

# CURRICULUM VITAE

Vassilis Athitsos

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## RESEARCH INTERESTS

Computer Vision, Data Mining, Machine Learning, Pattern Recognition.

## EDUCATION

**Boston University**, Ph.D. in Computer Science, 2006. Advisor: Prof. Stan Sclaroff.

**University of Chicago**, M.Sc. in Computer Science, 1997. Advisor: Prof. Michael J. Swain.

**University of Chicago**, B.S. in Mathematics, 1995.

## PROFESSIONAL APPOINTMENTS

8/2007-present. **Assistant Professor.**

Computer Science and Engineering Dept., University of Texas at Arlington, Arlington, Texas.

10/2006-7/2007. **Postdoctoral Research Associate.**

Computer Science Dept., Boston University, Boston, MA.

08/2005-09/2006. **Member of Technical Staff.**

Integrated Data Systems Dept., Siemens Corporate Research, Princeton, NJ.

04/1998-07/2005. **Research Assistant.**

Computer Science Dept., Boston University, Boston, MA. Advisor: Prof. Stan Sclaroff.

07/1997-09/1997. **Research Intern.**

Cambridge Research Lab, Digital Equipment Corporation, Cambridge, MA.

09/1995 - 03/1998. **Research Assistant.**

Computer Science Dept., University of Chicago, Chicago, IL. Advisor: Prof. Michael J. Swain.

## TEACHING EXPERIENCE

CSE 4308/5360 (Fall 2007). Artificial Intelligence I.

CSE 5361 (Spring 2008). Artificial Intelligence II.

## PUBLICATIONS

### Refereed Journals

1. Jingbin Wang, Vassilis Athitsos, Stan Sclaroff, and Margrit Betke. "Detecting Objects of Variable Shape Structure With Hidden State Shape Models." *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 30(3), March 2008.
2. Vassilis Athitsos, Jonathan Alon, Stan Sclaroff, and George Kollios. "BoostMap: An Embedding Method for Efficient Nearest Neighbor Retrieval." *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 30(1), January 2008.

3. Vassilis Athitsos, Marios Hadjieleftheriou, George Kollios, and Stan Sclaroff. "Query-Sensitive Embeddings." *ACM Transactions on Database Systems (TODS)*, 32(2), June 2007.
4. Leonid Sigal, Stan Sclaroff, and Vassilis Athitsos. "Skin Color-Based Video Segmentation under Time-Varying Illumination." *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 26(7), July 2004.
5. Carol Neidle, Stan Sclaroff, and Vassilis Athitsos. "SignStream: A Tool for Linguistic and Computer Vision Research on Visual-Gestural Language Data." *Behavior Research Methods, Instruments and Computers*, 33(3), 2001, pp. 311-320.
6. Marco LaCascia, Stan Sclaroff, and Vassilis Athitsos. "Fast, Reliable Head Tracking under Varying Illumination: An Approach Based on Robust Registration of Texture-Mapped 3D Models." *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 22(4), April 2000.

### Refereed Conferences

1. Zheng Wu, Margrit Betke, Jingbin Wang, Vassilis Athitsos, and Stan Sclaroff. "Tracking with Dynamic Hidden State Shape Models." *European Conference on Computer Vision (ECCV)*, October 2008.
2. Michalis Potamias and Vassilis Athitsos. "Nearest Neighbor Search Methods for Handshape Recognition." *Conference on Pervasive Technologies Related to Assistive Environments (PETRA)*, July 2008.
3. Alexandra Stefan, Vassilis Athitsos, Jonathan Alon, and Stan Sclaroff. "Translation and Scale-Invariant Gesture Recognition in Complex Scenes." *Conference on Pervasive Technologies Related to Assistive Environments (PETRA)*, July 2008.
4. Vassilis Athitsos, Panagiotis Papapetrou, Michalis Potamias, George Kollios, and Dimitrios Gunopulos. "Approximate Embedding-Based Subsequence Matching of Time Series." *ACM International Conference on Management of Data (SIGMOD)*, June 2008.
5. Philippe Dreuw, Carol Neidle, Vassilis Athitsos, Stan Sclaroff, and Hermann Ney. "Benchmark Databases for Video-Based Automatic Sign Language Recognition." *International Conference on Language Resources and Evaluation (LREC)*, May 2008.
6. Vassilis Athitsos, Michalis Potamias, Panagiotis Papapetrou, and George Kollios. "Nearest Neighbor Retrieval Using Distance-Based Hashing." *IEEE International Conference on Data Engineering (ICDE)*, April 2008.
7. Vassilis Athitsos, Alexandra Stefan, Quan Yuan, and Stan Sclaroff. "ClassMap: Efficient Multiclass Recognition via Embeddings." *IEEE International Conference on Computer Vision (ICCV)*, October 2007.
8. Adrian Barbu, Vassilis Athitsos, Bogdan Georgescu, Stefan Boehm, Peter Durlak, and Dorin Comaniciu. "Hierarchical Learning of Curves: Application to Guidewire Localization in Fluoroscopy." *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2007.
9. Vassilis Athitsos, Jingbin Wang, Stan Sclaroff, and Margrit Betke. "Detecting Instances of Shape Classes That Exhibit Variable Structure." *European Conference on Computer Vision (ECCV)*, May 2006.
10. Michail Vlachos, Zografoula Vagena, Philip S. Yu, and Vassilis Athitsos. "Rotation Invariant Indexing of Shapes & Line Drawings." *ACM Conference on Information and Knowledge Management (CIKM)*, November 2005.

11. Jonathan Alon, Vassilis Athitsos, and Stan Sclaroff. "Online and Offline Character Recognition Using Alignment to Prototypes." International Conference on Document Analysis and Retrieval (ICDAR), August 2005. [Best paper award]
12. Vassilis Athitsos, Marios Hadjieleftheriou, George Kollios, and Stan Sclaroff. "Query-Sensitive Embeddings." ACM Conference on Management of Data (SIGMOD), June 2005.
13. Vassilis Athitsos, Jonathan Alon, and Stan Sclaroff. "Efficient Nearest Neighbor Classification Using a Cascade of Approximate Similarity Measures." IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2005.
14. Vassilis Athitsos, Jonathan Alon, Stan Sclaroff, and George Kollios. "BoostMap: A Method for Efficient Approximate Similarity Rankings." IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2004.
15. Vassilis Athitsos and Stan Sclaroff. "Estimating 3D Hand Pose from a Cluttered Image." IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2003.
16. Vassilis Athitsos and Stan Sclaroff. "An Appearance-Based Framework for 3D Hand Shape Classification and Camera Viewpoint Estimation." IEEE Conference on Automatic Face and Gesture Recognition, May 2002.
17. Romer Rosales, Vassilis Athitsos, Leonid Sigal, and Stan Sclaroff. "3D Hand Pose Reconstruction Using Specialized Mappings." International Conference on Computer Vision (ICCV), July 2001.
18. Leonid Sigal, Stan Sclaroff, and Vassilis Athitsos. "Estimation and Prediction of Evolving Color Distributions for Skin Segmentation Under Varying Illumination." IEEE Conference on Computer Vision and Pattern Recognition (CVPR), June 2000.

### **Refereed Workshops**

1. Vassilis Athitsos, Carol Neidle, Stan Sclaroff, Joan Nash, Alexandra Stefan, Quan Yuan, and Ashwin Thangali. "The American Sign Language Lexicon Video Dataset." IEEE Workshop on Computer Vision and Pattern Recognition for Human Communicative Behavior Analysis (CVPR4HB), June 2008.
2. Jonathan Alon, Vassilis Athitsos, and Stan Sclaroff. "Accurate and Efficient Gesture Spotting via Pruning and Subgesture Reasoning." IEEE Workshop on Human Computer Interaction, October 2005.
3. Vassilis Athitsos and Stan Sclaroff. "Boosting Nearest Neighbor Classifiers for Multiclass Recognition." IEEE Workshop on Learning in Computer Vision and Pattern Recognition, June 2005.
4. Vassilis Athitsos, Jonathan Alon, Stan Sclaroff, and George Kollios. "Filtering Methods for Similarity-Based Multimedia Retrieval." Seventh International Workshop of the EU Network of Excellence DELOS on Audio-Visual Content and Information Visualization in Digital Libraries (AVIVDiLib), May 2005.
5. Jonathan Alon, Vassilis Athitsos, Quan Yuan, and Stan Sclaroff. "Simultaneous Localization and Recognition of Dynamic Hand Gestures." IEEE Workshop on Motion, January 2005.
6. Quan Yuan, Stan Sclaroff, and Vassilis Athitsos. "Automatic 2D Hand Tracking in Video Sequences." IEEE Workshop on Applications of Computer Vision, January 2005.
7. Vassilis Athitsos and Stan Sclaroff. "Database Indexing Methods for 3D Hand Pose Estimation." Gesture Workshop, April 2003

8. Vassilis Athitsos and Stan Sclaroff. “3D Hand Pose Estimation by Finding Appearance-Based Matches in a Large Database of Training Views.” IEEE Workshop on Cues in Communication, December 2001.
9. Vassilis Athitsos, Michael J. Swain, and Charles Frankel. “Distinguishing Photographs and Graphics on the World Wide Web.” IEEE Workshop on Content-Based Access of Image and Video Libraries, June 1997.

### **Book Chapters**

1. Vassilis Athitsos, Jonathan Alon, Stan Sclaroff, and George Kollios. “Learning Embeddings for Fast Approximate Nearest Neighbor Retrieval.” In *Nearest-Neighbor Methods in Learning and Vision: Theory and Practice*, Gregory Shakhnarovich, Piotr Indyk, and Trevor Darrell (editors), MIT Press, 2006.
2. Vassilis Athitsos, Charles Frankel, and Michael J. Swain. “Integrating Analysis of Context and Image Content.” In *Principles of Visual Information Retrieval*, Michael S. Lew (editor), Springer-Verlag, 2001.

### **Technical Reports**

1. Charles Frankel, Michael J. Swain, and Vassilis Athitsos. “WebSeer: An Image Search Engine for the World Wide Web.” Tech Report, TR-96-14, Computer Science Department, University of Chicago.

### **Ph.D. Thesis**

“Learning Embeddings for Indexing, Retrieval, and Classification, with Applications to Object and Shape Recognition in Image Databases.” Computer Science Department, Boston University, April 2006.

### **INVITED TALKS**

- “Detecting Objects of Variable Shape Structure in Cluttered Images.” At Universidade Federal do Rio de Janeiro, COPPE - Instituto Alberto Luiz Coimbra de Pós-Graduação e Pesquisa de Engenharia, PESC - Programa de Engenharia de Sistemas e Computação. Rio de Janeiro, Brazil. October 2007.
- “Learning Embeddings for Similarity-based Retrieval.” At Demokritos - Institute of Informatics and Telecommunications, Athens, Greece. July 2007.
- “Learning Embeddings for Similarity-based Retrieval.” At National Technical University of Athens, Athens, Greece. April 2007.
- “Learning Embeddings for Similarity-based Retrieval.” At DIMACS Workshop on Discrete Mathematical Problems in Computational Biomedicine, Rutgers University, Piscataway, NJ. April 2007.
- “Learning Embeddings for Indexing and Classification.” At Institute for Advanced Computer Studies, University of Maryland, College Park, MD. June 2005.
- “Learning Embeddings for Indexing and Recognition.” At Computer Science and Artificial Intelligence Laboratory, MIT, Cambridge, MA. March 2004.
- “Approximate Nearest Neighbor Retrieval Using Euclidean Embeddings.” At Workshop on Approximate Nearest Neighbor Methods for Learning and Vision, Whistler, British Columbia, Canada, December 13, 2003.

## GRANTS

1. *Large Lexicon Gesture Representation, Recognition, and Retrieval*, subcontract from BU to UTA. PI, with Stan Sclaroff (PI, Boston University), and Carol Neidle (co-PI, Boston University). NSF CISE HCC, 09/01/07 - 08/31/10, \$899,985, subcontract amount \$208,968.

## AWARDS

- Best Paper Award, in IEEE Workshop on Computer Vision and Pattern Recognition for Human Communicative Behavior Analysis (CVPR4HB), June 2008. The workshop had 29 submitted papers and 13 accepted papers.
- Best Paper Award, in International Conference on Document Analysis and Retrieval (ICDAR), August 2005. The conference had 244 accepted papers.
- Research Excellence Award, by the Computer Science Department of Boston University, in August 2004. This award is offered annually to two Ph.D. students in the department, based on their research accomplishments.

## PROFESSIONAL SERVICE

- Program committee member for: BIOT 2008, ICDM 2008, CVPR 2008, PETRA 2008, ICCV 2007, KDD 2007, CVPR 2007, CVPR 2006, KDD 2006.
- Reviewer for the following journals: IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), ACM Transactions on Database Systems (TODS), IEEE Transactions on Information Technology in Biomedicine (TITB), IEEE Transactions on Knowledge and Data Engineering (TKDE), Computer Vision and Image Understanding (CVIU), IEEE Transactions on Image Processing (TIP), International Journal of Image and Video Processing (IJIVP), ACM Transactions on Multimedia Computing, Communications and Applications (TOMC-CAP), IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), IEEE Transactions on Multimedia, IEEE Transactions on Neural Networks (TNN), Data Mining and Knowledge Discovery, Annals of Operations Research.
- Reviewer for the following conferences: BMVC 2006, CVPR 2005, CIVR 2005, ICCV 2005, CVPR 2004, ECCV 2004, ICML 2004, CIVR 2004, ICDE 2003, CVPR 2003, CIVR 2003, ICPR 2002, CVPR 2001, ICCV 2001, Face and Gesture 2000, CVPR 2000.
- Reviewer for the following workshops: PETS 2005, Vision for HCI 2005, AVIVDiLib 2005, Articulated and Non-Rigid Motion 2004, RTV4HCI 2004, PETS 2003, SIGMM IWVS 2003, CBAIVL 2001, WMVC 2002, Detection and Recognition of Events in Video 2001, CUES 2001.

## DEPARTMENT/UNIVERSITY SERVICE

- Advisor for UTA ICPC Committee, 2008.
- Volunteer for RoboPro High School Programming Competition, 2008.
- Ph.D. Admissions Committee, 2007-2008.
- Faculty Recruiting Committee, 2007-2008.
- Graduate Studies Committee, 2007-2008.
- Colloquium Committee, 2007-2008.
- Website Review Committee, 2007-2008.
- Graduate Assistantship Committee, 2007-2008.
- Industry Research Relations Committee, 2007-2008.