2007–08/2009. (Was a Ph.D. student at the Ohio State University; currently at Google)
- Fırat Kalaycılar, M.S., "An Object Recognition Framework Using Contextual Interactions Among Objects," 09/2007–08/2009. (Was a Ph.D. student at Brown University; currently at Google)
- İsmet Zeki Yalnız, Ph.D., "Multi-scale multi-orientation segmentation and classification of structural textures," 10/2008–08/2009. (Was a Ph.D. student at the University of Massachusetts, Amherst; currently at Facebook Research)
- Özge Çavuş, M.S., "Semantic Scene Classification for Content-Based Image Retrieval," 09/2005–08/2008.
- Demir Gökalp, M.S., "Scene Classification Using Bag-of-Regions Representation," 09/2004–07/2007.
- Hüseyin Gökhan Akçay, M.S., "Hierarchical Segmentation, Object Detection and Classification in Remotely Sensed Images," 09/2004–07/2007.
- Emel Doğrusöz, M.S., "Generalized Texture Models for Detecting High-Level Structures in Remotely Sensed Images," 09/2005–06/2007.

## GRANTS

- "AI EDIH Türkiye: AI-Enabled Manufacturing for Twin Transition," sponsored by European Commission (European Digital Innovation Hubs Network), 71,732.80 Euro (Bilkent budget), 01/2025–12/2028, Coordinator at Bilkent.
- "Integration of Artificial Intelligence Algorithms in the Processing of Multimodal Brain PET-MRI Imaging (INTARTEP)," sponsored by General Electric Healthcare, 11,650 Euro, 02/2025–02/2026, Co-Principal Investigator.
- "Weakly Supervised Learning and Content-Based Retrieval for Whole Slide Breast Histopathology," sponsored by TUBITAK (Scientific and Technological Research Council of Turkey), grant no: 117E172, 459,585 TL (∼US$102,000), 04/2018–04/2021, Principal Investigator.

- "Computer Vision and Machine Learning Techniques for Automated Classification of Whole-Slide Breast Histopathology Images," sponsored by TUBITAK (Scientific and Technological Research Council of Turkey), grant no: 113E602, 292,565 TL (∼US$130,000), 04/2014–07/2017, Principal Investigator.
- "Interactive Mining of Multi-modal, Multi-spectral, and Multi-dimensional Image Data Sets, and Applications to Medical and Remote Sensing Image Analysis," sponsored by Fulbright, 02/2013–01/2014, Principal Investigator.
- "Mining of Very High Resolution Satellite Images Using Hierarchical Graph Models," sponsored by TUBITAK (Scientific and Technological Research Council of Turkey), grant no: 109E193, 184,954 TL (∼US$123,000), 04/2010–10/2012, Principal Investigator.
- "Automatic Detection and Segmentation of Hazelnut Orchards in Northern Turkey," sponsored by European Commission, Joint Research Centre, contract no: 252972, 14,750 Euro, 07/2008–03/2009, Principal Investigator.
- "Automatic Mapping of Linear Woody Vegetation Features in Agricultural Landscapes," sponsored by European Commission, Joint Research Centre, contract no: 253352, 20,750 Euro, 01/2008–06/2008, Principal Investigator.
- "IST-TURKEY: New Information Society Technologies for Turkey," sponsored by TUBITAK (Scientific and Technological Research Council of Turkey), grant no: 105E065, 12/2005–12/2008, Researcher and Head of Intelligent Systems Research Group.
- Research Development Grant from Provost Office, Bilkent University, US$945, 12/2005.
- "Hierarchical Classification, Mining and Semantic Retrieval in Remote Sensing Image Archives," sponsored by European Commission, FP6 Marie Curie International Reintegration Grant, grant no: MIRG-CT-2005-017504, 80,000 Euro, 10/2005–10/2007, Principal Investigator.
- "E-DEVLET Için Bilgisayar Destekli Görsel Dokümentasyon, Arşiv ve Yönetim Sistemi Gerçekleş-tirilmesi," sponsored by DPT (State Planning Agency), 5,000 TL, 08/2005–12/2005, Researcher.
- "Probabilistic and Structural Approaches to Image Understanding, Classification and Retrieval, and Applications to Remote Sensing and Medical Image Analysis (CAREER Award)," sponsored by TUBITAK (Scientific and Technological Research Council of Turkey), grant no: 104E074, 189,360 TL (∼US$126,000), 04/2005–04/2010, Principal Investigator.
- "Semantic Multimodal Analysis of Digital Media," sponsored by TUBITAK (Scientific and Technological Research Council of Turkey), grant no: 104E077, 102,060 TL (∼US$64,000), 10/2004–10/2008, Co-Principal Investigator.
- Research Development Grant from Provost Office, Bilkent University, US$2,200, 06/2004.
- "Interactive Training of Advanced Classifiers for Remote Sensing Image Analysis," sponsored by the U.S. Army, Topographic Engineering Center, grant no: DACA42-03-C-0016, Phase I US$70,000, 01/2003–06/2003, grant no: W9132V-04-C-0001, Phase II US$780,000, 08/2003–12/2005, Principal Investigator (worked until moving to Bilkent University in 01/2004).
- "Knowledge Discovery and Data Mining based on Hierarchical Segmentation of Image Data," sponsored by NASA, Goddard Space Flight Center, grant no: NAS5-01123, US$430,000, 09/2001–09/2004, Investigator (worked until moving to Bilkent University in 01/2004).
- "A Bayesian Textual and Multimedia Information Retrieval Engine," sponsored by the National Institutes of Health, National Library of Medicine, grant no: 2-R44-LM06520-02, US$750,000, 09/2001–04/2004, Investigator (worked until moving to Bilkent University in 01/2004).
- "GeoBrowse: An Integrated Environment for Satellite Image Retrieval and Mining," sponsored by NASA, Goddard Space Flight Center, grant no: NAS5-98053, US$600,000, 10/1998–08/2001, Researcher (worked during 06/2000–09/2000).

## TEACHING EXPERIENCE

▷ **Bilkent University**

- CS 201: Fundamental Structures of Computer Science I, Fall 2025 (60 students).
- CS 201: Fundamental Structures of Computer Science I, Spring 2025 (57 students).
- GE 461: Introduction to Data Science, Spring 2025 (50 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2024 (65 students).
- CS 201: Fundamental Structures of Computer Science I, Spring 2024 (58 students).
- GE 461: Introduction to Data Science, Spring 2024 (50 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2023 (63 students).
- GE 461: Introduction to Data Science, Spring 2023 (50 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2022 (2 sections with a total of 130 students).
- GE 461: Introduction to Data Science, Spring 2022 (50 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2021 (2 sections with a total of 107 students).
- CS 202: Fundamental Structures of Computer Science II, Summer 2021 (56 students).
- CS 202: Fundamental Structures of Computer Science II, Spring 2021 (51 students).
- CS 342: Operating Systems, Spring 2021 (51 students).
- GE 461: Introduction to Data Science, Spring 2021 (50 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2020 (2 sections with a total of 130 students).
- CS 202: Fundamental Structures of Computer Science II, Spring 2020 (50 students).
- CS 342: Operating Systems, Spring 2020 (61 students).
- GE 461: Introduction to Data Science, Spring 2020 (50 students).
- CS 484: Image Analysis, Fall 2019 (37 students).
- CS 551: Pattern Recognition, Fall 2019 (30 students).
- CS 202: Fundamental Structures of Computer Science II, Spring 2019 (53 students).
- CS 551: Pattern Recognition, Spring 2019 (17 students).
- CS 484: Image Analysis, Fall 2018 (51 students).
- CS 551: Pattern Recognition, Fall 2018 (29 students).
- CS 202: Fundamental Structures of Computer Science II, Spring 2018 (50 students).
- CS 342: Operating Systems, Spring 2018 (49 students).
- CS 484: Image Analysis, Fall 2017 (38 students).
- CS 551: Pattern Recognition, Fall 2017 (29 students).
- CS 202: Fundamental Structures of Computer Science II, Spring 2017 (2 sections with a total of 113 students).
- CS 484: Image Analysis, Fall 2016 (33 students).
- CS 551: Pattern Recognition, Fall 2016 (45 students).
- CS 201: Fundamental Structures of Computer Science I, Summer 2016 (2 sections with a total of 93 students).
- CS 201: Fundamental Structures of Computer Science I, Spring 2016 (80 students).
- CS 202: Fundamental Structures of Computer Science II, Spring 2016 (46 students).
- CS 484: Image Analysis, Fall 2015 (48 students).

- CS 551: Pattern Recognition, Fall 2015 (39 students).
- CS 201: Fundamental Structures of Computer Science I, Summer 2015 (59 students).
- CS 202: Fundamental Structures of Computer Science II, Spring 2015 (39 students).
- CS 484: Image Analysis, Spring 2015 (44 students).
- CS 342: Operating Systems, Fall 2014 (68 students).
- CS 551: Pattern Recognition, Fall 2014 (28 students).
- CS 201: Fundamental Structures of Computer Science I, Summer 2014 (2 sections with a total of 111 students).
- CS 201: Fundamental Structures of Computer Science I, Spring 2014 (55 students).
- CS 551: Pattern Recognition, Spring 2014 (12 students).
- CS 484: Image Analysis, Fall 2012 (8 students).
- CS 551: Pattern Recognition, Fall 2012 (21 students).
- CS 484: Image Analysis, Spring 2012 (18 students).
- CS 551: Pattern Recognition, Spring 2012 (20 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2011 (2 sections with a total of 105 students).
- CS 484: Image Analysis, Spring 2011 (23 students).
- CS 551: Pattern Recognition, Spring 2011 (27 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2010 (2 sections with a total of 112 students).
- CS 484: Image Analysis, Spring 2010 (29 students).
- CS 551: Pattern Recognition, Spring 2010 (30 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2009 (2 sections with a total of 86 students).
- CS 484: Image Analysis, Spring 2009 (10 students).
- CS 551: Pattern Recognition, Spring 2009 (27 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2008 (2 sections with a total of 90 students).
- CS 484: Image Analysis, Spring 2008 (24 students).
- CS 551: Pattern Recognition, Spring 2008 (22 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2007 (2 sections with a total of 92 students).
- CS 484: Image Analysis, Spring 2007 (22 students).
- CS 551: Pattern Recognition, Spring 2007 (24 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2006 (2 sections with a total of 89 students).
- CS 551: Pattern Recognition, Spring 2006 (25 students).
- CS 201: Fundamental Structures of Computer Science I, Fall 2005 (2 sections with a total of 131 students).
- CS 551: Pattern Recognition, Spring 2005 (34 students).
- CS 111: Introduction to Computing in Engineering and Science, Fall 2004 (2 sections with a total of 105 students).
- CS 111: Introduction to Computing in Engineering and Science, Summer 2004 (31 students).
- CS 111: Introduction to Computing in Engineering and Science, Spring 2004 (2 sections with a total of 130 students).

▷ **University of Washington**

- EE/CSE 576: Image Understanding, Spring 2001, Teaching Assistant.
- EE 562: Artificial Intelligence, Winter 2001, Teaching Assistant.
- EE/CSE 576: Image Understanding, Spring 2000, Guest Lecturer.
- EE 577: Mathematical Morphology, Fall 1998, Teaching Assistant.

## HONORS AND AWARDS

- Research Incentive Award, given by the ODTU Prof. Dr. Mustafa Parlar Foundation, 2016.
- Distinguished Young Scientist Award, given by the Science Academy Association (BAGEP), 2016.
- Outstanding Young Scientist Award, given by the Turkish Academy of Sciences (TUBA-GEBIP), 2015.
- Distinguished Teaching Award, given by Bilkent University, 2014.
- Best Student Paper Award (with Hüseyin Gökhan Akçay) at the Workshop on Signal and Image Processing for Remote Sensing at the IEEE Signal Processing and Communications Applications Conference, 2014.
- Fulbright Visiting Scholar Award, 2013.
- Senior Member, Institute of Electrical and Electronics Engineers (IEEE), April 2011.
- Associate Professor title, given by the Inter-University Council (UAK) of Turkey, April 2010.
- Marie Curie Fellowship Award, given by the European Commission, 2005.
- Listed in Who's Who in Science and Engineering, 10th edition, Who's Who in the World, 25th edition, 2008.
- CAREER Award, given by TUBITAK (Scientific and Technological Research Council of Turkey), 2004.
- Third Prize in the Annual Poster Contest, Ph.D. Category, Department of Electrical Engineering, University of Washington, May 1999.
- NATO Science Fellowship, grant for graduate study from TUBITAK (Scientific and Technological Research Council of Turkey), 1996.
- Bülent Kerim Altay Award for academic excellence, given by the Department of Electrical Engineering, Middle East Technical University, Fall 1994, Spring 1995, Fall 1995.
- Undergraduate fellowship for academic achievement, given by the Sabancı Foundation, 1992–1996.

## PROFESSIONAL ACTIVITIES

▷ **Membership**

- Institute of Electrical and Electronics Engineers (IEEE): Computer Society and Technical Committee on Pattern Analysis and Machine Intelligence, Geoscience and Remote Sensing Society and Data Fusion Committee, 1996–Present.
- International Association for Pattern Recognition (IAPR): Technical Committees on Statistical Pattern Recognition, Structural and Syntactic Pattern Recognition, Remote Sensing, Graph-Based Representations, Data Mining, 2001–Present.
- Turkish Society for Image Analysis and Pattern Recognition, 2004–Present.
- Executive Board Member and Webmaster for the Turkish-American Student Association at the University of Washington, 1999–2001.

▷ **Editorial Service**

- Associate Editor, Pattern Recognition Letters, 2009–2013.
- Guest Editor, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, Special Issue on Pattern Recognition in Remote Sensing, 2012.
- Guest Editor, Pattern Recognition Letters, Special Issue on Pattern Recognition in Remote Sensing, 2010.
- Guest Editor, IEEE Transactions on Geoscience and Remote Sensing, Special Issue on Pattern Recognition in Remote Sensing, 2007.
- Associate Editor, International Journal of Image and Graphics, 2005–2007.

▷ **Reviewer**

- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Image Processing
- IEEE Transactions on Geoscience and Remote Sensing
- IEEE Transactions on Medical Imaging
- IEEE Transactions on Multimedia
- IEEE Transactions on Neural Networks
- IEEE Transactions on Circuits and Systems for Video Technology
- IEEE Transactions on Circuits and Systems I
- IEEE Geoscience and Remote Sensing Letters
- IEEE Journal of Selected Topics in Earth Observations and Remote Sensing
- IEEE Journal of Biomedical and Health Informatics
- IEEE Computer Magazine
- IEEE Geoscience and Remote Sensing Magazine
- Pattern Recognition
- Pattern Recognition Letters
- Computer Vision and Image Understanding
- Machine Vision and Applications
- SPIE Journal of Medical Imaging
- SPIE Journal of Electronic Imaging
- Photogrammetric Engineering & Remote Sensing
- Canadian Journal of Remote Sensing
- International Journal of Pattern Recognition and Artificial Intelligence
- EURASIP Journal on Applied Signal Processing
- Signal Processing
- Signal Processing: Image Communication
- Signal, Image and Video Processing
- Computers & Geosciences
- Computers and Electronics in Agriculture
- Journal of Computer Science and Technology

▷ **Conference Organization**

- Organizer
  - Area Chair, IEEE 30. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2022).

  - Area Chair, IEEE 29. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2021).
  - Co-Chair, Science Academy – Bilkent University Machine Learning Summer School (BYOYO 2020).
  - Chair, 6th IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS 2010).
  - Workshop Co-Chair, 20th IAPR International Conference on Pattern Recognition (ICPR 2010).
  - Contest Co-Chair, 20th IAPR International Conference on Pattern Recognition (ICPR 2010).
  - Co-Chair, ISPRS Workshop on Performance Evaluation of Pattern Recognition in Remote Sensing (PEPRRS 2009).
  - Chair, 5th IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS 2008).
  - Yürütme Kurulu Üyesi ve Program Komitesi Eşbaşkanı, 3. Ulusal Yazılım Mühendisliği Sempozyumu (UYMS 2007) (Turkish).
  - Co-Chair, 4th International Workshop on Pattern Recognition in Remote Sensing (PRRS 2006).
  - Organizing Committee Member, Workshop on Spatial/Spatio-Temporal Data Mining and Learning (SDM 2005).
  - Organizer of the Algorithm Performance Contests in the 5th IAPR Workshop on Pattern Recognition in Remote Sensing, 2008, and in the IAPR International Conference on Pattern Recognition, 1998 and 2000.
- Program Committee Member
  - SPIE Medical Imaging Symposium, Digital and Computational Pathology Conference (SPIE DP 2026).
  - SPIE Medical Imaging Symposium, Digital and Computational Pathology Conference (SPIE DP 2025).
  - 27th IAPR International Conference on Pattern Recognition (ICPR 2024).
  - 13th IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS 2024).
  - SPIE Medical Imaging Symposium, Digital and Computational Pathology Conference (SPIE DP 2024).
  - SPIE Medical Imaging Symposium, Digital and Computational Pathology Conference (SPIE DP 2023).
  - SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2023).
  - Conference on Big Data from Space (BIDS 2023).
  - 26th IAPR International Conference on Pattern Recognition (ICPR 2022).
  - 12th IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS 2022).
  - SPIE Medical Imaging Symposium, Digital and Computational Pathology Conference (SPIE DP 2022).
  - 17th International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM 2022).
  - SPIE Medical Imaging Symposium, Digital and Computational Pathology Conference (SPIE DP 2021).
  - Conference on Big Data from Space (BIDS 2021).
  - 25th IAPR International Conference on Pattern Recognition (ICPR 2020).
  - 11th IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS 2020).
  - SPIE Medical Imaging Symposium, Digital Pathology Conference (SPIE DP 2020).
  - SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2020).
  - SPIE Medical Imaging Symposium, Digital Pathology Conference (SPIE DP 2019).
  - SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2019).
  - Conference on Big Data from Space (BIDS 2019).
  - 24th IAPR International Conference on Pattern Recognition (ICPR 2018).
  - 10th IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS 2018).

- SPIE Medical Imaging Symposium, Digital Pathology Conference (SPIE DP 2018).
- SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2018).
- 13th International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM 2018).
- IEEE 26. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2018).
- SPIE Medical Imaging Symposium, Digital Pathology Conference (SPIE DP 2017).
- SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2017).
- Conference on Big Data from Space (BIDS 2017).
- 6th ACM SIGSPATIAL International Workshop on Analytics for Big Geospatial Data (BigSpatial 2017).
- IEEE 25. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2017).
- 23rd IAPR International Conference on Pattern Recognition (ICPR 2016).
- 9th IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS 2016).
- SPIE Medical Imaging Symposium, Digital Pathology Conference (SPIE DP 2016).
- SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2016).
- Conference on Big Data from Space (BIDS 2016).
- 11th International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM 2016).
- 5th ACM SIGSPATIAL International Workshop on Analytics for Big Geospatial Data (BigSpatial 2016).
- IEEE 24. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2016).
- SPIE Medical Imaging Symposium, Digital Pathology Conference (SPIE DP 2015).
- 8th International Symposium Remote Sensing and Data Fusion over Urban Areas (URBAN 2015).
- 10th Image Information Mining Conference: Earth Observation Meets Multimedia (IIM 2015).
- SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2015).
- 9th International Symposium on Image and Signal Processing and Analysis (ISPA 2015).
- 10th International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM 2015).
- 2nd International Workshop on Vision from Satellite to Street (VSS 2015).
- IEEE 23. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2015).
- 22nd IAPR International Conference on Pattern Recognition (ICPR 2014).
- 8th IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS 2014).
- Conference on Big Data from Space (BiDS 2014).
- SPIE Medical Imaging Symposium, Digital Pathology Conference (SPIE DP 2014).
- 9th ESA-EUSC-JRC Image Information Mining Conference: The Sentinels Era (IIM 2014).
- SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2014).
- International Workshop on Image Retrieval in Remote Sensing (IR2S 2014).
- IEEE 22. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2014).
- ICCV Workshop on Computer Vision for Converging Perspectives (CVCP 2013).
- International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM 2013).
- SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2013).
- 21st IAPR International Conference on Pattern Recognition (ICPR 2012).
- 7th IAPR Workshop on Pattern Recognition in Remote Sensing (PRRS 2012).
- 8th ESA-EUSC-JRC Image Information Mining Conference: Knowledge Discovery from Earth Observation Data (IIM 2012).
- XXII Congress of the International Society for Photogrammetry and Remote Sensing (ISPRS 2012).
- International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM 2012).
- SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2012).

  - IEEE 20. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2012).
  - International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM 2011).
  - SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2011).
  - International Conference on Space Technology (SPACETECH 2011).
  - IEEE 19. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2011).
  - 20th IAPR International Conference on Pattern Recognition (ICPR 2010).
  - 10th International Workshop on Pattern Recognition in Information Systems (PRIS 2010).
  - International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM 2010).
  - SPIE Conference on Image and Signal Processing for Remote Sensing (SPIE RS 2010).
  - ISPRS Symposium on Photogrammetric Computer Vision and Image Analysis (PCV 2010).
  - IEEE 18. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2010).
  - International Workshop on Validation of Geo-information Products for Crisis Management (VALgEO 2009).
  - International Workshop on Spatial and Spatiotemporal Data Mining (SSTDM 2009).
  - ISPRS Workshop on Object Extraction for 3D City Models, Road Databases and Traffic Monitoring — Concepts, Algorithms and Evaluation (CMRT 2009).
  - 13th International Conference on Computer Analysis of Images and Patterns (CAIP 2009).
  - International Conference on Space Technology (SPACETECH 2009).
  - IEEE 17. Sinyal İşleme ve İletişim Uygulamaları Kurultayı (Turkish) (SIU 2009).
  - 19th IAPR International Conference on Pattern Recognition (ICPR 2008).
  - 3rd IEEE International Workshop on Semantic Learning and Applications in Multimedia (SLAM 2008).
  - 23rd International Symposium on Computer and Information Sciences (ISCIS 2008).
  - 9th International Workshop on Image Analysis for Multimedia Interactive Services (WIAMIS 2008).
  - International Conference on Computer Vision Theory and Applications (VISAPP 2008).
  - Pacific-Rim Conference on Multimedia (PCM 2007).
  - IEEE IEEE International Workshop on Semantic Learning Applications in Multimedia (SLAM 2007).
  - SPIE Multimedia Systems and Applications X (2007).
  - International Symposium on Computer and Information Sciences (ISCIS 2007).
  - 7th International Workshop on Pattern Recognition in Information Systems (PRIS 2007).
  - International Conference on Computer Vision Theory and Applications (VISAPP 2007).
  - 18th IAPR International Conference on Pattern Recognition (ICPR 2006).
  - 6th International Workshop on Pattern Recognition in Information Systems (PRIS 2006).
  - International Conference on Computer Vision Theory and Applications (VISAPP 2006).
- Review Committee Member
  - IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2025).
  - IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2024).
  - IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2023).
  - IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2022).
  - IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2021).
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- IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2012).
- IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2011).
- IEEE International Conference on Computer Vision and Pattern Recognition (CVPR 2010).
- IEEE International Conference on Computer Vision (ICCV 2009).
- IEEE International Conference on Computer Vision and Pattern Recognition (CVPR 2009).
- IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2009).
- IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2008).

▷ **Institutional Service**

- Director, RETINA Vision and Learning Group, Department of Computer Engineering, Bilkent University, 2004–Present.
- Chair, International Association for Pattern Recognition (IAPR) Technical Committee on Remote Sensing, 2006–2008, 2008–2010.
- Vice-Chair, International Association for Pattern Recognition (IAPR) Technical Committee on Remote Sensing, 2004–2006.
- Co-Chair, International Society for Photogrammetry and Remote Sensing (ISPRS) Intercommission Working Group III/VII on Pattern Recognition for Remote Sensing, 2008–2012.
- Member, Faculty Board, Faculty of Engineering, Bilkent University, 2015–Present.
- Member, Faculty Executive Board, Faculty of Engineering, Bilkent University, 2015–2021.
- Member, Summer Practice Committee, Department of Computer Engineering, Bilkent University, 2005–2022.
- Member, Distinguished Teaching Award Nomination Committee, Department of Computer Engineering, Bilkent University, 2015–Present.
- Member, Alumni Performance Evaluation Committee, Department of Computer Engineering, Bilkent University, 2004–2015.
- Member, Program Improvement Coordination Committee, Department of Computer Engineering, Bilkent University, 2004–2011.

## PUBLICATIONS

▷ **Journal Publications**

1. B. Aygunes, R. G. Cinbis, and **S. Aksoy**. "Patch relevance estimation and multi-label augmentation for weakly supervised histopathology image classification". *SPIE Journal of Medical Imaging*, 12:061411, December 2025.
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3. C. Mercan, B. Aygunes, **S. Aksoy**, E. Mercan, L. G. Shapiro, D. L. Weaver, and J. G. Elmore. "Deep feature representations for variable-sized regions of interest in breast histopathology". *IEEE Journal of Biomedical and Health Informatics*, 25(6):2041–2049, June 2021.
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10. H. G. Akcay and **S. Aksoy**. "Automatic detection of compound structures by joint selection of region groups from a hierarchical segmentation". *IEEE Transactions on Geoscience and Remote Sensing*, 54(6):3485–3501, June 2016.
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33. **S. Aksoy**, N. H. Younan, and W. Forstner, editors. *Proceedings of 2010 IAPR Workshop on Pattern Recognition in Remote Sensing*. IEEE, Catalog Number: CFP1080E-ART, 2010.
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35. E. Turkolmez, Y. A. Khan, C. Bund, I. J. Namer, A. E. Cicek, and **S. Aksoy**. "OT-Fusion: Cortex-conditioned fusion of matched PET and MRI images using optimal transport". In *Proceedings of SPIE Medical Imaging Symposium, Image Processing Conference*, Vancouver, Canada, February 15–19, 2026.
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59. A. Kale and **S. Aksoy**. "Segmentation of cervical cell images". In *Proceedings of 20th IAPR International Conference on Pattern Recognition*, pages 2399–2402, Istanbul, Turkey, August 23–26, 2010.

60. B. Ozdemir and **S. Aksoy**. "Image classification using subgraph histogram representation". In *Proceedings of 20th IAPR International Conference on Pattern Recognition*, pages 1112–1115, Istanbul, Turkey, August 23–26, 2010.

61. C. Ari and **S. Aksoy**. "Maximum likelihood estimation of Gaussian mixture models using particle swarm optimization". In *Proceedings of 20th IAPR International Conference on Pattern Recognition*, pages 746–749, Istanbul, Turkey, August 23–26, 2010.

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64. **S. Aksoy**. "Automatic detection of hedges and orchards using very high spatial resolution imagery". In *Proceedings of 15th GeoCAP Conference on Geomatics in Support of the Common Agricultural Policy*, Taormina, Italy, November 18–20, 2009.

65. D. Zamalieva, **S. Aksoy**, and J. C. Tilton. "Finding compound structures in images using image segmentation and graph-based knowledge discovery". In *Proceedings of IEEE International Geoscience and Remote Sensing Symposium*, volume V, pages 252–255, Cape Town, South Africa, July 13–17, 2009.

66. I. Z. Yalniz and **S. Aksoy**. "Detecting regular plantation areas in satellite images". In *Proceedings of 17th IEEE Signal Processing and Communications Applications*, pages 289–292, Antalya, Turkey, April 9–11, 2009.

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68. A. Kale, **S. Aksoy**, and S. Onder. "Cell nuclei segmentation in pap smear test images". In *Proceedings of 17th IEEE Signal Processing and Communications Applications*, pages 648–651, Antalya, Turkey, April 9–11, 2009.

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94. **S. Aksoy** and R. M. Haralick. "A classification framework for content-based image retrieval". In *Proceedings of 16th IAPR International Conference on Pattern Recognition*, volume 2, pages 503–506, Quebec City, Canada, August 11–15, 2002.

95. **S. Aksoy**, G. Marchisio, C. Tusk, and K. Koperski. "Interactive classification and content-based retrieval of tissue images". In *Proceedings of SPIE Annual Meeting*, volume 4790, pages 71–81, Seattle, Washington, July 7–11, 2002. Applications of Digital Image Processing Session.

96. K. Koperski, G. Marchisio, C. Tusk, and **S. Aksoy**. "Interactive models for semantic labeling of satellite images". In *Proceedings of SPIE Annual Meeting*, volume 4814, pages 423–434, Seattle, Washington, July 7–11, 2002. Earth Observing Systems Session.

97. **S. Aksoy**, G. Marchisio, K. Koperski, and C. Tusk. "Probabilistic retrieval with a visual grammar". In *Proceedings of IEEE International Geoscience and Remote Sensing Symposium*, volume 2, pages 1041–1043, Toronto, Canada, June 24–28, 2002.

98. K. Koperski, G. Marchisio, **S. Aksoy**, and C. Tusk. "VisiMine: Interactive mining in image databases". In *Proceedings of IEEE International Geoscience and Remote Sensing Symposium*, volume 3, pages 1810–1812, Toronto, Canada, June 24–28, 2002.

99. K. Koperski, G. Marchisio, **S. Aksoy**, and C. Tusk. "Applications of terrain and sensor data fusion in image mining". In *Proceedings of IEEE International Geoscience and Remote Sensing Symposium*, volume 2, pages 1026–1028, Toronto, Canada, June 24–28, 2002.

100. **S. Aksoy**, R. M. Haralick, F. A. Cheikh, and M. Gabbouj. "A weighted distance approach to relevance feedback". In *Proceedings of 15th IAPR International Conference on Pattern Recognition*, volume IV, pages 812–815, Barcelona, Spain, September 3–8, 2000.

101. **S. Aksoy**, M. Ye, M. L. Schauf, M. Song, Y. Wang, R. M. Haralick, J. R. Parker, J. Pivovarov, D. Royko, C. Sun, and G. Farneback. "Algorithm performance contest". In *Proceedings of 15th IAPR International Conference on Pattern Recognition*, volume IV, pages 870–876, Barcelona, Spain, September 3–8, 2000.
102. **S. Aksoy** and R. M. Haralick. "Probabilistic vs. geometric similarity measures for image retrieval". In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, volume 2, pages 357–362, Hilton Head Island, South Carolina, June 13–15, 2000.
103. **S. Aksoy** and R. M. Haralick. "Graph–theoretic clustering for image grouping and retrieval". In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, volume 1, pages 63–68, Fort Collins, Colorado, June 23–25, 1999.
104. **S. Aksoy** and R. M. Haralick. "Using texture in image similarity and retrieval". In *Proceedings of International Workshop on Texture Analysis in Machine Vision*, pages 111–117, Oolu, Finland, June 14–15, 1999.
105. **S. Aksoy** and R. M. Haralick. "A graph–theoretic approach to image database retrieval". In *Proceedings of 3rd International Conference on Visual Information Systems*, volume 1614 of *Lecture Notes in Computer Science*, pages 341–348, Amsterdam, The Netherlands, June 2–4, 1999.
106. M. L. Schauf, **S. Aksoy**, and R. M. Haralick. "Model-based shape recognition using recursive mathematical morphology". In *Proceedings of 14th IAPR International Conference on Pattern Recognition*, volume 1, pages 202–204, Brisbane, Australia, August 16–20, 1998.
107. **S. Aksoy** and R. M. Haralick. "Content-based image database retrieval using variances of gray level spatial dependencies". In *Proceedings of IAPR International Workshop on Multimedia Information Analysis and Retrieval*, volume 1464 of *Lecture Notes in Computer Science*, pages 3–19, Hong Kong, August 13–14, 1998.
108. **S. Aksoy** and R. M. Haralick. "Textural features for image database retrieval". In *Proceedings of IEEE Workshop on Content-Based Access of Image and Video Libraries*, pages 45–49, Santa Barbara, California, June 21, 1998. in conjunction with CVPR'98.

▷ **Nonrefereed Conference Publications**

109. **S. Aksoy**, P. Duygulu, C. Aksoy, E. Aydin, D. Gunaydin, K. Hadimli, L. Koc, Y. Olgun, C. Orhan, and G. Yakin. "Bilkent University in TRECVID 2007". In *Proceedings of TREC Video Retrieval Evaluation*, Gaithersburg, Maryland, November 5–6, 2007.
110. Q. Zhang, M. Corvaglia, **S. Aksoy**, U. Naci, N. Adami, N. Aginako, A. Alatan, L. A. Alexandre, P. Almeida, Y. Avrithis, J. Benois-Pineau, K. Chandramouli, U. Damnjanovic, E. Esen, J. Goya, M. Grzegorzek, A. Hanjalic, E. Izquierdo, R. Jarina, P. Kapsalas, I. Kompatsiaris, M. Kuba, R. Leonardi, L. Makris, B. Mansencal, V. Mezaris, A. Moumtzidou, P. Mylonas, S. Nikolopoulos, T. Piatrik, A. M. G. Pinheiro, B. Reljin, E. Spyrou, G. Tolias, S. Vrochidis, G. Yakin, and G. Zajic. "The COST292 experimental framework for TRECVID 2007". In *Proceedings of TREC Video Retrieval Evaluation*, Gaithersburg, Maryland, November 5–6, 2007.
111. **S. Aksoy**, P. Duygulu, G. Akcay, E. Ataer, M. Bastan, T. Can, O. Cavus, E. Dogrusoz, D. Gokalp, A. Akaydin, L. Akoglu, P. Angin, G. Cinbis, T. Gur, and M. Unlu. "Bilkent University in TRECVID 2006". In *Proceedings of TREC Video Retrieval Evaluation*, Gaithersburg, Maryland, November 13–14, 2006.
112. J. Calic, N. Campbell, P. Kramer, J. Benois-Pineau, S. Vrochidis, C. Doulaverakis, V. Mezaris, I. Kompatsiaris, E. Spyrou, G. Koumoulos, Y. Avrithis, **S. Aksoy**, A. Dalkilick, A. Saracoglu, A. Alatan, Q. Zhang, E. Izquierdo, U. Naci, and A. Hanjalic. "COST292 experiments for TRECVID 2006". In *Proceedings of TREC Video Retrieval Evaluation*, Gaithersburg, Maryland, November 13–14, 2006.
113. **S. Aksoy**, A. Avci, E. Balcik, O. Cavus, P. Duygulu, Z. Karaman, P. Kavak, C. Kaynak, E. Kucukayvaz, C. Ocalan, and P. Yildiz. "Bilkent University in TRECVID 2005". In *Proceedings of TREC Video Retrieval Evaluation*, Gaithersburg, Maryland, November 14–15, 2005.

114. **S. Aksoy**, K. Bircan, S. Ciraci, P. Duygulu, E. Karaca, S. Kasirga, T. Sevilmis, and M. Sener. "Bilkent University in TRECVID 2004". In *Proceedings of TREC Video Retrieval Evaluation*, Gaithersburg, Maryland, November 15–16, 2004.

## CITATIONS

Total number of citations (as of December 2025):

- Scopus: 2819 (h-index: 25)
- Google Scholar: 4640 (h-index: 33)

## TALKS AND PRESENTATIONS

### ▷ Invited Talks

- "Uzaktan Algılamada Büyük Veri Analitiği (in Turkish)," invited talk, Büyük Veri Analitiği, Güvenliği ve Mahremiyeti Ulusal Çalıştayı, Ankara, Turkey, October 6, 2022.
- "Pattern Recognition and Machine Learning for Remote Sensing," invited lecture at the Split Remote Sensing Summer School, Zadar, Croatia, June 13, 2022.
- "Tıbbi Görüntü Analizi ve Uzaktan Algılama Uygulamaları İçin Zayıf Öğreticili Öğrenme (in Turkish)," invited talk, Sinyal ve Görüntü İşleme Konferansı, Ankara, Turkey, October 5, 2019.
- "Weakly Supervised Learning Algorithms for Remote Sensing and Medical Imaging Applications," invited talk at the Department of Information and Communication Engineering at the University of Tokyo, August 2, 2019.
- "Weakly Supervised Learning Algorithms for Digital Pathology," invited talk at the Department of Industrial Engineering at Bilkent University, Ankara, Turkey, May 10, 2019.
- "Weakly Supervised Learning Algorithms for Medical Imaging and Remote Sensing Applications," invited talk at the Department of Electrical and Electronics Engineering at Middle East Technical University, Ankara, Turkey, March 15, 2019.
- "Tıbbi Görüntü Analizi ve Uzaktan Algılama Uygulamaları İçin Zayıf Öğreticili Öğrenme Algoritmaları (in Turkish)," invited talk at the Department of Computer Engineering at TOBB University of Economics and Technology, Ankara, Turkey, February 27, 2019.
- "Bilkent Üniversitesi'nde Uzaktan Algılama Görüntülerinin Analizi ve Kıymetlendirilmesi (in Turkish)," invited talk, Coğrafi Bilgi Sistemleri ve Görüntü İşleme Teknolojileri Çalıştayı, Ankara, Turkey, September 27, 2018.
- "Sayısal Patoloji İçin Bilgisayarla Görme ve Makine Öğrenmesi (in Turkish)," invited talk, Sinyal ve Görüntü İşleme Günleri, Ankara, Turkey, October 7, 2017.
- "Pattern Recognition Techniques for Remote Sensing," invited lecture at the Split Remote Sensing Summer School, Dubrovnik, Croatia, June 7, 2017.
- "Sayısal Patoloji İçin Bilgisayarla Görme ve Makine Öğrenmesi (in Turkish)," invited talk, Tıp Bilişiminde Yenilikler Sempozyumu, Ankara, Turkey, March 25, 2017.
- "Büyük Veri Biliminin Sağlık Alanında Kullanımı (in Turkish)," invited talk, SGK-SADEFE-SKYDER Büyük Veri Çalıştayı, Ankara, Turkey, March 8, 2017.
- "Bilkent Üniversitesi'nde Uzaktan Algılama Görüntülerinin Analizi ve Kıymetlendirilmesi Çalışmaları (in Turkish)," invited talk, HAVELSAN Akademi Günleri, Ankara, Turkey, July 20, 2016.
- "Pattern Recognition Techniques for Remote Sensing," invited lecture at the Split Remote Sensing Summer School, Thessaloniki, Greece, May 21, 2015.
- "Classification Techniques for Remote Sensing," invited lecture at the TUBITAK-IEEE GRSS Earth Observation Applications Summer School, Kocaeli, Turkey, June 26, 2014.

- "Image Analysis Research at Bilkent University," invited talk at the Earth Observation Satellite Technologies and Data Analysis Workshop, Ankara, Turkey, March 19, 2014.
- "Image Classification and Object Recognition for Remote Sensing and Medical Image Analysis," guest lecture at the Department of Computer Science and Engineering, University of Washington, Seattle, WA, USA, October 23, 2013.
- "Detection of Compound Structures in Very High Spatial Resolution Images," seminar at DigitalGlobe, Inc., Seattle, WA, USA, April 4, 2013.
- "Detection of Compound Structures in Very High Spatial Resolution Images," keynote lecture at the 8th Conference on Image Information Mining: Knowledge Discovery from Earth Observation Data, Munich, Germany, October 24, 2012.
- "Detection of Compound Structures in VHR Satellite Images," invited talk at the Applications and Services of Excellence in Remote Sensing Workshop, Ankara, Turkey, April 17, 2012.
- "Structural Analysis of Geospatial Data for Unsupervised Object Recognition," invited talk at the Department of Biomedical, Electronic and Telecommunications Engineering, University of Naples Federico II, Naples, Italy, May 18, 2011.
- "Segmentation and Classification of Cervical Cell Images," invited talk at the Department of Biomedical, Electronic and Telecommunications Engineering, University of Naples Federico II, Naples, Italy, May 17, 2011.
- "Spatial Relationship Models for Image Information Mining," invited talk at the Department of Biomedical, Electronic and Telecommunications Engineering, University of Naples Federico II, Naples, Italy, May 16, 2011.
- "Performance Evaluation of Object Detection Algorithms," keynote talk at the 7th Conference on Image Information Mining: Geospatial Intelligence from Earth Observation, Ispra, Italy, April 1, 2011.
- "Automatic Mapping of Agricultural Objects Using Very High Spatial Resolution Satellite Imagery," plenary talk at the 6th Technical Symposium of the Turkish National Society for Photogrammetry and Remote Sensing, Antalya, Turkey, February 24, 2011.
- "Structural Modeling of Geospatial Data for Unsupervised Object Recognition," invited talk at the Informatics Institute at Middle East Technical University, Ankara, Turkey, October 12, 2010.
- "Automatic Detection of Hedges and Orchards Using Very High Spatial Resolution Imagery," invited talk at the 15th GeoCAP Conference on Geomatics in Support of the Common Agricultural Policy, Taormina, Italy, November 19, 2009.
- "Spatial Relationship Models for Image Information Mining," invited lecture at the Global Earth Observation System of Systems — Summer School on Advancing Earth Observation Data Understanding, Sinaia, Romania, September 3, 2009.
- "Structural Models for Content-Based Classification and Retrieval of Geospatial Data," invited talk at the Workshop on Innovative Data Mining Techniques in Support of Global Earth Observation System of Systems, Sinaia, Romania, September 2, 2009.
- "Structural Modeling of Geospatial Data for Unsupervised Object Recognition," invited talk at the Department of Mathematics, Kyushu University, Fukuoka, Japan, June 19, 2009.
- "Nesne Tanımada Bağlam ve Anlambilimsel Sınıflandırmanın Önemi: Bilgisayarla Görme ve İnsanda Görme Alanlarındaki Çalışmalar (in Turkish)," invited panel talk at the 16th IEEE Conference on Signal Processing and Communications Applications, Didim, Turkey, April 21, 2008.
- "Hierarchical Classification, Mining and Semantic Retrieval in Remote Sensing Image Archives," invited talk at TUBITAK (Scientific and Technological Research Council of Turkey), Ankara, Turkey, November 27, 2007.
- "Statistical and Structural Modeling of Geospatial Patterns Using Mathematical Morphology and Generalized Texture Techniques," invited talk at the European Commission Joint Research Centre, Institute for the Protection and Security of the Citizen, Ispra, Italy, July 30, 2007.

- "Scene Classification and Retrieval Using Bag-of-Regions Representations," invited talk at the Department of Computer Science & Engineering at the University of Washington, Seattle, Washington, June 26, 2007.
- "Modeling Urbanization Using Spatial Building Patterns," invited talk at the Department of Geodetic and Geographic Information Technologies at Middle East Technical University, Ankara, Turkey, November 22, 2006.
- "Graph-Theoretic Clustering for Image Grouping and Retrieval," invited lecture at the Statistical Data Analysis Seminar at the Department of Computer Engineering at Middle East Technical University, Ankara, Turkey, April 20, 2006.
- "Probabilistic Approaches to Image Classification and Content-Based Retrieval," invited talk at the Computer Vision and Intelligent Systems Seminar Series at the Department of Electrical Engineering at Middle East Technical University, Ankara, Turkey, May 17, 2004.
- "A Probabilistic Similarity Framework for Content-Based Image Retrieval," invited talk at the Department of Computer Engineering at Middle East Technical University, Ankara, Turkey, March 31, 2004.
- "Classification and Retrieval of Tissue Images Using a Visual Grammar," invited talk at the Structural Informatics Research Seminar at the Department of Biological Structure at the University of Washington, Seattle, Washington, October 30, 2002.

▷ **Other Presentations**

- "Deep Convolutional Networks for PET Super-Resolution," (poster presentation) SPIE Medical Imaging Symposium, San Diego, California, February 19, 2024.
- "Space-filling Curves for Modeling Spatial Context in Transformer-based Whole Slide Image Classification," (poster presentation) SPIE Medical Imaging Symposium, San Diego, California, February 20, 2023.
- "On the Benefits of Region of Interest Detection for Whole Slide Image Classification," SPIE Medical Imaging Symposium, San Diego, California, February 21, 2023.
- "Weakly Supervised Deep Convolutional Networks for Fine-Grained Object Recognition in Multispectral Images," (poster presentation) IEEE International Geoscience and Remote Sensing Symposium, Yokohama, Japan, July 29, 2019.
- "From Patch-level to ROI-level Deep Feature Representations for Breast Histopathology Classification," SPIE Medical Imaging Symposium, San Diego, California, February 21, 2019.
- "Object Detection Using Optical and Lidar Data Fusion," IEEE International Geoscience and Remote Sensing Symposium, Beijing, China, July 15, 2016.
- "Detection of Compound Structures by Region Group Selection From Hierarchical Segmentations," IEEE International Geoscience and Remote Sensing Symposium, Beijing, China, July 14, 2016.
- "Compound Object Detection Using Region Co-occurrence Statistics," Conference on Image Information Mining, Bucharest, Romania, March 5, 2014.
- "Detection of Compound Structures Using Multiple Hierarchical Segmentations," IEEE International Geoscience and Remote Sensing Symposium, Munich, Germany, July 27, 2012.
- "Detection of Compound Structures using a Gaussian Mixture Model with Spectral and Spatial Constraints," SPIE Defense, Security, and Sensing: Algorithms and Technologies for Multispectral, Hyperspectral, and Ultraspectral Imagery XVIII, Baltimore, Maryland, April 26, 2012.
- "Detection of Compound Structures Using Hierarchical Clustering of Statistical and Structural Features," IEEE International Geoscience and Remote Sensing Symposium, Vancouver, Canada, July 27, 2011.
- "Image Classification Using Subgraph Histogram Representation," (poster presentation) IAPR International Conference on Pattern Recognition, Istanbul, Turkey, August 24, 2010.

- "Building Detection Using Directional Spatial Constraints," IEEE International Geoscience and Remote Sensing Symposium, Honolulu, Hawaii, July 28, 2010.
- "Unsupervised Classification of Remotely Sensed Images Using Gaussian Mixture Models and Particle Swarm Optimization," IEEE International Geoscience and Remote Sensing Symposium, Honolulu, Hawaii, July 28, 2010.
- "Automatic Detection and Segmentation of Hazelnut Orchards in Northern Turkey," European Commission Joint Research Centre, Institute for the Protection and Security of the Citizen, Ispra, Italy, November 23, 2009.
- "Finding Compound Structures in Images Using Image Segmentation and Graph-Based Knowledge Discovery," IEEE International Geoscience and Remote Sensing Symposium, Cape Town, South Africa, July 17, 2009.
- "Algorithm Performance Contest," IAPR Workshop on Pattern Recognition in Remote Sensing, Tampa, Florida, December 7, 2008.
- "Semantic Scene Classification for Image Annotation and Retrieval," (poster presentation) IAPR International Workshop on Structural and Syntactic Pattern Recognition, Orlando, Florida, December 5, 2008.
- "Automatic VHR Imagery Based Mapping of Linear Woody Vegetation Features in Agricultural Landscapes," European Commission Joint Research Centre, Institute for the Protection and Security of the Citizen, Ispra, Italy, September 9, 2008.
- "Automatic Mapping of Linear Woody Vegetation Features in Agricultural Landscapes," IEEE International Geoscience and Remote Sensing Symposium, Boston, Massachusetts, July 10, 2008.
- "Mining of Remote Sensing Image Archives Using Spatial Relationship Histograms," IEEE International Geoscience and Remote Sensing Symposium, Boston, Massachusetts, July 9, 2008.
- "İçerik Tabanlı Görüntü Erişimi İçin Sahne Sınıflandırması (in Turkish)," IEEE Sinyal İşleme ve İletişim Uygulamaları Kurultayı, Didim, Turkey, April 21, 2008.
- "Relative Position-Based Spatial Relationships Using Mathematical Morphology," IEEE International Conference on Image Processing, San Antonio, Texas, September 17, 2007.
- "Modeling Urban Structures Using Graph-Based Spatial Patterns," IEEE International Geoscience and Remote Sensing Symposium, Barcelona, Spain, July 27, 2007.
- "Automated Detection of Objects Using Multiple Hierarchical Segmentations," IEEE International Geoscience and Remote Sensing Symposium, Barcelona, Spain, July 24, 2007.
- "Scene Classification Using Bag-of-Regions Representations," IEEE Conference on Computer Vision and Pattern Recognition, Beyond Patches Workshop, Minneapolis, Minnesota, June 23, 2007.
- "Modeling Urbanization Using Spatial Building Patterns," IAPR International Workshop on Pattern Recognition in Remote Sensing, Hong Kong, China, August 20, 2006.
- "Modeling of Remote Sensing Image Content Using Attributed Relational Graphs," (poster presentation) IAPR International Workshop on Structural and Syntactic Pattern Recognition, Hong Kong, China, August 19, 2006.
- "A Relevance Feedback Technique for Multimodal Retrieval of News Videos," Belgrade, Serbia & Montenegro, November 24, 2005.
- "Finding Faces in News Videos," International Workshop on Content-Based Multimedia Indexing, Riga, Latvia, June 21, 2005.
- "Multi-resolution Segmentation and Shape Analysis for Remote Sensing Image Classification," International Conference on Recent Advances in Space Technologies, Istanbul, Turkey, June 9, 2005.
- "Bilkent University at TRECVID 2004," (poster presentation) U.S. National Institute of Standards and Technology, Gaithersburg, MD, November 15, 2004.

- "Interactive Training of Advanced Classifiers for Remote Sensing Image Analysis," U.S. Army Topographic Engineering Center, Alexandria, VA, December 1, 2003.
- "Learning Bayesian Classifiers for a Visual Grammar," (poster presentation) NASA Goddard Space Flight Center, Greenbelt, MD, October 28, 2003.
- "Probabilistic Approaches to Image Classification and Content-Based Retrieval," Department of Computer Engineering at Bilkent University, Ankara, Turkey, September 2, 2003.
- "Probabilistic Approaches to Image Classification and Content-Based Retrieval," Department of Computer Science at Sabancı University, Istanbul, Turkey, August 15, 2003.
- "Probabilistic Approaches to Image Classification and Content-Based Retrieval," Engineering Seminar at Koç University, Istanbul, Turkey, July 16, 2002.
- "VisiMine: Interactive Mining in Image Databases," IEEE International Geoscience & Remote Sensing Symposium, Toronto, Canada, June 28, 2002.
- "Probabilistic Retrieval with a Visual Grammar," IEEE International Geoscience & Remote Sensing Symposium, Toronto, Canada, June 26, 2002.
- "Applications of Terrain and Sensor Data Fusion in Image Mining," IEEE International Geoscience & Remote Sensing Symposium, Toronto, Canada, June 26, 2002.
- "A Probabilistic Similarity Framework for Content-Based Image Retrieval," Image Mining Workshop at Insightful Corporation, Seattle, WA, June 15, 2001.
- "A Probabilistic Framework for Content-Based Image Database Retrieval," Fuji-Xerox Palo Alto Laboratory, Palo Alto, CA, April 6, 2001.
- "A Probabilistic Framework for Content-Based Image Database Retrieval," IBM Almaden Research Center, San Jose, CA, February 20, 2001.
- "Using Texture in Image Similarity and Retrieval," International Workshop on Texture Analysis in Machine Vision, Oulu, Finland, June 15, 1999.
- "A Graph Theoretic Approach to Image Database Retrieval," (poster presentation) International Conference on Visual Information Systems, Amsterdam, The Netherlands, June 3, 1999.
- "Content-Based Image Database Retrieval," (poster presentation) Annual Poster Contest at the Department of Electrical Engineering at the University of Washington, May 21, 1999.
- "Textural Features for Image Database Retrieval," IEEE Workshop on Content-Based Access of Image and Video Libraries, Santa Barbara, CA, June 21, 1998.

*(December 11, 2025)*