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## Serhat Selçuk BUCAK

Curriculum Vitae

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### Education

- **Michigan State University** (Sept. 2008 to present)  
PhD candidate in Computer Science  
COURSEWORK: Computer Vision, Data Mining, Machine Learning, Recognition by Machine.
- **Istanbul Technical University** (Sept. 2006 – June 2008)  
MSc. in Electronics and Communication Engineering (GPA: 3.83/4.00)  
COURSEWORK: Pattern Recognition, Video Processing, Detection and Estimation Theory, Probability and stochastic Processes, Digital Communication Theory, Information Theory, Statistical Signal Processing, Numerical Methods in Optimization
- **Istanbul Technical University** (Sept. 2002 – June 2006)  
BSc in Electronics and Communication Engineering (GPA: 3.24/4.00)

### Awards and Fellowships

- Ranked in the top 50 (17<sup>th</sup> and 49<sup>th</sup>) among 105,500 applicants twice in the Turkish Nationwide Graduate Education Exam (2005 and 2007)
- Michigan State University FS08 Fellowship (2008, \$2,000)
- Inanc High School full scholarship (1995-2002, \$84,000)
- TUBITAK-BIDEB Scholarship for Graduate Education in Turkey (2006-2008)
- TEV fellowship for Undergraduate Education (2002-2006)
- Istanbul Technical University Merit Scholarship (2002)
- Ranked in the top 30 twice in the Turkish National Antalya Math Olympics (2000 and 2001)

### Computer Skills

C/C++ (OpenCV Library), Matlab

### Languages

- Turkish (Native Language)
- English (Fluent: TOEFL ibt: 108)
- German (Intermediate)

### Research Experience

#### **MSU Pattern Recognition and Image Processing (PRIP) Lab.**

*Research Assistant under the supervision of Prof. Anil K. Jain* (Sept. 2008 - present)

- Working on multi-label learning algorithm with large number of classes. A paper based on this work has been submitted to CVPR 2009 (with Dr. A.K. Jain and Dr. R. Jin).

### **Istanbul Tech. Uni. Multimedia Signal Proc. & Pattern Recog. Lab (2006-2008)**

*Research Assistant under the supervision of Prof. Bilge Günsel*

- Developed nonnegative matrix factorization based incremental algorithms.
- Implemented incremental nonnegative matrix factorization (NMF) on dynamic background modeling problem in video surveillance.
- Worked on scene change detection and video fingerprinting task.
- Designed an NMF based incremental clustering method for video frame based online scene clustering.
- Participated in the audio fingerprinting project sponsored by TUBITAK.

## **Publications**

### **Journal Papers**

1. S.S. Bucak and B. Günsel, "Incremental Subspace Learning via Non-negative Matrix Factorization," *Pattern Recognition (accepted)*.

### **Conference Papers**

1. S.S. Bucak, P.K. Mallapragada, R. Jin and A.K. Jain, "Multi-label Learning with Many Classes," *submitted to CVPR 2009*.
2. S.S. Bucak and B. Günsel, "Incremental Clustering via Nonnegative Matrix Factorization," *International Conference on Pattern Recognition (ICPR)*, Florida, USA, 2008.
3. S.S. Bucak and B. Günsel, "Video Content Representation by Incremental Non-negative Matrix Factorization," *IEEE International Conference on Image Processing (ICIP)*, San Antonio, Texas, USA, 16-19 September 2007.
4. S.S. Bucak, B. Günsel, O. Gursoy, "Incremental Non-negative Matrix Factorization for Dynamic background Modelling," *ICEIS 8th International Workshop on Pattern Recognition in Information Systems (PRIS)*, Funchal, Portugal, 12-13 June 2007.