

EV RIM ACAR

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RESEARCH AREA

- Data mining, mathematical modeling and bioinformatics.
- In particular, linear and multi-linear factor models, tensor decompositions/multiway data analysis and applications of tensor decompositions.

EDUCATION

Rensselaer Polytechnic Institute (RPI), NY, USA

PhD, Computer Science

GPA: 3.97/ 4.00

May, 2008

Thesis Title: Understanding Epilepsy Seizure Structure Using Tensor Analysis

MS, Computer Science

GPA: 4.00/ 4.00

December, 2006

Thesis Title: Chatroom Communication Analysis Using Tensor Decompositions

Bogazici University, Istanbul, Turkey

BS, Computer Engineering

GPA: 3.71/ 4.00

July, 2003

RESEARCH/WORK EXPERIENCE

Post-doc, Informatics and Decision Sciences, Sandia National Laboratories

June, 2008-Present

- Link prediction on evolving data (social network analysis)
- Developing optimization approaches for fitting tensor decompositions

Research Assistant, Computer Science Department, RPI

August, 2003- May, 2008

- Developed multi-linear factor models for seizure localization and seizure recognition to understand epilepsy seizure structure (computational neuroscience).
- Pioneered the use of tensors in data mining by addressing the problem of detecting user groups in communication networks (social network analysis).

Visiting Researcher, Chemometrics Group, Copenhagen Univ.

Summer, 2006 & 2007

- Designed and implemented a clustering and visualization tool for exploratory analysis of multiway arrays (applied on chromatographic measurements of pharmaceutical data)

Teaching Assistant, Computer Science Department, RPI

2003-2005

Database Systems

Introduction to Programming in C++ using .NET

Introduction to Computer Programming in VB using .NET

Undergraduate Researcher, Computer Networks Lab., Bogazici Univ.

2002-2003

- Implemented a mobile Infostation client on PDAs running WinCE (using embedded C++).
- Evaluated the performance of wireless video streaming tools on PDAs.

Software Developer (Intern), CitiBank, Istanbul, Turkey

Summer, 2002

Developed database and web applications using ASP and MS Access.

Software Developer (Intern), Bilgi Group, Ankara, Turkey

Summer, 2001

Conducted research in trends in wireless application development and developed a PALM-OS application.

PUBLICATIONS**Refereed Journal Articles**

E. Acar and B. Yener, **Unsupervised Multiway Data Analysis: a Literature Survey**, *IEEE Trans. on Knowledge and Data Engineering*, 21(1): 6-20, 2009.

R. Bro, **E. Acar**, T. Kolda, **Resolving the sign ambiguity in the singular value decomposition**, *Journal of Chemometrics*, 22(2): 135-140, 2008.

E. Acar, R. Bro and B. Schmidt, **New Exploratory Clustering Tool**, *Journal of Chemometrics*, 22(1): 91-100, 2008.

E. Acar, C. A. Bingol, H. Bingol, R. Bro and B. Yener, **Multiway Analysis of Epilepsy Tensors**, *Bioinformatics*, 23(13): i10-i18, 2007.

K. P. Bennett, C. Bergeron, **E. Acar**, R. F. Klees, S. L. Vandenberg, B. Yener and G. E. Plopper, **Proteomics reveals multiple routes to the osteogenic phenotype in mesenchymal stem cells**, *BMC Genomics*, 8(1): 380, 2007.

Refereed Conference Proceedings

E. Acar, C. A. Bingol, H. Bingol, R. Bro and B. Yener, **Seizure Recognition on Epilepsy Feature Tensor**, *Proc. of 29th Int. Conf. of IEEE Engineering in Medicine and Biology Society*, Vol. 1, pp. 4273-4276, 2007.

E. Acar, C. A. Bingol, H. Bingol and B. Yener, **Computational Analysis of Epileptic Focus Localization**, *Proc. of The Fourth IASTED Int. Conf. on Biomedical Engineering*, pp. 317-322, 2006.

E. Acar, S. A. Çamtepe and B. Yener, **Collective Sampling and Analysis of High-order Tensors for Chatroom Communications**, *Proc. of IEEE Int. Conf. on Intelligence and Security Informatics, Lecture Notes in Computer Science*, Vol. 3975, pp. 213-224, 2006.

E. Acar, S. A. Çamtepe, M. Krishnamoorthy and B. Yener, **Modeling and Multiway Analysis of Chatroom Tensors**, *Proc. of IEEE Int. Conf. on Intelligence and Security Informatics, Lecture Notes in Computer Science*, Vol. 3495, pp. 256-268, 2005.

Conference and Workshop Presentations

SIAM Conference on Computational Science and Engineering (CS&E) 2009, Miami, FL, March 2-9, 2009 (Minisymposium Speaker).

NSF Workshop: Future Directions in Tensor-based Computation and Modeling, Arlington, VA, February, 20-21, 2009 (Invited Speaker).

ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) Workshop on Data Mining Using Matrices and Tensors, Las Vegas, NV, August 24, 2008 (Speaker).

SIAM Annual Meeting 2008, San Diego, CA, July 10, 2008 (Minisymposium Speaker).

IEEE Engineering in Medicine and Biology Society (IEEE-EMBS) 2007, Lyon, France, August 25, 2007 (Speaker).

Intelligent Systems for Molecular Biology (ISMB) - European Conference on Computational Biology (ECCB) 2007, Vienna, Austria, July 25, 2007 (Speaker).

International Congress on Industrial and Applied Mathematics (ICIAM) 2007, Zurich, Switzerland, July 19, 2007 (Minisymposium Speaker).

Biomedical Engineering (BIOMED) 2006, Innsbruck, Austria, February 17, 2006 (Speaker).

IEEE Intelligence and Security Informatics (IEEE ISI) 2005, Atlanta, Georgia, May 20, 2005 (Speaker).

PROFESSIONAL SERVICES

Referee for *Data Mining and Knowledge Discovery*, *Neurocomputing*, *SIAM Journal on Matrix Analysis and Applications*

Organizer for

- Minisymposium on Data Mining using Tensors, **SIAM Conference on Computational Science and Engineering**, Miami, FL, March 2-9, 2009 (co-organizer: Tamara G. Kolda).
- Minisymposia on Tensors and Tensor-based Computations, **SIAM Annual Meeting**, Denver, CO, July 6-10, 2009 (co-organizer: Daniel M. Dunlavy).

HONORS AND AWARDS

Travel Fellowship by the Sixth Framework Programme of the European Union to attend ISMB/ECCB, Vienna, Austria, 2007.

SIAM Travel Award to attend ICIAM, Zurich, Switzerland, 2007.

Food Graduate School Research Grant to work in the Chemometrics group in Copenhagen University, Denmark, 2006.

NFS Participant and Travel Grant to attend IPAM Graduate Summer School on Intelligent Extraction of Information from Graphs and High Dimensional Data, UCLA, CA, 2005.

High-Honor Student, Computer Engineering Department, Class of 2003, Bogazici University, Istanbul, Turkey, 2003.

High-Honor Award, Ranked 2, Class of 1998, TED Ankara College, Ankara, Turkey, 1998.

Three-year Scholarship, Ranked 1, Class of 1995, TED Ankara College, Ankara, Turkey, 1995.