

# Nazlı İkizler Cinbiş

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- Research Interests** Computer Vision (especially human action recognition/retrieval in videos and images, retrieval and semantic analysis of multimedia), Machine Learning (classification, clustering, learning in noisy settings), Data Mining.
- Education**
- PhD in Computer Engineering,** 02/2002 - 05/2008  
Bilkent University, Ankara, Turkey  
Advisor: Pinar Duygulu-Sahin (Bilkent), David Forsyth (UIUC)  
CGPA: 3.86/4.00
- MSc. in Computer Engineering,** 09/2000 - 09/2002  
Bilkent University, Ankara, Turkey  
Advisor: H. Altay Güvenir  
CGPA: 3.96/4.00
- BSc. in Computer Engineering,** 09/1996 - 06/2000  
Bilkent University, Ankara, Turkey  
CGPA: 3.54/4.00
- Experience**
- Assistant Professor,** Hacettepe University, Ankara, Turkey 03/2011 - now
- Cofounder of Hacettepe University Computer Vision Research Group
  - Currently supervising 7 PhD and 2 MSc students;
  - Taught BIL682 Artificial Intelligence, BIL339-BBM301 Programming Languages, BIL354-BBM471 Database Management Systems, BBM416 Introduction to Computer Vision, BIL719 Computer Vision, BIL713 Data Mining, BBM102 Introduction to Programming 2.
- Instructor,** Hacettepe University, Ankara, Turkey 10/2010 - 02/2011
- Taught BIL339 Programming Languages
- Post-doctoral Researcher,** Boston University, Department of Computer Science, Boston, MA 09/2008 - 09/2010
- **Image Retrieval and Internet Vision:** Developed image retrieval methods for the purpose of collecting a large variety of images that can guide recognition in uncontrolled videos. We build a discriminative learning based incremental algorithm for effectively collecting and cleaning multi-modal data.
  - **Unsupervised and Semi-supervised Learning:** Working on developing new clustering algorithms that can aid the retrieval of diverse data that will serve as a basis of training for classification algorithms. Specifically interested in Multiple Instance Learning algorithms.
  - **Action Recognition In Still Images:** Developed feature representations that can effectively represent the human actions in still images. Human action recognition in still images is a considerably harder problem compared to actions in

videos. The proposed features are able to cope with the clutter present in images, and able to identify foreground features that belong to the particular actions.

- **Action Recognition In YouTube Videos:** Applied action models automatically learnt from static images to uncontrolled videos by using pose-based action recognition paradigm.

**Post-doctoral Advisor**, Boston University, Boston, MA, USA 09/2008 - 08/2010

- Students advised:
  - Shugao Ma, PhD student, human action recognition research
  - Dan Schatzberg, senior undergraduate, academic level machine learning research
  - Byungyung Kim, MSc student, computer vision summer term project
  - Rufat Mammadyarov, undergraduate student, computer vision summer term project

**Visiting Research Scholar**, University of Illinois at Urbana-Champaign, Department of Computer Science, Urbana, IL 02/2005 - 06/2006

- **Human activity recognition:** Developed a complete system for recognizing and retrieving complex composite human activities. This system is based on 3D modeling of the human body parts separately using a motion capture dataset, allowing us to span a wide range of activities. It includes novel algorithms for 2D-3D lifting, action and activity modeling with Hidden Markov Models and querying of video datasets with text input using finite state automata. Models learnt from motion capture dataset is transferred into the real world video data. No visual example is needed to query for a video and composition across time and across space is possible. The system is also invariant to change in viewpoints and different outfits. Application domains include complicated TV videos as well as complex human activity datasets and test results demonstrate the effectiveness of the approach.
- **Face recognition:** Worked in a project for improving face recognition in large scale datasets (e.g. TV videos) using multimodal information from text and speech transcripts. Project work included application of various pattern recognition techniques, kernel PCA, LDA, SVM and preprocessing steps for illumination changes.
- **Speech recognition:** Implemented a keyword spotting system for TV audio using a combination of generative (HMM) and discriminative models (SVM) over a challenging dataset in the presence of music and different (nonnative) speakers.

**Research Assistant**, Bilkent University RETINA Vision Research Group, Ankara, Turkey 09/2004 - 06/2008

- **Human action recognition:** Proposed a pose descriptor based on the orientations of rectangular regions of the human body. This pose descriptor is used effectively for action recognition with classification algorithms such as DTW and SVM. Results indicate significant performance over the state-of-the art datasets.
- **Face recognition and retrieval:** Implemented a system integrating multiple clues from video and text for improving the accuracy of people search in video. Face detection performance is improved using skin modeling and transcripts of video have been used for localization of people of interest in the videos.

**Research Assistant**, Bilkent University Machine Learning Group, Ankara, Turkey  
09/2001 - 09/2004

- **Machine learning algorithms:** Developed cost-sensitive classification algorithms. Proposed a benefit maximization framework based on feature intervals classification. Application areas include medical and financial datasets.

**Teaching Assistant**, Bilkent University, Ankara, Turkey 09/2000 – 06/2004,  
09/2006 – 05/2008

Assisted following courses,

- CS 461 Artificial Intelligence : TA for 4 semesters
- CS 315 Programming Languages : TA for 3 semesters
- CS 201 Fundamentals of Computer Science - 1 : TA for 2 semesters
- CS 101 Algorithms and Programming - 1 : TA for 2 semesters
- CS 102 Algorithms and Programming - 2 : TA for 1 semester

## Publications

Conferences are important publication venues in computer vision. IEEE International Conference on Computer Vision (ICCV), IEEE Conference on Computer Vision and Pattern Recognition (CVPR) and European Conference on Computer Vision (ECCV) are the top three computer vision conferences with acceptance rates  $\leq 25\%$  and high impact factors (ICCV has a CiteSeer impact factor in the top 5% of *all computer science publications*).

## Journal Publications

1. Gokhan Tanisik, Cemil Zalluhoglu and **Nazli Ikizler-Cinbis**, Facial Descriptors for Human Interaction Recognition In Still Images, *Pattern Recognition Letters*, Volume 73, pp. 44 - 51, April 2016. (SCI-E)
2. R. Bernardi, R. Cakici, D. Elliott, A. Erdem, E. Erdem, **N. Ikizler-Cinbis**, **F. Keller**, **A. Muscat**, **B. Plank**, Automatic Description Generation from Images: A Survey of Models, Datasets, and Evaluation Measures, *Journal of Artificial Intelligence Research*, Volume 55, pp. 409-442, 2016. (SCI)
3. Fadime Sener and **Nazli Ikizler-Cinbis**, Two-person interaction recognition via spatial multiple instance embedding, *Journal of Visual Communication and Image Representation*, Volume 32, pp. 63 - 73, Oct 2015. (SCI-E)
4. Fadime Sener and **Nazli Ikizler-Cinbis**, Ensemble of multiple instance classifiers for image re-ranking, *Image and Vision Computing*, Volume 32, Issue 5, pp. 348 - 362, May 2014. (SCI)
5. **Nazli Ikizler-Cinbis** and S. Sclaroff, Web-based Classifiers for Human Action Recognition, *IEEE Transactions on Multimedia*, Volume 14, Issue 4, pp. 1031 - 1045, August 2012. (SCI)
6. **Nazli Ikizler** and Pinar Duygulu, Histogram of Oriented Rectangles: A New Pose Descriptor for Human Action Recognition, *Image and Vision Computing*, Volume 27, Issue 10, 2 September 2009, Pages 1515–1526. (SCI)
7. **Nazli Ikizler** and David Forsyth, Searching for Complex Human Activities with No Visual Examples *International Journal of Computer Vision (IJCV)*, Vol. 80 No. 3, December 2008. (SCI)
8. H. Altay Guvenir, Narin Emeksiz, **Nazli Ikizler** and Necati Ormeci, Diagnosis of gastric carcinoma by classification on feature projections, *Artificial Intelligence in Medicine*. Vol. 31, No. 3, (2004), pp. 231 - 240. (SCI)

## Refereed Conference Publications

1. Shugao Ma, Jianming Zhang, **Nazli Ikingler-Cinbis** and Stan Sclaroff, Action Recognition and Localization by Hierarchical Space-Time Segments, In *Proceedings of the IEEE International Conference on Computer Vision (ICCV)*, Sydney, Australia, 2013.
2. Gokhan Tanisik, Oguzhan Guclu and **Nazli Ikingler-Cinbis**, Recognizing Human Actions in Images Using Segment and Contour Features (Bolut ve Kontur Ozniteliklerini Kullanarak Imgelerdeki Insan Hareketlerini Tanima)(in Turkish), In *21. IEEE Signal Processing and Communications Applications Conference (SIU)*, Northern Cyprus, April 2013.
3. Cagdas Bas and **Nazli Ikingler-Cinbis**, Comparison of Clustering Methods for Pose Based Video Summarization (Poz Tabanlı Video Ozetleme İcin Kumeleme Yontemlerinin Karsilastirilmesi)(in Turkish), In *21. IEEE Signal Processing and Communications Applications Conference (SIU)*, Northern Cyprus, April 2013.
4. Fadime Sener, Nermin Samet, Pinar Duygulu, **Nazli Ikingler-Cinbis**, Recognizing Human Actions From Noisy Videos via Multiple Instance Learning (Gurultu Iceren Videolardan Insan Hareketlerinin Coklu Ornekle Ogrenme ile Taninmasi) (in Turkish), In *Proceedings of Signal Processing and Communications Applications Conference (SIU)*, April 2013.
5. Fadime Sener, Cagdas Bas and **Nazli Ikingler-Cinbis**, On Recognizing Actions in Still Images via Multiple Features, In *1st Workshop on Action Recognition and Pose Estimation in Still Images, held in conjunction with European Conference on Computer Vision(ECCV 2012)*, Florence, Italy, October 2012. Also published in Lecture Notes in Computer Science(LNCS), 2012, Volume 7585/2012, 263-272.
6. Shugao Ma, Stan Sclaroff and **Nazli Ikingler-Cinbis**, Unsupervised Learning of Discriminative Relative Visual Attributes, In *2nd International Workshop on Parts and Attributes, held in conjunction with European Conference on Computer Vision(ECCV 2012)*, Florence, Italy, October 2012. Also published in Lecture Notes in Computer Science(LNCS), 2012, Volume 7585/2012, 61-70.
7. Aytac Cavent, **Nazli Ikingler-Cinbis**, Recognition of complex human activities by using sequential pyramid matching (Karmak insan Hareketlerinin Srasal Piramit Elemele ile Taninmasi)(in Turkish), Signal Processing and Communications Applications Conference (SIU), April 2012.
8. Fadime Sener, **Nazli Ikingler-Cinbis**, Pnar Duygulu, Multiple instance learning for re-ranking of web image search results (Gorsel Arama Sonuclarinin Coklu Ornekle Ogrenme Yontemiyle Yeniden Siralanmasi)(in Turkish), Signal Processing and Communications Applications Conference (SIU), April 2012.
9. **Nazli Ikingler-Cinbis** and Stan Sclaroff, Object, Scene and Actions: Combining Multiple Features for Human Action Recognition, In *11th European Conference on Computer Vision(ECCV 2010)*, Crete, Greece, September 2010. Also published in Lecture Notes in Computer Science(LNCS), 2010, Volume 6311/2010, 494-507.
10. **Nazli Ikingler-Cinbis** and Stan Sclaroff, Object Recognition and Localization via Spatial Instance Embedding, In *20th International Conference on Pattern Recognition(ICPR 2010)*, Istanbul, Turkey, August 2010.
11. **Nazli Ikingler-Cinbis**, R. Gokberk Cinbis and Stan Sclaroff, Learning Actions From The Web, In *International Conference on Computer Vision(ICCV 2009)*, Kyoto, Japan, September 2009.

12. **Nazlı İkizler**, R. Gokberk Cinbis and Pinar Duygulu, Human Action Recognition With Line and Flow Histograms In *19th International Conference on Pattern Recognition(ICPR 2008)*, Tampa, FL, December 2008.
13. **Nazlı İkizler**, R. Gokberk Cinbis, Selen Pehlivan and Pinar Duygulu, Recognizing Actions in Still Images In *19th International Conference on Pattern Recognition(ICPR 2008)*, Tampa, FL, December 2008.
14. **Nazlı İkizler** and Pinar Duygulu, Human Action Recognition Using Distribution of Oriented Rectangular Patches *2nd Workshop on Human Motion Understanding, Modeling, Capture and Animation held in conjunction with Eleventh IEEE International Conference on Computer Vision (ICCV 2007)*, Rio de Janeiro, Brazil, October 2007. Also published in Lecture Notes in Computer Science (LNCS), Volume 4814/2007.
15. **Nazlı İkizler** and David Forsyth, Searching Video for Complex Activities with Finite State Models In *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2007)*,Minneapolis, USA, June 2007.
16. **Nazlı İkizler** and Pinar Duygulu, Person Search Made Easy In *Proceedings of The Fourth International Conference on Image and Video Retrieval (CIVR)*, Singapore, July 20-22, 2005. Also published in Lecture Notes in Computer Science (LNCS), Volume 3568/2005
17. Sare Gul Sevil, Hilal Zitouni, **Nazlı İkizler**, Derya Ozkan, Pinar Duygulu, Resim Arama Sonuclarinin Cizge Tabanlı bir Yontemle Yeniden Sıralanması (in Turkish), In *Proceedings of IEEE 16. Sinyal Isleme, Iletisim ve Uygulamalari Kurultayi (SIU 2008)*, Didim, Turkey, April 20-22, 2008.
18. **Nazlı İkizler** and Pinar Duygulu, Haber Videolari icin Yuz Bulma Yontemlerinin Iyilestirilmesi (in Turkish), In *Proceedings of IEEE 13. Sinyal Isleme ve Iletisim Uygulamalari Kurultayi (SIU 2005)*, Kayseri, Turkey, May 16-18, 2005.
19. **Nazlı İkizler** and H. Altay Guvenir. Maximizing Benefit of Classifications Using Feature Intervals, In *Proceedings of Seventh International Conference on Knowledge-Based Intelligent Information & Engineering Systems (KES 2003)*, Lecture Notes in AI (LNAI), Springer-Verlag, Oxford, United Kingdom, September 2003.
20. **Nazlı İkizler** and H. Altay Guvenir. Feature Dependency in Benefit Maximization: A Case Study in the Evaluation of Bank Loan Applications, In *Proceedings of the Twelfth Turkish Symposium on Artificial Intelligence and Neural Networks (TAINN'2003)*, Canakkale, Turkey, July 2-4, 2003.
21. **Nazlı İkizler** and H. Altay Guvenir. Mining Interesting Rules in Bank Loans Data, In *Proceedings of the Tenth Turkish Symposium on Artificial Intelligence and Neural Networks (TAINN'2001)*, Gazimagusa, T.R.N.C., June 2001.

### Technical Reports

1. **Nazlı İkizler**, Jai Vasanth, Linus Wong and David Forsyth, Finding Celebrities in Video, EECS Department University of California, Berkeley Technical Report No. UCB/EECS-2006-77, 2006.
2. **Nazlı İkizler**, Benefit Maximizing Classification Using Feature Intervals Technical Report BU-CE-0208, Bilkent University (2002).

### Theses

1. **Nazlı İkizler**, Understanding Human Motion: Recognition and Retrieval of Human Activities, PhD Thesis, Bilkent University, Turkey, May 2008.

2. **Nazlı İkizler**, Benefit Maximizing Classification Using Feature Intervals, MS Thesis, Bilkent University, Turkey, September 2002.

### Theses Supervised

- Fadime Sener (Co-supervised with P. Duygulu) Msc Thesis Title: “Utilizing Multiple Instance Learning for Computer Vision Tasks”, July 2013.
- Seda Tankiz (Co-supervised with H. Sever) MSc Thesis Title : “Content-Based Video Copy Detection”, Sept 2012.

### Projects

- **Learning-based Analysis and Recognition of Human Interactions:** Principal Investigator. Funded by Career Award from The Scientific and Technological Research Council of Turkey (TUBITAK) The Support Program for Scientific and Technological Research Projects, Number 112E149. Budget: 143.669 TL. Project Duration: 10/01/2012–10/01/2015.
- **Understanding Images and Visualizing Text: Semantic Inference and Retrieval by Integrating Computer Vision and Natural Language Processing:** Researcher. Funded by The Scientific and Technological Research Council of Turkey (TUBITAK) The Support Program for Scientific and Technological Research Projects, Number 113E116. Budget: 318.112TL. Project Duration: 10/01/2013–10/01/2016.

### Awards and Honors

- Google Research Award, December 2010, USA
- Outstanding Reviewer Award, International Conference of Computer Vision (ICCV) 2009, Kyoto, Japan
- Fellowship awarded by TUBITAK(Scientific and Technological Research Council of Turkey) for overseas doctoral research (2005 - 2006)
- Scholarship awarded by UIUC for visiting doctoral research (March - June 2006)
- Scholarship awarded by Max Planck Institute for Biological Cybernetics for attending Machine Learning Summer School 2003 (MLSS 2003)
- Full scholarship awarded by Bilkent University during graduate study (2000 - 2008)
- Full scholarship awarded by Bilkent University during undergraduate study (1996 - 2000)
- In Dean’s List during undergraduate study, Bilkent University (Academic standing: High Honor) (1996 - 2000)
- Ranked 1st in graduation from MS Computer Science, Bilkent University (2002)
- Ranked 6th in graduation from Bsc Computer Science, Bilkent University (2000)
- Ranked 2nd in graduation from High School Kanuni Anatolian High School, Trabzon (1996)

- Ranked 3rd in BlackSea Region in TUBITAK Biology exams (1996)

## Professional Activities

- Reviewer of following journals
  - IEEE Transactions of Pattern Analysis and Machine Intelligence (TPAMI)
  - IEEE Transactions on Multimedia
  - Image and Vision Computing
  - Elsevier Computer Vision and Image Understanding
  - Pattern Recognition
  - IEEE Journal of Selected Topics in Signal Processing
  - IEEE Transactions on Circuits and Systems for Video Technology
  - Elsevier Journal of Computers and Industrial Engineering
- Program Committee of
  - International Conference of Computer Vision - ICCV 2009, ICCV 2011, ICCV 2013
  - International Conference of Computer Vision - CVPR 2010, CVPR 2011, CVPR 2012, CVPR 2013, CVPR 2014
  - International Conference on Pattern Recognition - ICPR 2010, ICPR 2014
  - European Conference on Computer Vision - ECCV 2010, ECCV 2012
  - International Conference on Pattern Recognition Applications and Methods - 2012
  - 3rd Workshop on Use of Context in Video Processing (UCVP) held in conjunction with ICMI - 2011
  - 1st Workshop on Action Recognition and Pose Estimation in Still images, held in conjunction with ECCV 2012
  - THUMOS: The First International Workshop on Action Recognition with a Large Number of Classes, held in conjunction with ICCV 2013
- Reviewer of following conferences
  - International Conference of Computer Vision - ICCV 2009, ICCV 2011
  - Computer Vision and Pattern Recognition - CVPR 2009
  - Asian Conference on Computer Vision - ACCV 2010, ACCV 2012
  - International Conference on Automatic Face and Gesture Recognition - FG 2013
  - IEEE Sinyal Isleme, Iletisim ve Uygulamalari Kurultayi - SIU 2009, 2010, 2011, 2012

## Technical Skills

- *Programming Languages:* MATLAB, C, C++, Java, Visual Basic.NET, SQL, AspectJ, Pascal, dBASE, Verilog, Assembly (MIPS)
- *Web and Scripting Languages:* PHP, ASP, ASP.NET
- *Operating Systems:* Windows, Linux

## Languages

- Turkish (Native)
- English (Advanced)
- Italian and German (Basic)

## References

Prof. David Forsyth  
University of Illinois at Urbana-Champaign  
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