

CURRICULUM VITAE

Vassilis Athitsos

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RESEARCH INTERESTS

Computer Vision, Data Mining, Machine Learning, Gesture and Sign Language Recognition.

EDUCATION

Boston University, Ph.D. in Computer Science, 2006.

University of Chicago, M.S. in Computer Science, 1997.

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

PROFESSIONAL APPOINTMENTS

Sep. 2012 – present: Associate Professor, Computer Science and Engineering Department, University of Texas at Arlington.

Aug. 2007 – Aug. 2012. Assistant Professor, Computer Science and Engineering Department, University of Texas at Arlington.

Oct. 2006 – Jul. 2007. Postdoctoral Researcher, Computer Science Department, Boston University.

Aug 2005 – Sep. 2006. Member of Technical Staff, Siemens Corporate Research. Princeton, New Jersey.

Apr. 1998 – Jul. 2005. Research Assistant, Computer Science Department, Boston University.

Oct. 1995 – Mar. 1998. Research and Teaching Assistant, Computer Science Department, University of Chicago.

HONORS AND AWARDS

- Best Student Paper Award, in International Conference on Intelligent User Interfaces (IUI), March 2017. The conference had 272 submissions, and 63 accepted papers.
- Outstanding Early Career Award, College of Engineering, University of Texas at Arlington, February 2013.
- NSF CAREER Award, 2010.
- Outstanding Reviewer Award, CVPR 2010.
- 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.
- 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.

GRANTS

As PI - Total of awards to UTA: \$1.374M

1. *Evaluation of Face Detection and Face Recognition Algorithms*. Sponsored by Macnica Americas, 08/28/2017-05/31/2017, \$59,463.
2. *Identification of Patterns in Medical Claims Data*. With Dimitrios Zikos (Co-PI). Sponsored by Gordian Health Management Group, 05/06/2013-12/31/2013, \$9,001.
3. *Collaborative: Gesture Recognition Challenge*. With Isabelle Guyon (PI, Clopinet). NSF ECCS 1128296, 09/01/2011 - 08/31/2012. Award to UTA: \$55,920.
4. *Collaborative Research: CI-ADDO-EN: Development of Publicly Available, Easily Searchable, Linguistically Analyzed, Video Corpora for Sign Language and Gesture Research*. With Carol Neidle (PI, Boston University), Stan Sclaroff (Co-PI, Boston University), Dimitris Metaxas (PI, Rutgers), Ben Bahan (PI, Gallaudet). NSF CNS 1059235, 08/01/2011 - 07/31/2014. Award to UTA: \$98,630.
5. *CAREER: Large Vocabulary Gesture Recognition for Everyone: Gesture Modeling and Recognition Tools for System Builders and Users*. NSF IIS 1055062, 04/01/2011 - 03/30/2017, \$651,563.
6. *Collaborative: II-EN: Development of Publicly Available, Easily Searchable, Linguistically Analyzed, Video Corpora for Sign Language and Gesture Research*. With Carol Neidle (PI, Boston University), Stan Sclaroff (Co-PI, Boston University), Dimitris Metaxas (PI, Rutgers). NSF CNS 0958286, 04/01/2010 - 03/31/2011. Award to UTA: \$10,000.
7. *III-COR-Small: Collaborative Research: Time Series Subsequence Matching for Content-based Access in Very Large Multimedia Databases*. With Gautam Das (Co-PI, UTA), George Kollios (PI, Boston University). NSF IIS 0812601, 09/01/2008 - 08/31/2012, Award to UTA: \$281,001.
8. *Large Lexicon Gesture Representation, Recognition, and Retrieval*, subcontract from BU to UTA. With Stan Sclaroff (PI, Boston University), and Carol Neidle (co-PI, Boston University). NSF IIS 0705749, 09/01/2007 - 08/31/2011. Award to UTA: \$208,968.

As Co-PI - Total of awards to UTA: \$5.026M

1. *PFI:BIC: iWork, a Modular Multi-Sensing Adaptive Robot-Based Service for Vocational Assessment, Personalized Worker Training and Rehabilitation*. With Fillia Makedon (PI, UTA), Nicolette Hass (co-PI, UTA), Morris Bell (PI, Yale). NSF IIP-1719031, 09/01/2017 – 08/31/2020. Award to UTA: \$615,803.
2. *CHS: Large: Collaborative Research: Computational Science for Improving Assessment of Executive Function in Children*. With Fillia Makedon (PI, UTA), Morris Bell (PI, Yale), Bruce Wexler (Co-PI, Yale). NSF IIS 1565328, 10/01/2016 - 09/30/2020. Award to UTA: \$1,267,495.
3. *Workshop: Doctoral Consortium at the PETRA 2016 Conference*. With Fillia Makedon (PI), Vangelis Metsis (Co-PI). NSF IIS 1636543, 05/01/2016 - 04/30/2017, \$27,580.
4. *CI-P: Planning for SMART-MOVE: A Spatiotemporal Annotated Human Activity Repository for Advanced Motion Recognition and Analysis Research*. With Fillia Makedon (PI), Vangelis Metsis (Co-PI), Heng Huang (Co-PI), Junzhou Huang (Co-PI). NSF CNS 1405985, 09/01/2014 – 08/31/2017, \$116,000.
5. *MRI Collaborative: Development of iRehab, an intelligent closed-loop instrument for adaptive rehabilitation*. With Fillia Makedon (PI), Robert Gatchel (Co-PI), Mario Romero-Ortega (Co-PI), Heng Huang (Co-PI). NSF CNS 1338118, 10/01/2013 – 09/30/2016, \$847,890.
6. *Doctoral Consortium and Student-Author Travel for the PETRA 2013 Conference*. With Fillia Makedon (PI), Heng Huang (Co-PI), Gian Luca Mariottini (Co-PI), Vangelis Metsis (Co-PI). NSF IIS 1329119, 02/15/2013 - 01/31/2014, \$27,018.
7. *GAANN - Educating Health Informatics Researchers at the Computer Science and Engineering Department of the University of Texas at Arlington*. With Gergely Zaruba (PI), Manfred Huber (Co-PI), Farhad Kamangar (Co-PI), David Levine (Co-PI), Jean Gao (Co-PI), Junzhou Huang (Co-PI), Heng Huang (Co-PI), Fillia

- Makedon (Co-PI), Gian-Luca Mariottini (Co-PI). Department of Education, 08/16-2012 – 08/15/2015, \$533,064.
8. *Workshop: Doctoral Consortium and Student-Author Travel for the PETRA 2012 Conference*. With Fillia Makedon (PI), Heng Huang (Co-PI), Gian Luca Mariottini (Co-PI), Vangelis Metsis (Co-PI). NSF IIS 1238660, 04/15/2012 - 03/31/2013, \$23,380.
 9. *Workshop: Doctoral Consortium at the PETRA 2011 Conference*. With Fillia Makedon (PI), Heng Huang (Co-PI), Leonidas Fegaras (Co-PI), Gian Luca Mariottini (Co-PI). NSF IIS 1130207, 03/01/2011 - 02/28/2012, \$20,660.
 10. *CPS: Medium: A Novel Human Centric CPS to Improve Motor/Cognitive Assessment and Enable Adaptive Rehabilitation*. With Fillia Makedon (PI), Heng Huang (Co-PI), Zhengyi Le (Co-PI), Georgios Alexandrakis (Co-PI), Dan Popa (Co-PI), and Olga Dreeben (Co-PI). NSF CNS 1035913, 09/15/2010-08/31/2014, \$714,001.
 11. *Doctoral Consortium and Student-Author Travel for PETRA'10 Conference*. With Fillia Makedon (PI), Heng Huang (Co-PI), Zhengyi Le (Co-PI). NSF IIS 1015219, 05/01/2010 - 04/30/2011, \$20,000.
 12. *Wireless Home-based Sleep Apnea Detection and Sleep Quality Monitoring*. With Ishfaq Ahmad (PI - UTA), Hlaing Minn (PI - UTD), Lakshman Tamil (Co-PI - UTD), Larry Ammann (Co-PI - UTD), William Brock (Co-PI, Texas Health Presbyterian Hospital). UTA/UTD,TI,THRE Collaborative Research Funding Program in Medical Technologies, 01/01/2010 - 12/31/2011, \$100,000 (UTA portion of award: \$50,000).
 13. *MRI: Development of a Next-Generation Multimodal Data Management Human-Sensing Instrument for Trustworthy Research Collaboration and Quality of Life Improvement*. With Fillia Makedon (PI), Heng Huang (Co-PI), Zhengyi Le (Co-PI), Dan Popa (Co-PI). NSF CNS 0923494, 10/01/2009 - 09/30/2012, \$770,622.

TEACHING EXPERIENCE

- CSE 1310: Introduction to Computers and Programming. Summer 2012, Summer 2013, Spring 2015, Summer 2015, Fall 2015, Spring 2016, Fall 2016.
- CSE 1311: Introductory Programming for Engineers and Scientists. Spring 2010.
- CSE 2312: Computer Organization and Assembly Language Programming. Spring 2014, Summer 2014.
- CSE 2320: Algorithms and Data Structures. Spring 2014, Summer 2014.
- CSE 3392/5393: Study Abroad Summer Course in Greece. Summer 2011.
- CSE 4308/5360: Artificial Intelligence I. Fall 2007, Fall 2008, Fall 2009, Summer 2010, Fall 2010, Fall 2011, Summer 2012, Summer 2013, Summer 2015, Fall 2015, Fall 2016.
- CSE 4309: Introduction to Machine Learning. Fall 2017.
- CSE 4316: Senior Design I. Fall 2012, Fall 2013.
- CSE 4317: Senior Design II. Spring 2013, Spring 2014.
- CSE 5361: Artificial Intelligence II. Spring 2008.
- CSE 6363: Machine Learning. Spring 2017.
- CSE 6367: Computer Vision. Spring 2009, Spring 2010, Spring 2011, Spring 2012.

SUPERVISED STUDENTS

Thesis advisor for Ph.D. students:

1. Christopher Conly (graduated August 2016).
2. Pat Jangyodsuk (graduated May 2016).
3. Zhong Zhang (graduated May 2015).
4. Alexios Kotsifakos (graduated May 2014).
5. Paul Doliotis (graduated December 2013).

Thesis advisor for Masters students:

1. Siddhartha Goutham Swaminathan (graduated May 2016).
2. Sanjay Vasudeva Iyer (graduated August 2013).
3. Srujana Gattupalli (graduated May 2013).
4. Danny Hanson (graduated May 2013).
5. Ameya Kulkarni (graduated December 2011).
6. Rajesh Radhakrishnan (graduated December 2011).
7. Himanshu Pahwa (graduated December 2010).

PUBLICATIONS

Refereed Journal Papers

- J1. Hugo Jair Escalante, Isabelle Guyon, Vassilis Athitsos, Pat Jangyodsuk, and Jun Wan. **“Principal Motion Components for One-Shot Gesture Recognition.”** *Journal on Pattern Analysis and Applications*, 20(1), pages 167-182, February 2017.
- J2. Sergio Escalera, Vassilis Athitsos, and Isabelle Guyon. **“Challenges in Multimodal Gesture Recognition.”** *Journal of Machine Learning Research (JMLR)*, 17(72), pages 1-54, June 2016.
- J3. Alexios Kotsifakos, Vassilis Athitsos, and Panagiotis Papapetrou. **“Query-sensitive Distance Measure Selection for Time Series Nearest Neighbor Classification.”** Accepted to the *International Journal of Intelligent Data Analysis (IDA)*, 20(1), pages 5-27, January 2016.
- J4. Alexios Kotsifakos, Alexandra Stefan, Vassilis Athitsos, Gautam Das, and Panagiotis Papapetrou. **“DRESS: Dimensionality Reduction for Efficient Sequence Search.”** *Data Mining and Knowledge Discovery Journal (DAMI)*, 29(5), pages 1280-1311, September 2015.
- J5. Alexios Kotsifakos, Isak Karlsson, Panagiotis Papapetrou, Vassilis Athitsos, and Dimitrios Gunopulos. **“Embedding-based Subsequence Matching with Gaps-Range-Tolerances: a Query-By-Humming application.”** *Very Large Databases Journal (VLDBJ)*, 24(4), pages 519-536, August 2015.
- J6. Isabelle Guyon, Vassilis Athitsos, Pat Jangyodsuk, Hugo Jair Escalante, Ben Hamner. **“The ChaLearn Gesture Dataset (CGD 2011).”** *Journal of Machine Vision and Applications*, 25(8), 1929-1951, November 2014.
- J7. Jun Wan, Vassilis Athitsos, Pat Jangyodsuk, Hugo Jair Escalante, Qiuqi Ruan, and Isabelle Guyon. **“CSMMI: Class-Specific Maximization of Mutual Information for Action and Gesture Recognition.”** *IEEE Transactions on Image Processing*, 23(7), 3152-3165, July 2014.
- J8. Vangelis Metsis, Dimitrios Kosmopoulos, Vassilis Athitsos, and Fillia Makedon. **“Non-Invasive Analysis of Sleep Patterns via Multimodal Sensor Input.”** *Journal of Personal and Ubiquitous Computing*, 18(1), 19-26, January 2014.

- J9. Alexandra Stefan, Vassilis Athitsos, and Gautam Das. **“The Move-Split-Merge Metric for Time Series.”** IEEE Transactions on Knowledge and Data Engineering (TKDE), 25(6), pages 1425-1438, June 2013.
- J10. Haohan Zhu, George Kollios, and Vassilis Athitsos. **“A Generic Framework for Efficient and Effective Subsequence Retrieval.”** Proceedings of the VLDB Endowment (PVLDB), 5(11), pages 1579-1590, July 2012.
- J11. Kevin Dela Rosa, Vangelis Metsis, and Vassilis Athitsos. **“Boosted Ranking Models: A Unifying Framework for Ranking Predictions.”** International Journal of Knowledge and Information Systems (KAIS), 30(3), pages 543-568, March 2012.
- J12. Panagiotis Papapetrou, Vassilis Athitsos, Michalis Potamias, George Kollios, and Dimitrios Gunopulos. **“Embedding-based Subsequence Matching in Time Series Databases.”** ACM Transactions on Database Systems (TODS), 36(3), Article 17, August 2011.
- J13. Vassilis Athitsos, Haijing Wang, and Alexandra Stefan. **“A Database-Based Framework for Gesture Recognition.”** Journal of Personal and Ubiquitous Computing, 14(6), pages 511-526, September 2010.
- J14. Jonathan Alon, Vassilis Athitsos, Quan Yuan, and Stan Sclaroff. **“A Unified Framework for Gesture Recognition and Spatiotemporal Gesture Segmentation.”** IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), 31(9), pages 1685-1699, September 2009.
- J15. Panagiotis Papapetrou, Vassilis Athitsos, George Kollios, and Dimitrios Gunopulos. **“Reference-Based Alignment in Large Sequence Databases.”** Proceedings of the VLDB Endowment (PVLDB), 2(1), pages 205-216, August 2009.
- J16. 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), pages 477-492, March 2008.
- J17. 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), pages 89-104, January 2008.
- J18. Vassilis Athitsos, Marios Hadjieleftheriou, George Kollios, and Stan Sclaroff. **“Query-Sensitive Embeddings.”** ACM Transactions on Database Systems (TODS), 32(2), June 2007.
- J19. 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), pages 862-877, July 2004.
- J20. 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), pages 311-320, August 2001.
- J21. 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), pages 322-336, April 2000.

Refereed Conference Papers

- C1. Radu Tudor Ionescu, Marius Popescu, Christopher Conly, and Vassilis Athitsos. **“Local Frame Match Distance: A Novel Approach for Exemplar Gesture Recognition.”** European Signal Processing Conference (EUSIPCO), August 2017.
- C2. Varun Kanal, Maher Abujelala, Srujana Gattupalli, Vassilis Athitsos, and Fillia Makedon. **“APSEN: Pre-Screening Tool for Sleep Apnea in a Home Environment.”** International Conference on Human-Computer Interaction (HCI International), July 2017.
- C3. Alex Dillhoff, Himanshu Pahwa, Christopher Conly, and Vassilis Athitsos. **“Providing Meaningful Alignments for Periodic Signs.”** Pervasive Technologies Related to Assistive Environments (PETRA), June 2017.

- C4. Amir Ghaderi, Srujana Gattupalli, Dylan Ebert, Ali Sharifara, Vassilis Athitsos, and Fillia Makedon. **“Improving the Accuracy of the CogniLearn System for Cognitive Behavior Assessment.”** Pervasive Technologies Related to Assistive Environments (PETRA), June 2017.
- C5. Sakher Ghanem, Christopher Conly, and Vassilis Athitsos. **“A Survey on Sign Language Recognition Using Smartphones.”** Pervasive Technologies Related to Assistive Environments (PETRA), June 2017.
- C6. Srujana Gattupalli, Dylan Ebert, Michalis Papakostas, Fillia Makedon, and Vassilis Athitsos. **“CogniLearn: A Deep Learning-based Interface for Cognitive Behavior Assessment.”** ACM Conference on Intelligent User Interfaces (IUI), March 2017. [Best student paper award]
- C7. Manish Annappa, Sharma Chakravarthy, and Vassilis Athitsos. **“Pre-processing of Video Streams for Extracting Queryable Representation of Its Contents.”** International Symposium on Visual Computing (ISVC), December 2016.
- C8. Christopher Conly, Alex Dillhoff, and Vassilis Athitsos. **“Leveraging Intra-Class Variations to Improve Large Vocabulary Gesture Recognition.”** International Conference on Pattern Recognition (ICPR), December 2016.
- C9. Amir Ghaderi and Vassilis Athitsos. **“Selective Unsupervised Feature Learning with Convolutional Neural Network (S-CNN).”** International Conference on Pattern Recognition (ICPR), December 2016.
- C10. Srujana Gattupalli, Alexandros Lioulemes, Shawn N. Gieser, Paul Sassaman, Vassilis Athitsos, and Fillia Makedon. **“MAGNI: A Real-time Robot-assisted Game-based Tele-Rehabilitation System.”** International Conference on Human-Computer Interaction, August 2016.
- C11. Srujana Gattupalli, Amir Ghaderi, and Vassilis Athitsos. **“Evaluation of Deep Learning based Pose Estimation for Sign Language.”** Pervasive Technologies Related to Assistive Environments (PETRA), June 2016.
- C12. Christopher Conly, Zhong Zhang, and Vassilis Athitsos. **“An integrated RGB-D system for looking up the meaning of signs.”** Pervasive Technologies Related to Assistive Environments (PETRA), July 2015.
- C13. Zhong Zhang, Christopher Conly, and Vassilis Athitsos. **“A survey on vision-based fall detection.”** Pervasive Technologies Related to Assistive Environments (PETRA), July 2015.
- C14. Wei Xiang, Christopher Conly, Christopher McMurrough and Vassilis Athitsos. **“A Review and Quantitative Comparison of Methods for Kinect Calibration.”** International Workshop on Sensor-based Activity Recognition and Interaction (iWOAR), June 2015.
- C15. Pat Jangyodsuk, Panagiotis Papapetrou, and Vassilis Athitsos. **“Optimizing Hashing Functions for Similarity Indexing in Arbitrary Metric and Nonmetric Spaces.”** SIAM International Conference on Data Mining (SDM), May 2015.
- C16. Soheil Shafiee, Farhad Kamangar, and Vassilis Athitsos. **“A Multi-Modal Sparse Coding Classifier Using Dictionaries with Different Number of Atoms.”** IEEE Winter Conference on Applications of Computer Vision (WACV), January 2015.
- C17. Zhong Zhang, Christopher Conly, and Vassilis Athitsos. **“Evaluating Depth-Based Computer Vision Methods for Fall Detection Under Occlusions.”** International Symposium on Visual Computing (ISVC), December 2014.
- C18. Soheil Shafiee, Farhad Kamangar, Vassilis Athitsos, Junzhou Huang, and Laleh Ghandehari. **“Multimodal Sparse Representation Classification with Fisher Discriminative Sample Reduction.”** IEEE International Conference on Image Processing (ICIP), October 2014.
- C19. Zhong Zhang, Christopher Conly, and Vassilis Athitsos. **“Hand Detection on Sign Language Videos.”** Pervasive Technologies Related to Assistive Environments (PETRA), May 2014.
- C20. Pat Jangyodsuk, Christopher Conly, and Vassilis Athitsos. **“Sign Language Recognition using Dynamic Time Warping and Hand Shape Distance Based on Histogram of Oriented Gradient Features.”** Pervasive Technologies Related to Assistive Environments (PETRA), May 2014.

- C21. Christopher Conly, Zhong Zhang, and Vassilis Athitsos. **“An Evaluation of RGB-D Skeleton Tracking for Use in Large Vocabulary Complex Gesture Recognition.”** Pervasive Technologies Related to Assistive Environments (PETRA), May 2014.
- C22. Dimitrios Zikos, Konstantinos Tsiakas, Fadiyah Qudah, Vassilis Athitsos, and Fillia Makedon. **“Evaluation of Classification Methods for the Prediction of Hospital Length of Stay using Medicare Claims Data.”** Pervasive Technologies Related to Assistive Environments (PETRA), May 2014.
- C23. Pat Jangyodsuk and Vassilis Athitsos. **“An Indexing Method for Efficient Model-Based Search.”** International Conference on Image Processing, Computer Vision, and Pattern Recognition, July 2013.
- C24. Soheil Shafiee, Farhad Kamangar, Vassilis Athitsos, and Junzhou Huang. **“Efficient Sparse Representation Using Adaptive Clustering.”** International Conference on Image Processing, Computer Vision, and Pattern Recognition, July 2013.
- C25. Christopher Conly, Paul Doliotis, Pat Jangyodsuk, Rommel Alonzo, and Vassilis Athitsos. **“Toward a 3D Body Part Detection Video Dataset and Hand Tracking Benchmark.”** Pervasive Technologies Related to Assistive Environments (PETRA), May 2013.
- C26. Alexios Kotsifakos, Evangelos E. Kotsifakos, Panagiotis Papapetrou, and Vassilis Athitsos. **“Genre Classification of Symbolic Music with SMBGT.”** Conference on Pervasive Technologies Related to Assistive Environments (PETRA), May 2013.
- C27. Soheil Shafiee, Farhad Kamangar, and Vassilis Athitsos. **“The Role of Dictionary Learning in Sparse Representation-based Classification for Face Recognition.”** Conference on Pervasive Technologies Related to Assistive Environments (PETRA), May 2013.
- C28. Alexios Kotsifakos, Panagiotis Papapetrou, and Vassilis Athitsos. **“IBSM: Interval-Based Sequence Matching.”** SIAM International Conference on Data Mining (SDM), May 2013.
- C29. Zhong Zhang, Weihua Liu, Vangelis Metsis, and Vassilis Athitsos. **“A Viewpoint-Independent Statistical Method for Fall Detection.”** International Conference on Pattern Recognition (ICPR), November 2012.
- C30. Christopher McMurrough, Christopher Conly, Vassilis Athitsos, Fillia Makedon. **“3D Point of Gaze Estimation Using Head-Mounted RGB-D Cameras.”** Proceedings of the 14th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS), October 2012.
- C31. Alexios Kotsifakos, Panagiotis Papapetrou, Jaakko Hollmén, Dimitrios Gunopulos, Vassilis Athitsos, and George Kollios. **“Hum-a-song: A Subsequence Matching with Gaps-Range-Tolerances Query-By-Humming System.”** International Conference on Very Large Databases (VLDB) demo paper, August 2012.
- C32. Paul Doliotis, Vassilis Athitsos, Dimitrios Kosmopoulos, and Stavros Perantonis. **“Hand Shape and 3D Pose Estimation using Depth Data from a Single Cluttered Frame.”** International Symposium on Visual Computing (ISVC), July 2012.
- C33. Alexios Kotsifakos, Panagiotis Papapetrou, Jaakko Hollmén, Dimitrios Gunopulos, and Vassilis Athitsos. **“A Survey of Query-By-Humming Similarity Methods.”** Conference on Pervasive Technologies Related to Assistive Environments (PETRA), June 2012.
- C34. Alexios Kotsifakos, Vassilis Athitsos, Panagiotis Papapetrou, Jaakko Hollmén, and Dimitrios Gunopulos. **“Model-Based Search in Large Time Series Databases.”** Conference on Pervasive Technologies Related to Assistive Environments (PETRA), May 2011.
- C35. Zhong Zhang, Rommel Alonzo, and Vassilis Athitsos. **“Experiments with Computer Vision Methods for Hand Detection.”** Conference on Pervasive Technologies Related to Assistive Environments (PETRA), May 2011.
- C36. Paul Doliotis, Alexandra Stefan, Chris Mcmurrough, David Eckhard, and Vassilis Athitsos. **“Comparing Gesture Recognition Accuracy Using Color and Depth Information.”** Conference on Pervasive Technologies Related to Assistive Environments (PETRA), May 2011.
- C37. Zhong Zhang, Eric Becker, Roman Arora, and Vassilis Athitsos. **“Experiments with computer vision methods for fall detection.”** Conference on Pervasive Technologies Related to Assistive Environments (PETRA), June 2010.

- C38. Alexandra Stefan, Vassilis Athitsos, Quan Yuan, and Stan Sclaroff. **“Reducing JointBoost-Based Multiclass Classification to Proximity Search.”** IEEE Conference on Computer Vision and Pattern Recognition (CVPR), pages 589-596, June 2009.
- C39. Alexandra Stefan, Haijing Wang, and Vassilis Athitsos. **“Towards Automated Large Vocabulary Gesture Search.”** Conference on Pervasive Technologies Related to Assistive Environments (PETRA), June 2009.
- C40. Paul Doliotis, George Tsekouras, Christos-Nikolaos Anagnostopoulos, and Vassilis Athitsos. **“Intelligent Modification of Colors in Digitized Paintings for Enhancing the Visual Perception of Color-blind Viewers.”** IFIP Conference on Artificial Intelligence Applications and Innovations (AIAI), April 2009.
- C41. Zheng Wu, Margrit Betke, Jingbin Wang, Vassilis Athitsos, and Stan Sclaroff. **“Tracking with Dynamic Hidden State Shape Models.”** European Conference on Computer Vision (ECCV), pages 643-656, October 2008.
- C42. Michalis Potamias and Vassilis Athitsos. **“Nearest Neighbor Search Methods for Handshape Recognition.”** Conference on Pervasive Technologies Related to Assistive Environments (PETRA), July 2008.
- C43. 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.
- C44. 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), pages 365-378, June 2008.
- C45. 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.
- C46. Vassilis Athitsos, Michalis Potamias, Panagiotis Papapetrou, and George Kollios. **“Nearest Neighbor Retrieval Using Distance-Based Hashing.”** IEEE International Conference on Data Engineering (ICDE), pages 327-336, April 2008.
- C47. Vassilis Athitsos, Alexandra Stefan, Quan Yuan, and Stan Sclaroff. **“ClassMap: Efficient Multiclass Recognition via Embeddings.”** IEEE International Conference on Computer Vision (ICCV), October 2007.
- C48. 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.
- C49. Vassilis Athitsos, Jingbin Wang, Stan Sclaroff, and Margrit Betke. **“Detecting Instances of Shape Classes That Exhibit Variable Structure.”** European Conference on Computer Vision (ECCV), pages 121-134, May 2006.
- C50. 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), pages 131-138, November 2005.
- C51. Jonathan Alon, Vassilis Athitsos, and Stan Sclaroff. **“Online and Offline Character Recognition Using Alignment to Prototypes.”** International Conference on Document Analysis and Retrieval (ICDAR), pages 839-843, August 2005. [Best paper award]
- C52. Vassilis Athitsos, Marios Hadjieleftheriou, George Kollios, and Stan Sclaroff. **“Query-Sensitive Embeddings.”** ACM Conference on Management of Data (SIGMOD), pages 706-717, June 2005.
- C53. 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), pages 486-493, June 2005.
- C54. 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), pages 268-275, June 2004.

- C55. Vassilis Athitsos and Stan Sclaroff. **“Estimating 3D Hand Pose from a Cluttered Image.”** IEEE Conference on Computer Vision and Pattern Recognition (CVPR), pages 432-439, June 2003.
- C56. 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, pages 45-52, May 2002.
- C57. Romer Rosales, Vassilis Athitsos, Leonid Sigal, and Stan Sclaroff. **“3D Hand Pose Reconstruction Using Specialized Mappings.”** International Conference on Computer Vision (ICCV), pages 378-385, July 2001.
- C58. 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), pages 2152-2159, June 2000.

Refereed Workshop Papers

- W1. Vangelis Metsis, Pat Jangyodsuk, Vassilis Athitsos, Maura Iversen, and Fillia Makedon. **“Computer Aided Rehabilitation for Patients with Rheumatoid Arthritis.”** Cyber-Physical Systems (CPS) workshop, January 2013.
- W2. Isabelle Guyon and Vassilis Athitsos. **“Demonstrations and Live Evaluation for the Gesture Recognition Challenge.”** IEEE International Workshop on Human-Computer Interaction, November 2011.
- W3. Haijing Wang, Alexandra Stefan, Sajjad Moradi, Vassilis Athitsos, Carol Neidle, and Farhad Kamangar. **“A System for Large Vocabulary Sign Search.”** Workshop on Sign, Gesture and Activity (SGA), September 2010.
- W4. Jefrey Lijffijt, Panagiotis Papapetrou, Jaakko Hollmén, and Vassilis Athitsos. **“Benchmarking dynamic time warping for music retrieval.”** Workshop on Multimedia Event Analysis for Assistive Environments, June 2010.
- W5. Vassilis Athitsos, Carol Neidle, Stan Sclaroff, Joan Nash, Alexandra Stefan, Ashwin Thangali, Haijing Wang, and Quan Yuan. **“Large Lexicon Project: American Sign Language Video Corpus and Sign Language Indexing/Retrieval Algorithms.”** Workshop on the Representation and Processing of Sign Languages: Corpora and Sign Language Technologies (CSLT), pages 11-14, May 2010.
- W6. Panagiotis Papapetrou, Paul Doliotis, and Vassilis Athitsos. **“Towards Faster Activity Search Using Embedding-Based Subsequence Matching.”** Workshop on Multimedia Event Analysis for Assistive Environments, June 2009.
- W7. 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. [Best paper award]
- W8. 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.
- W9. Vassilis Athitsos and Stan Sclaroff. **“Boosting Nearest Neighbor Classifiers for Multiclass Recognition.”** IEEE Workshop on Learning in Computer Vision and Pattern Recognition, June 2005.
- W10. 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.
- W11. Quan Yuan, Stan Sclaroff, and Vassilis Athitsos. **“Automatic 2D Hand Tracking in Video Sequences.”** IEEE Workshop on Applications of Computer Vision, January 2005.
- W12. Jonathan Alon, Vassilis Athitsos, Quan Yuan, and Stan Sclaroff. **“Simultaneous Localization and Recognition of Dynamic Hand Gestures.”** IEEE Workshop on Motion, January 2005.
- W13. Vassilis Athitsos and Stan Sclaroff. **“Database Indexing Methods for 3D Hand Pose Estimation.”** Gesture Workshop, April 2003.

- W14. 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.
- W15. 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

- B1. 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.
- B2. 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.

Invited Papers

- I1. Sergio Escalera, Jordi González, Xavier Baró, Miguel Reyes, Isabelle Guyon, Vassilis Athitsos, Hugo Jair Escalante, Leonid Sigal, Antonis Argyros, Cristian Sminchisescu, Richard Bowden, and Stan Sclaroff. **“ChaLearn multi-modal gesture recognition 2013: grand challenge and workshop summary.”** Chalearn Multi-Modal Gesture Recognition Workshop, International Conference on Multimodal Interaction, ICMI, December 2013.
- I2. Sergio Escalera, Jordi González, Xavier Baró, Miguel Reyes, Oscar Lopés, Isabelle Guyon, Vassilis Athitsos, and Hugo J. Escalante. **“Multi-modal Gesture Recognition Challenge 2013: Dataset and Results.”** Chalearn Multi-Modal Gesture Recognition Workshop, International Conference on Multimodal Interaction, December ICMI, 2013.
- I3. Isabelle Guyon, Vassilis Athitsos, Pat Jangyodsuk, Ben Hamner, and Hugo Jair Escalante. **“ChaLearn Gesture Challenge: Design and First Results.”** Workshop on Gesture Recognition and Kinect Demonstration Competition, June 2012.
- I4. Haijing Wang, Alexandra Stefan, and Vassilis Athitsos. **“A Similarity Measure for Vision-Based Sign Recognition.”** International Conference on Universal Access in Human-Computer Interaction (UAHCI), pages 607-616, July 2009.
- I5. Stan Sclaroff, Margrit Betke, George Kollios, Jonathan Alon, Vassilis Athitsos, Rui Li, John J. Magee, and Tai-Peng Tian. **“Tracking, Analysis, and Recognition of Human Gestures in Video.”** International Conference on Document Analysis and Retrieval (ICDAR), 806-810, August 2005.

Technical Reports

- T1. Vassilis Athitsos, Jonathan Alon, Stan Sclaroff, and George Kollios. **“Learning Euclidean Embeddings for Indexing and Classification.”** Technical Report BUCS-2004-014, Computer Science Department, Boston University, April 2004.
- T2. Charles Frankel, Michael J. Swain, and Vassilis Athitsos. **“WebSeer: An Image Search Engine for the World Wide Web.”** Technical Report TR-96-14, Computer Science Department, University of Chicago, August 1996.

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.

PATENTS

- P1. A. Barbu, V. Athitsos, B. Georgescu, P. Durlak, D. Comaniciu. "System and method for online optimization of guidewire visibility in fluoroscopic systems." **US Patent No. 8,050,482**, issued 11/01/2011.
- P2. B. Georgescu, P. Durlak, V. Athitsos, A. Barbu, D. Comaniciu. "System and method for simultaneously subsampling fluoroscopic images and enhancing guidewire visibility." **US Patent No. 7,970,171**, issued 06/28/2011.
- P3. A. Barbu, V. Athitsos, B. Georgescu, P. Durlak, S. Boehm, D. Comaniciu. "System and method for detecting and tracking a guidewire in a fluoroscopic image sequence." **US Patent No. 7,792,342**, issued 09/07/2010.

INVITED TALKS

- "Towards Improving the Robustness of Gesture Recognition Systems: Addressing Large Vocabularies and Cluttered Scenes." At Stockholm University, May 2015.
- "Towards Improving the Robustness of Gesture Recognition Systems: Addressing Large Vocabularies and Cluttered Scenes." At the Toyota Technological Institute in Chicago (TTI-C), August 2014.
- "Towards Improving the Robustness of Gesture Recognition Systems." At the ACM Conference on Pervasive Technologies for Assistive Environments (PETRA), Rhodes, Greece, May 2013.
- "Similarity Indexing for Multimedia Data." Tutorial at the ACM Conference on Multimedia Retrieval (ICMR), Dallas, Texas, April 2013.
- "Gesture Recognition Challenges: Cluttered Scenes and Large Vocabulary." At Lockheed Martin, Autonomous Systems Division, Littleton, Colorado. June 2011.
- "Gesture Recognition Challenges: Cluttered Scenes and Large Vocabulary." At Texas Instruments, Systems and Applications R&D Center, Dallas, Texas. May 2011.
- "Gesture Recognition Challenges: Cluttered Scenes and Large Vocabulary." At Department of Computer Science, Texas State University-San Marcos. April 2011.
- "Gesture Recognition Challenges: Cluttered Scenes and Large Vocabulary." At Samsung Standards Research Lab, Richardson, Texas. April 2011.
- "Indexing the Dot Product, and an Application to Multiclass Recognition." At Department of Information and Computer Science, Helsinki University of Technology, Helsinki, Finland. January 2010.
- "Mapping Methods for Efficient Similarity-Based Multimedia Retrieval." At Google, Mountain View, California, USA. July 2009.
- "A Computer Vision System for Looking Up the Meaning of Signs." At University of Bucharest, Faculty of Mathematics and Informatics, Bucharest, Romania. May 2009.
- "Detecting Objects of Variable Shape Structure in Cluttered Images." At Federal University of Rio de Janeiro, 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, New Jersey, USA. April 2007.
- "Learning Embeddings for Indexing and Classification." At Institute for Advanced Computer Studies, University of Maryland, College Park, Maryland, USA. June 2005.

- “Learning Embeddings for Indexing and Recognition.” At Computer Science and Artificial Intelligence Laboratory, MIT, Cambridge, Massachusetts, USA. 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.

PROFESSIONAL SERVICE

- Associate Editor, Image and Video Computing Journal, November 2013-present.
- Guest Editor: Journal of Machine Learning Research, Special Topic on Gesture Recognition, 2011-2014.
- Program Chair: Automatic Face and Gesture Recognition 2019, PETRA 2017.
- Area Chair: Automatic Face and Gesture Recognition 2018, 2017, 2013.
- Co-organizer of: ICPR 2012 Gesture Recognition Challenge and Kinect Grand Prize, CVPR 2012 Workshop on Gesture recognition and Kinect Demonstration Competition, CVPR 2011 Workshop on Gesture Recognition.
- Program committee member or reviewer for the following conferences: ICCV 2017, CVPR 2017, ICPR 2016, ISVC 2016, ECCV 2016, CVPR 2016, PETRA 2016, ICCV 2015, WACV 2015, PETRA 2015, CVPR 2015, ISVC 2015, Face and Gesture 2015, ISVC 2014, ECCV 2014, PETRA 2014, ICPR 2014, CVPR 2014, ICDM 2013, ICCV 2013, CIKM 2013, CVPR 2013, PETRA 2013, ISVC 2013, CIKM 2013, ICPR 2012, ECCV 2012, PETRA 2012, ISVC 2012, KDD 2012, ICDM 2011, ECML/PKDD 2011, KDD 2011, PETRA 2011, ICDM 2010, ECCV 2010, CVPR 2010, CIKM 2010, PETRA 2010, ICCV 2009, CVPR 2009, PETRA 2009, PAKDD 2009, CIVR 2009, BIOT 2009, ICDM 2008, CVPR 2008, PETRA 2008, BIOT 2008, ICCV 2007, KDD 2007, CVPR 2007, CVPR 2006, KDD 2006.
- Program committee member for the following workshops: Workshop on Computer Vision and Pattern Recognition for Human Communicative Behavior Analysis (CVPR4HB) 2011, Gesture Workshop 2011, Workshop on Sign, Gesture and Activity (in conjunction with ECCV 2010), Workshop on Analysis and Modeling of Faces and Gestures (in conjunction with CVPR 2010), HCI Workshop (in conjunction with ICCV 2009).
- Reviewer for the following journals: IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), International Journal of Computer Vision (IJCV), ACM Transactions on Database Systems (TODS), IEEE Transactions on Information Technology in Biomedicine (TITB), IEEE Transactions on Knowledge and Data Engineering (TKDE), IEEE Transactions on Image Processing (TIP), ACM Transactions on Multimedia Computing, Communications and Applications (TOMCCAP), IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), IEEE Transactions on Multimedia, IEEE Transactions on Neural Networks (TNN), IEEE Transactions on Systems, Man, and Cybernetics-Part B: Cybernetics (SMCB), IEEE Transactions on Information Forensics and Security (TIFS), Pattern Recognition, Pattern Recognition Letters, Computer Vision and Image Understanding (CVIU), Image and Vision Computing (IVC), International Journal of Image and Video Processing (IJIVP), Data Mining and Knowledge Discovery, Annals of Operations Research, Personal and Ubiquitous Computing, Annals of Biomedical Engineering, IEEE Computer Graphics and Applications.
- External 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.
- External 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.
- National Science Foundation Review Panelist, 2016, 2014, 2013, 2012, 2011, 2010, 2009.

DEPARTMENT/UNIVERSITY SERVICE

- Chair of Faculty Recruiting Committee, 2012-2013.
- Coordinator of all sections of CSE 1310 - Introduction to Computers and Programming, 2014-present.
- Advisor for UTA ICPC Committee and UTA Undergraduate Programming Club, 2007-present.
- Adjunct Advising Committee, 2016-present.
- Advisory Committee, 2016-present.
- College of Engineering Ad Hoc Committee on Research, 2017.
- Colloquium Committee, 2007-2008.
- Faculty Recruiting Committee, 2007-2011, 2015-present.
- Graduate Studies Committee, 2007-present.
- Ph.D. Admissions Committee, 2007-2011, 2012-2014.
- Undergraduate Studies Committee, 2013-present.
- Website Review Committee, 2007-2008.
- Volunteer for RoPro High School Programming Competition, 2008, 2009, 2010, 2011.
- Lecturer for UTA Engineering and Computer Science Summer Camps, 2009, 2010.