Ramazan Gökberk CİNBİŞ

Contact Information

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Research Interests

Machine learning and computer vision, with special interest in data-efficient deep learning (zero-shot, few-shot, weakly-supervised, self-supervised learning), learning to learn (meta-learning), vision and language integration, and large-scale image/video understanding.

Education

Inria Rhône-Alpes & Université de Grenoble, Grenoble, France

- PhD., Computer Science, 09/2010 - 07/2014.
- Advisors: Dr. Jakob Verbeek, Dr. Cordelia Schmid (IEEE Fellow).
- Dissertation: Fisher Kernel based Models for Image Classification and Object Localization.
- **Best PhD Thesis Award** by French Association for Pattern Recognition (AFRIF).

Boston University, Boston, MA, USA

- M.A., Computer Science, 09/2008 - 09/2010.
- Advisor: Prof. Stan Sclaroff (IEEE Fellow, IAPR Fellow).
- Thesis title: Set Based Modeling of Objects and Their Context.

Bilkent University, Ankara, Turkey

- B.S., Computer Engineering, 09/2004 - 05/2008.
- **Ranked 1st at graduation** (GPA: 3.94/4.0)

Research, Consultancy and Work Experience

Orta Dogu Teknik Universitesi (METU), **Department of Computer Engineering,** Ankara, Turkey
Assistant Professor (09/2017 - Present)

INRIA Paris - WILLOW Team, Paris, France
Visiting Researcher (07/2018 - 08/2018)

Bilkent University, **Department of Computer Engineering,** Ankara, Turkey
Assistant Professor (02/2016 - 09/2017)

Milsoft, Ankara, Turkey
Researcher (Part-time) (04/2014 - 01/2016)

Inria Grenoble, Learning and Recognition in Vision (LEAR) Team, France
Doctoral researcher (09/2010 - 04/2014)

Boston University, **Image and Video Computing Group** (BU), Boston, MA
Research/Teaching Assistant (09/2008 - 09/2010)

Mitsubishi Electric Research Laboratories (MERL), Cambridge, MA
Intern (06/2009-08/2009)

Carnegie Mellon University, The Robotics Institute (CMU), Pittsburgh, PA
Robotics Institute Summer Scholar (06/2007-08/2007)

Bilkent University, RETINA Vision and Learning Group – Ankara, Turkey
Member, Intern (01/2006 – 06/2008)

Grandeye – Ankara, Turkey
Intern (06/2006 – 07/2006)

Buladur – Ankara, Turkey
Part-time Computer Vision Engineer (01/2008 – 06/2008)

Honors and Awards

- IEEE/ CVF Int. Conf. on Computer Vision and Pattern Recognition (CVPR) - Outstanding Reviewer Award 2020.
- Google Faculty Research Award (2019-2020).
- Embassy of France - French-Turkish Research Fellowship 2018.
- Our SIU 2016 paper received Alper Atalay Best Student Paper Award - Third Prize.
- PhD Thesis Award by *Association Française pour la Reconnaissance et l'Interprétation des Formes* (AFRIF), the French branch of *International Assoc. for Pattern Recognition* (IAPR), 2015.
- PhD thesis is seleected to appear in the information booklet of Université de Grenoble, 2015.
- Travel grant and doctoral consortium award at IEEE Conf. on Computer Vision & Pattern Recognition (CVPR), 2014.
- Inria full-time doctoral research grant, 2010.
- Ranked 1st at graduation from Bilkent University, Computer Engineering Department (2008).
- Research/teaching assistanship and full tuition award by Boston University. (2008).
- Undergraduate research scholarship award by Carnegie Mellon University Robotics Institute (2007).
- Full scholarship including tuition, stipend, and housing by Bilkent University upon success in the National University Entrance Exam (2004).
- Ranked 1st at graduation from Denizli High School of Science (2004).

Student Supervision

Student graduations

- Yarkin Deniz Cetin, M.S. 01/2020 (Bilkent University, co-supervised with Selim Aksoy).
- Mert Bulent Sariyildiz, M.S. 09/2019 (Bilkent University, co-supervised with Selim Aksoy). Moved to Naver Labs as a PhD student.
- Gencer Sumbul, M.S. 06/2018 (Bilkent University, co-supervised with Selim Aksoy). Moved to TU-Berlin as a PhD student.
- Onur Aydin, M.S. 03/2018 (Bilkent University).
- Berkan Demirel, M.S. 12/2016 (Hacettepe University, co-supervised with Nazli Ikizler-Cinbis).

Research Grants

• *SnapEarth - Fostering Earth Observation market uptake thanks to natural and holistic access to added value data generated through cutting-edge Artificial Intelligence technologies*, H2020 Consortium Project, project no. 870373, Principal Investigator of METU (Partner), 12/2019 - 05/2022. Total Grant: €1,995,031.26, METU's Budget: €107,325.00 .

• *Learning Visual Recognition Models with Incomplete Supervision*, 3501 CAREER Award, sponsored by TUBITAK (Scientific and Technological Research Council of Turkey), project no. 116E445, Principal Investigator. 04/2017-03/2020.

• *Multi-source Deep Learning for Fine-grained Object Recognition on Remote Sensing Imagery*, METU Scientific Research Fund, project no. GAP-312-2018-2744, Principal Investigator. 05/2018-05/2019.

Industry-Supported Research Projects and Consultancy

• Deep Learning on Mobile Devices, Pixery Labs. 12/2017-present.

• Hyperspectral Image Processing, Milsoft. 06/2016-09/2016 and 10/2016-01/2017. Research on hyper-spectral image understanding (object detection and recognition).

• Fine-grained Image Classification, TPAO. 11/2018 - 04/2020. Research project on data-efficient fossil imagery understanding.

Publications

The three most prestigious conferences in computer vision are the IEEE Conference on Computer Vision and Pattern Recognition (*CVPR*), IEEE International Conference on Computer Vision (*ICCV*), and the European Conference on Computer Vision (*ECCV*), for which the acceptance rates are around 25%. The proceedings of these three conferences are widely considered as important and influential as the top international journals in the field, *i.e.* IEEE Transactions on Pattern Analysis and Machine Intelligence (*TPAMI*) and International Journal of Computer Vision (*IJCV*).

Google Scholar

- My Google Scholar profile is avaiable at http://goo.gl/B9d6lM.
- My **h-Index** is 15, and the total number of citations is 1300+. (November 2019)

Journal and Conference Papers, and, Preprints

• M. K. Yucel, R. G. Cinbis, P. Duygulu, "A Deep Dive into Adversarial Robustness in Zero-Shot Learning", in ECCV Workshop on Adversarial Robustness in the Real World, Glasgow, United Kingdom (online), August 2020.

• M. B. Sariyildiz, R. G. Cinbis, E. Ayday, "Key Protected Classification for Collaborative Learning", Pattern Recognition (SCI), 104, pp. 107327, August 2020.

• B. Aygüneş, S. Aksoy, R. G. Cinbiş, K. Kösemehmetoğlu, S. Önder, A. Üner, "Graph convolutional networks for region of interest classification in breast histopathology", in SPIE Medical Imaging Symposium, Digital Pathology Conference, Houston, Texas, USA, February 2020. (Oral Presentation)

• O. C. Uner, R. G. Cinbis, O. Tastan, A. E. Cicek, "DeepSide: A Deep Learning Framework for Drug Side Effect Prediction", in bioRxiv, November 2019.

• B. Demirel, R. G. Cinbis, N. Ikizler-Cinbis, "Image Captioning with Unseen Objects", in British Machine Vision Conference (BMVC), September 2019. (Spotlight Presentation)

• Y. C. Bilge, N. Ikizler-Cinbis, R. G. Cinbis, "Zero-Shot Sign Language Recognition: Can Textual Data Uncover Sign Languages?", in British Machine Vision Conference (BMVC), September 2019.

• M. B. Sariyildiz, R. G. Cinbis, "Gradient Matching Generative Networks for Zero-Shot Learning", in IEEE/CVF Conference on Computer Vision & Pattern Recognition (CVPR), Long Beach, CA, USA, June 2019. (Oral Presentation)

• D. Zhukov, J.-B. Alayrac, R.G. Cinbis, D. Fouhey, I. Laptev, J. Sivic, "Cross-task weakly supervised learning from instructional videos", in IEEE/CVF Conference on Computer Vision & Pattern Recognition (CVPR), Long Beach, CA, USA, June 2019.

• B. Aygunes, S. Aksoy, R. G. Cinbis, "Weakly Supervised Deep Convolutional Networks For Fine-grained Object Recognition In Multispectral Images", in IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Yokohama, Japan, July 2019.

• G. Sumbul, R. G. Cinbis, S. Aksoy, "Multisource Region Attention Network for Fine-Grained Object Recognition in Remote Sensing Imagery", IEEE Transactions on Geoscience and Remote Sensing (TGRS) (SCI), 57, pp. 1558-0644, July 2019.

• B. Demirel, R. G. Cinbis, N. Ikizler-Cinbis, "Learning Visually Consistent Label Embeddings for Zero-Shot Learning", in IEEE International Conference on Image Processing (ICIP), Taipei, Taiwan, September 2019. (Oral Presentation)

• B. Demirel, R. G. Cinbis, N. Ikizler-Cinbis, "Zero-Shot Object Detection by Hybrid Region Embedding", in British Machine Vision Conference (BMVC), August 2018.

• M. K. Yucel, Y. C. Bilge, O. Oguz, N. Ikizler-Cinbis, P. Duygulu, R. G. Cinbis, "Wildest Faces: Face Detection and Recognition in Violent Settings", in arXiv:1805.07566 (preprint), May 2018.

• G. Sumbul, R. G. Cinbis, S. Aksoy, "Fine-Grained Object Recognition and Zero-Shot Learning in Remote Sensing Imagery", IEEE Transactions on Geoscience and Remote Sensing (TGRS) (SCI), 56(2), pp. 770-779, February 2018.

• B. Demirel, R. G. Cinbis, N. Ikizler-Cinbis, "Attributes2Classname: A discriminative model for attribute-based unsupervised zero-shot learning", in IEEE International Conference on Computer Vision (ICCV), Venice, Italy, October 2017.

• R. G. Cinbis, J. Verbeek, C. Schmid, "Weakly Supervised Object Localization with Multi-fold Multiple Instance Learning", IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) (SCI), 39(1), pp. 189-203, January 2017.

• R. G. Cinbis, J. Verbeek, C. Schmid, "Approximate Fisher Kernels of non-iid Image Models for Image Categorization", IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) (SCI), 38(6), pp. 1084-1098, June 2016.

• R. G. Cinbis, J. Verbeek, C. Schmid, "Multi-fold MIL Training for Weakly Supervised Object Localization", in IEEE Conference on Computer Vision & Pattern Recognition (CVPR), pp. 2409-2416, Ohio, USA, June 2014.

• R. G. Cinbis, J. Verbeek, C. Schmid, "Segmentation Driven Object Detection with Fisher Vectors", in IEEE International Conference on Computer Vision (ICCV), pp. 2968-2975, Sydney, Australia, December 2013.

• R. G. Cinbis, S. Sclaroff, "Contextual Object Detection using Set-based Classification", in Euro-

pean Conference on Computer Vision (ECCV), pp. 43–57, Florence, Italy, October 2012. (Lecture Notes on Computer Science - LNCS, Volume 7577, 2012.)

• R. G. Cinbis, J. Verbeek, C. Schmid, "Image categorization using Fisher kernels of non-iid image models", in IEEE Conference on Computer Vision & Pattern Recognition (CVPR), pp. 2184-2191, Providence, USA, June 2012.

• R. G. Cinbis, J. Verbeek, C. Schmid, "Unsupervised metric learning for face identification in TV video", in International Conference on Computer Vision (ICCV), pp. 1559-1566, Barcelona, Spain, November 2011.

• S. Aksoy, R. G. Cinbis, "Image Mining Using Directional Spatial Constraints", IEEE Geoscience and Remote Sensing Letters (SCI-E), 7(1), pp. 33-37, January 2010.

• N. Ikizler-Cinbis, R. G. Cinbis, S. Sclaroff, "Learning actions from the Web", in IEEE International Conference on Computer Vision (ICCV), pp. 995-1002, Kyoto, Japan, September 2009.

• N. Ikizler, R. G. Cinbis, S. Pehlivan, P. Duygulu, "Recognizing Actions from Still Images", in IAPR International Conference on Pattern Recognition (ICPR), Florida, USA, December 2008.

• N. Ikizler, R. G. Cinbis, P. Duygulu, "Human Action Recognition with Line and Flow Histograms", in IAPR International Conference on Pattern Recognition (ICPR), Florida, USA, December 2008.

• S. Aksoy, G. Akcay, G. Cinbis, T. Wassenaar, "Automatic mapping of linearwoody vegetation features in agricultural landscapes", in IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Boston, Massachusetts, July 2008.

• R. G. Cinbis, S. Aksoy, "Relative Position-Based Spatial Relationships using Mathematical Morphology", in IEEE International Conference on Image Processing (ICIP), 2, pp. 97-100, San Antonio, Texas, September 2007.

• B. U. Toreyin, R. G. Cinbis, Y. Dedeoglu, A. E. Cetin, "Fire Detection in Infrared Video Using Wavelet Analysis", SPIE Optical Engineering (SCI), 46(6), pp. 067204-067204-9, June 2007.

Book Chapters

• S. Aksoy, R. G. Cinbis, H. G. Akcay, "Image Classification and Object Detection Using Spatial Contextual Constraints", in C. H. Chen, ed., Signal and Image Processing for Remote Sensing, Taylor & Francis, 2011.

Book Translations

• Translated by H. Aydın, R. G. Cinbiş, Y. D. Çetin, B. Demirel, S. Kalkan, H. Moğultay, M. B. Sarıyıldız, G. Sümbül, F. Yarman Vural, "Derin Öğrenme (translation of Deep Learning by Goodfellow et al.)", in Buzdağı Yayınevi, 2018.

National Papers

• G. Sumbul, R. G. Cinbis, S. Aksoy, "Fine-Grained Object Recognition and Zero-Shot Learning in Multispectral Imagery", in IEEE Signal Processing and Communications Applications Conference (SIU), June 2018.

• B. Demirel, R. G. Cinbis, N. Ikizler-Cinbis, "Visual Saliency Estimation via Attribute Based Classifiers and Conditional Random Fields", in IEEE Signal Processing and Communications App-

lications Conference (SIU), May 2016.

• B. Gunyel, R. G. Cinbis, S. Ture, A. C. Gurbuz, "Hyperspectral target detection - An experimental study", in IEEE Signal Processing and Communications Applications Conference (SIU), pp. 2627-2630, May 2015.

• R. G. Cinbis, S. Aksoy, "Morphological Modeling of Position-Based Spatial Relationships", in IEEE Signal Processing and Communications Applications Conference (SIU), pp. 1-4, June 2007.

Technical Reports and Non-refereed Papers

• R. G. Cinbis, S. Aksoy, "Modeling Spatial Relationships in Images", in Technical Report, BU-CE-0702, Department of Computer Engineering, Bilkent University, Ankara, Turkey, January 2007.

• 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, M. Unlu, "Bilkent University at TRECVID", in TREC Video Retrieval Evaluation (TRECVID), 2006.

Teaching Experience

- *Instructor*, CENG 796, Deep Generative Models (METU - S'20)
- *Instructor*, CENG 793, Advanced Deep Learning (METU - S'18, S'19)
- *Instructor*, CENG 793, Algorithms (METU - F'17, F'18, F'19)
- *Instructor*, CENG 491/492, SeniorDesign Projects (METU - F'19, S'20)
- *Instructor*, CENG 483, Introduction to Computer Vision (METU - S'18, S'19)
- *Co-organizer & Instructor,* Bilkent Summer School on Artificial Intelligence for High School students (Bilkent University, new program - Summer'17).
- *Instructor*, CS 559, Deep Learning (Bilkent University, new course - S'17)
- *Instructor*, CS 484, Image Analysis (Bilkent University, S'17)
- *Instructor*, CS 464, Introduction to Machine Learning (Bilkent University, S'16, F'16)
- *Instructor*, CS 315, Programming Languages (Bilkent University, F'16)
- *Instructor*, CS 101, Algorithms and Programming I (Bilkent University, S'16)
- *Teaching Fellow*, CS 480/680 Intro to Computer Graphics (Boston University, S'10)
- *Teaching Fellow*, CS 111 Introduction to Computer Science (Boston University, F'08)
- *Participant,* Teaching Fellow orientation program and seminars (Boston University, F'08)
- *Tutor*, CS 111 Introduction to Matlab and Java (Bilkent University, S'06)

Invited Talks And Seminars

- "Learning to Recognize, Localize and Caption with Limited Supervision", seminar at Google DeepMind, London, UK, September 2019.
- "Learning to Recognize, Localize and Caption Without Training Examples", seminar at Sabanci University, VBYO Summer School, Istanbul, Turkey, September 2019.
- "Learning to Recognize and Localize Without Training Examples", seminar at Inria Paris, Paris, France, July 2018.
- "Deep Learning of Object Recognition Models Without Training Examples", seminar at Sabanci University, Istanbul, Turkey, June 2018.
- Panelist at BYORK Big Data Workshop, Ankara, Turkey, March 2018.
- "Zero-shot Learning and Fine-grained Classification", METU Informatics Institute seminar, Ankara, Turkey, March 2018.

· "Zero-shot Learning and Fine-grained Classification", METU ImageLab seminar, Ankara, Turkey, November 2017.

· "Attributes2Classname: A discriminative model for attribute-based unsupervised zero-shot learning", seminar at iV&L Meeting, Athens, Greece, September 2017.

· Lecturer at "Bozkırda Yapay Öğrenme Yaz Okulu (BYÖYO) 2017", Hacettepe University, Ankara, Turkey, August 2017.

· "Learning Object Recognition Models with Incomplete Supervision", invited talk at Havelsan Inc., Ankara, Turkey, November, 2016.

· "Weakly Supervised Learning for Object Localization", invited talk at DataScience Meetup, Ankara, Turkey, May, 2016.

· "Fisher Kernel based Models for Image Classification and Weakly Supervised Object Localization", seminar at Department of Computer Engineering at Bilkent University, Ankara, Turkey, November, 2015.

· "Fisher Kernel based Models for Image Classification and Weakly Supervised Object Localization", seminar at Department of Computer Engineering at Middle East Technical University, Ankara, Turkey, November, 2015.

· "Contextual Object Detection using Set-based Classification", seminar at ImageLab, at Middle East Technical University, Ankara, Turkey, November, 2015.

· "Fisher Kernel based Models for Image Classification and Object Localization", invited talk at the ORASIS conference, Amiens, France, June, 2015.

Professional Activities

· Area Chair for Int. Conf. on Pattern Recognition (ICPR) 2020.

· Deputy Dissemination coordinator for The European Network on Integrating Vision and Language (iV&L Net) ICT COST Action (01/17 - 04/18). Action completed on 04/18.

· Recent / recurring reviewer duties:

- Reviewer for IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR).
- Reviewer for IEEE Int. Conf. on Computer Vision (ICCV).
- Reviewer for IEEE European Conf. on Computer Vision (ECCV).
- Reviewer for IEEE European Conf. on Computer Vision (ECCV).
- Reviewer for International Conference on Machine Learning (ICML).
- Reviewer for Neural Information Processing Systems (NeurIPS).
- Reviewer for IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI).
- Reviewer for International Journal of Computer Vision (IJCV).
- Reviewer for Int. Journal of Image and Vision Computing (IVC/IMAVIS).
- Reviewer for IEEE Trans. on Multimedia (TMM).

· Others:

- Reviewer for IEEE Signal Processing Letters (SPL).
- Program Committee member at Twenty-Ninth Conf. on Artificial Intelligence (AAAI).
- Reviewer for Int. Jour. of Pattern Recognition and Artificial Intelligence (IJPRAI).
- Program Committee member at IEEE Int. Conf. on Advanced Video and Signal-based Surveillance (AVSS).
- Reviewer for IEEE Winter Conference on Applications and Computer Vision (WACV).
- Reviewer for IEEE Workshop on Applications of Computer Vision (WACV).
- Reviewer for the book publishers MIT Press, Wiley & Sons.

- Several other conferences such as SIBGRAPI, Australasian Joint Conference on Artificial Intelligence (AI), etc.

· Project reviewer for TÜBİTAK TEYDEB (R&D) and ARDEB (academic) grants.

Skills

· Favorite tools: PyTorch, Python, TensorFlow, C/C++, LaTeX.

· Other tools: Matlab, Torch (Lua), Caffe, OpenCV, OpenMP, Bash, Javascript/HTML5, Java, HDF5.

· Previously used: Protobuf, POSIX, SQL, C#, Verilog, Assembly (MIPS, 80x51), PHP, Google Web Toolkit, OpenGL, Qt, Jam, BitKeeper, Perforce.

· Speaks Turkish (native), English (fluent), French (beginner).