Shishir K. Shah

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Education

Ph.D. in Electrical and Computer Engineering **1998**
The University of Texas at Austin *Austin, TX*

M.S. in Electrical and Computer Engineering **1995**
The University of Texas at Austin *Austin, TX*

B.S. in Mechanical Engineering **1994**
The University of Texas at Austin *Austin, TX*

Appointments

Department Chair **2019 – Present**
Department of Computer Science, University of Houston *Houston, TX*

Professor **2016 – Present**
Department of Computer Science, University of Houston *Houston, TX*

Associate Chair **2016 – 2019**
Department of Computer Science, University of Houston *Houston, TX*

Associate Professor **2010 – 2016**
Department of Computer Science, University of Houston *Houston, TX*

Director, Undergraduate Studies **2010 – 2015**
Department of Computer Science, University of Houston *Houston, TX*

Director **2005 – Present**
Quantitative Imaging Laboratory, University of Houston *Houston, TX*

Assistant Professor **2005 – 2010**
Department of Computer Science, University of Houston *Houston, TX*

President **2003 – 2005**
Spin Diagnostics, Inc. *Houston, TX*

President **2000 – 2002**
Spectral Genomics, Inc. *Houston, TX*

Projects Manager **1999 – 2000**
BioDiscovery, Inc. *Los Angeles, CA*

Assistant Professor **1998 – 2000**
Department of Electrical and Computer Engineering, Wayne State University *Detroit, MI*

Graduate Research Assistant **1994 – 1998**
Computer and Vision Research Center, The University of Texas at Austin *Austin, TX*

Undergraduate Research Assistant **1991 – 1994**
Computer and Vision Research Center, The University of Texas at Austin *Austin, TX*

Administrative and Service - Key Accomplishments

My focus under different leadership roles has been to increase the visibility of the Computer Science department and the University of Houston, both internally and externally, develop and implement strategic initiatives to support and grow academic and research missions, and to build a culture of shared governance for operations and new initiatives. Accomplishments include:

Department Chair **2019 – Present**

- Oversee department operations (≈300-450K annual budget, excluding base budget) and annual research expenditure of ≈4MM. Developed cost center reconciliation processes and financial reporting to PIs to facilitate improved planning and project management.
- Engage and support faculty in broadening and diversifying research funding resulting in increase of annual research expenditures (≈4.7MM in 2023 from ≈2.3MM in 2018).
- Engage with advancement partners, alumni, and industry to expand fundraising efforts to support students and academic initiatives.
- Establish 2 junior faculty professorships.
- Launched the ConocoPhillips Computer Science Learning Center focused on tutoring and peer-led learning related to computer science and data science fundamentals.
- Led and completed the state required review of Graduate Programs (M.S. and Ph.D.) in the department.
- Initiated and helped recruit new faculty members to strengthen core research areas related to distributed computing, algorithms, and artificial intelligence.
- Created collaborative learning and study spaces for students in the department with the purpose of increasing student engagement with the department.
- Worked with faculty members to increase inter- and cross-disciplinary research efforts, resulting in an increase in proposal submissions and awards.
- Completed a review and revision of the department's faculty annual performance review policy.
- Worked with faculty to revise the PhD program requirements to support pathways for early research engagement and establishing the Research Competency Evaluation to ensure student progress towards timely degree completion.
- Accomplished and managed a significant budget cut for the Computer Science department while minimizing impact to its academic and research programs.
- Accomplished transition of teaching computer labs to cloud-based containerized deployments to support and sustain remote teaching and learning.
- Established initial programs and initiatives to increase student engagement efforts for increasing retention and graduation rates.
- Engaged with faculty and staff to manage and grow the Computer Science academic programs to (≈2200 undergraduate and ≈200 graduates students).
- Worked with faculty to develop two new undergraduate capstone sequences, in Data Science and Security, to expand career and graduation pathways for students.
- Collaborated with faculty to initiate efforts to increase awareness of research opportunities for undergraduate students and to support increasing number of undergraduates engaged in research.
- Engaged with the UH HPE Data Science Institute to provide input on micro-credential and certificate programs related to data sciences and high performance computing.
- Collaborated with College and Graduate School to initiate efforts of creating a new MS program in Applied AI.

Associate Chair, Chair of Faculty Senate Undergraduate Committee **2016 – 2019**

- Develop process of scheduling of courses across all degree programs in the department.
- Worked with faculty to design and launch Data Science minor for non-CS majors.

- Worked closely with faculty and students to develop and manage approval of grade forgiveness policy for undergraduate students at University of Houston.
- Helped develop and launch "Computer Science in Practice" - an industry talk series for undergraduate students to understand the diversity of career pathways and opportunities.

Director, Undergraduate Studies **2010 – 2015**

- Worked with faculty to develop and institutionalize updated BS in Computer Science program.
- Developed initiatives to increase engagement of undergraduates in research.
- Developed department policy for student grievances.

Research, Scholarship, Creative Work - Key Accomplishments

My research accomplishments over the past 10 years have been primarily in learning paradigms for object tracking and recognition, distributed visual surveillance, and machine learning with an emphasis on developing models to understand human behaviors and applications in biometrics. Accomplishments include:

Over $15MM in research funding **2005 – Present**

- Funding agencies include NSF, DHS, IARPA, NIJ, NIST, ARO, etc.

Senior Member, National Academy of Inventors **2023 – Present**

Challenge Partner, CommanDING Tech **2022 – 2023**

- Developed and deployed Video Analytics API to support participants in a National First-Responder Challenge organized by the National Institute of Standards and Technology (NIST) [https://www.freelancer.com/nist/first-responder-dashboard].

50-in-5 Faculty Achievement Award **2021 – 2022**

- Major Grants, University of Houston.

50-in-5 Faculty Achievement Award **2021 – 2022**

- Impact50 Publications, University of Houston.

3 Edited Books and over 200 publications **2005 – Present**

- Book chapters, Journal Papers, and Conference Papers.

30+ Invited Talks **2005 – Present**

- Talks in Academia, Industry, and Government Agencies.

Editorial Board Members / Associate Editor **2008 – Present**

- Pattern Recognition, 2019 – Present.
- Journal on Image and Vision Computing, 2008 – Present.
- IEEE Journal of Translational Engineering in Health and Medicine, 2015 – Present.
- IEEE Transactions on Biomedical Engineering, 2011 – 2013.

Academic Excellence Awards **2009, 2016**

- Recognition for Excellence in Teaching and Research, Department of Computer Science, University of Houston.

Teaching and Mentorship - Key Accomplishments

I embrace an idealistic philosophy and believe that learning is a journey that is unique for each one of us. I consider teaching to be a very fulfilling experience and an opportunity to grow as an educator while feeding my personal desire to learn. Accomplishments include:

John C. Butler Teaching Excellence Award **2011**

- Recognition for Excellence in Teaching College of Natural Science and Mathematics, University of Houston.

Advised and Mentored Research Fellow, Ph.D., M.S., and B.S. Students **2005 – Present**

- 6 Fellows, 16 Ph.D., 27 M.S., 15 B.S.

Consistently rated among top 5 instructors **2005 – Present**

- Department of Computer Science, University of Houston.

Details

Research, Scholarship, Creative Work

Honors, Awards, and Mentions

Senior Member, National Academy of Inventors **2023 –**

Challenge Partner, CommanDING Tech Challenge (NIST),
https://www.freelancer.com/nist/first-responder-dashboard **2022 – 2023**

50-in-5 Faculty Achievement Recognition
Major Grants, University of Houston **2021 – 2022**

50-in-5 Faculty Achievement Recognition
Impact50 Publications, University of Houston **2021 – 2022**

Best Paper Award
International Conference on Computer Vision Theory and Applications (VISAPP) **2019**

Academic Excellence Award
Department of Computer Science, University of Houston **2016**

Best Paper Award
International Conference on Computer Vision Theory and Applications (VISAPP) **2013**

Guest Editor
TBME Letters Special Section on Multiscale Biomedical Signal & Image Modeling & Analysis **2012**

John C. Butler Teaching Excellence Award
College of Natural Science and Mathematics, University of Houston **2011**

Academic Excellence Award
Department of Computer Science, University of Houston **2009**

Visiting Professor, University of Strasbourg
Image Sciences, Computer Sciences and Remote Sensing Laboratory **Dec. 2008 – Jan. 2009**

Visiting Scientist, Sarnoff Corporation **Jun. 2008 – Aug. 2008**

IEEE Senior Member **2008 – Present**

Associate Editor, Pattern Recognition **2019 – Present**

Editorial Board Member, Journal on Image and Vision Computing **2008 – Present**

Associate Editor, IEEE Journal of Translational Engineering in Health and Medicine **2015 – Present**

Associate Editor, IEEE Transactions on Biomedical Engineering **2011 – 2013**

Local Arrangements Chair, International Joint Conference on Biometrics, IJCB **2020**

Co-Organizer, Workshop on Group and Crowd Behavior Analysis and Understanding, CVPR **2015**

Associate Editor, IEEE International Symposium on Biomedical Imaging **2015**

Associate Editor, IEEE International Symposium on Biomedical Imaging **2015**

Program Committee
International Conference on Computer Vision, Theory, and Application (VISAPP) **2013 – 2025**

Program Committee
International Conference on Ambient Computing,
Applications, Services and Technologies **2011 – 2015**

Program Committee
SPIE Defense, Security, and Sensing: Biometric and Surveillance
Technology for Human and Activity Identification X **2013 – 2015**

Technical Program Committee
IEEE International Symposium on Biomedical Imaging **2009 – 2014**

Conference Area Chair
11th IEEE International Conference on Advanced Video and Signal-Based Surveillance **2014**

Program Committee
Asian Conference on Computer Vision **2014**

Program Committee
International Joint Conference on Biometrics **2014**

Program Committee
International Workshop on Human Behavior Understanding **2014**

Program Committee
OSA: Imaging Systems and Applications **2014**

Professional Development Activities Co-Chair
Biometrics: Theory, Applications and Systems (BTAS) **2013**

Program Committee
The 6th IAPR International Conference on Biometrics **2013**

Session Co-Organizer
10th IEEE Conference on Automatic Face and Gesture Recognition:
Special Session on FG in Medicine **2013**

Program Committee
3D Face Biometrics (In conjunction with FG **2013**

Program Committee
International Conference on 3D Converged IT and Optical Communications **2012 – 2013**

Program Committee
First International Workshop on Computer Vision for Computer Games **2010**

International Program Committee
IEEE Conference on Systems, Man, and Cybernetics **2010**

Session Co-Chair
Annual Conference of IEEE Engineering in Medicine and Biology Society **2009**

Technical Program Committee
Optical Tissue Image Analysis in Microscopy,
Histopathology and Endoscopy (OPTIMHisE) Workshop at MICCAI **2009**

Session Chair
IEEE Conference on Multisensor Fusion and Integration for Intelligent Systems **2008**

Technical Program Committee and Session Chair
IEEE Conference on Systems, Man, and Cybernetics **2008**

Session Chair
IAPR Conference on Machine Vision Applications **2007**

Referee/Reviewer
Pattern Recognition, Computer Vision and Image Understanding,
Image and Vision Computing, IEEE Trans. Pattern Analysis & Machine Intelligence,
IEEE Trans. Cybernetics, IEEE Trans. Human Machine Systems,
IEEE Trans. Medical Imaging, IEEE Trans. Biomedical Engineering,
IEEE Trans. Circuits and Systems for Video Technology,
IEEE Trans. Intelligent Transportation Systems,
IEEE Trans. Information Forensics and Security, IEEE Signal Processing Letters,
IEEE FG, BTAS, SPIE, IEEE AVSS, IEEE CVPR, ICCV, ACCV,
ICPR, MICCAI, IEEE SMC, IEEE MFI, IEEE ISBI **1999 – Present**

Chair of NIH Healthcare Delivery and Methodologies
Integrated Review Group (Special Emphasis Panel),
National Institutes of Health, Bethesda, MD **2012 – 2015**

Grant Reviewer
National Institutes of Justice, Reston, VA **2018 – 2019**

Grant Reviewer
National Institutes of Health, Bethesda, MD **1999 – 2015**

Grant Reviewer
Department of Defense, Washington, DC **2001 – 2002**

Session Organizer
International Conference on Information Fusion **1999 – 2000**

National Level Scholarship for Academic Excellence
Central Board of Secondary Education, India **1987 – 1989**

Certificate of Merit
All India Annual Mathematics Competition **1987 – 1988**

Grants and Contracts (Over $15MM in funding as PI and Co-PI since 2005)

Platform to Recognize and Evaluate Children for Age-Appropriate Response
and Early Detection of Delays (PRECARE) (PI: S. Shah)
Benten Technologies (Total Costs: $53,191) **2024 – 2025**

Data-Centric AI for Subsurface Image Analyses (PI: S. Shah)
Shell Technology Center (Total Costs: $355,000) **2022 – 2025**

BPC-AE: An Extended CAHSI Alliance to Broaden Participation
in Graduate Studies (PI: S. Shah)
UT El Paso, National Science Foundation (Total Costs: $66,946) **2021 – 2024**

VIDORA: Visual Dossiers for Recognizing and Identifying
Humans at Altitude and Range (PI: I. A. Kakadiaris, Co-PI: S. Shah)
IARPA (Total Costs: $13,859,057) **2021 – 2023**

Customizable Video Analytics & Houston Public Safety Video (PI: S. Shah)
National Institute of Standards and Technology (NIST) (Total Costs: $199,944) **2021 – 2023**

Multi-tiered Video Analytics for Abnormality Detection
and Alerting to Improve Response Time for
First Responder Communications and Operations (PI: S. Shah)
National Institute of Standards and Technology (NIST) (Total Costs: $1,777,626) **2017 – 2020**

DHS Center of Excellence for Borders, Trade and
Immigration Research (PI: I. A. Kakadiaris, Co-PI: S. Shah)
Department of Homeland Security (Total Initial Costs: $19,983,019) **2015 – 2020**

Security Technologies Kitchen (PI: S. Shah, Co-PI I. A. Kakadiaris)
Department of Homeland Security (Total Costs: $260,587) **2016 – 2018**

Face Explorer: Clustering, Visualization and
Matching for Large Photo Databases (PI: I. A. Kakadiaris, Co-PI: S. Shah)
Department of Homeland Security (Total Costs: $485,367) **2015 – 2017**

Preparing Computer Science Students for Global Challenges
of the Twenty-first Century (PI: R. Verma, Co-PI: S. Shah, S. Huang, C. Yun)
National Science Foundation (Total Costs: $583,597) **2014 – 2019**

DURIP: Hyperspectral and Acoustic Sensing for
Robust Scene Understanding (PI: S. Prasad, Co-PI: S. Shah, D. Labate)
U.S. Army Research Office (Total Costs: $294,918) **2014 – 2016**

Visual Analytics for OR Staging (PI: S. Shah, Co-PI: B. Dunkin)
IUCRC: National Science Foundation (Total Costs: $50,000) **2014 – 2016**

Collaborative: Image Processing Cloud (IPC): A Domain-Specific
Cloud Computing Infrastructure for Research and Education
(PI: S. Shah, Original PI: Y. Yan (now at Oakland Univ.), Co-PI: W. Shi)
National Science Foundation (Total Costs: $249,946) **2013 – 2016**

Face Recognition for Unconstrained Maritime
Applications (PI: I. A. Kakadiaris, Co-PI: S. Shah, E. Papadakis)
U.S. Army Research Office (Total Costs: $585,399) **2013 – 2016**

Learning Models for Predictive Behavioral Intent and Activity Analysis
in Wide Area Video Surveillance (PI: S. Shah, Co-PI I. A. Kakadiaris)
National Institute of Justice (Total Costs: $215,356) **2013 – 2015**

Hazards SEES Type 1: Real-Time Geospatial Infrastructure Modeling
for Disaster Response and Rapid Recovery (PI: C. Glennie,
Co-PIs: S. Shah, I. Kakadiaris, C. Vipulanandan)
National Science Foundation (Total Costs: $299,273) **2013 – 2015**

QEP: Redesigning Courses in Visual Computing (PI: I. A. Kakadiaris, Co-PI: S. Shah)
University of Houston (Total Costs: $10,000) **2012 – 2013**

Towards Automating Improvements in Sub-Salt
Interpretation (PI: I. A. Kakadiaris, Co-PI: S. Shah)
British Petroleum Exploration, Inc. (Total Costs: $242,337) **2012 – 2013**

Towards Automating Improvements in Sub-Salt
Interpretation (PI: I. A. Kakadiaris, Co-PI: S. Shah)
British Petroleum Exploration, Inc. (Total Costs: $184,840) **2011 – 2012**

Learning Models for Predictive Behavioral Intent and Activity Analysis
in Wide Area Video Surveillance (PI: S. Shah, Co-PI I. A. Kakadiaris)
National Institute of Justice (Total Costs: $521,227) **2010 – 2013**

RECOLLECT: Robust and Accurate Face Recognition in Real-Life
Conditions (PI: I. A. Kakadiaris, Co-PI: S. Shah, E. Papadakis)
Intelligence Advanced Research Projects Activity (Total Costs: $1,781,000) **2010 – 2012**

CPS: Medium: Image Guided Robot-Assisted Medical Interventions
(PI: N. Tsekos, UH, Co-PI: J. Mohammadpour, I. Kakadiaris, Z. Deng,
K. Grigoriadis, Sen. Personnel: S. Shah)
National Science Foundation (Total Costs: $1,558,492) **2009 – 2016**

Automatic Indexing and Captioning of Tablet PC Based Video Lectures for Computer
Science Coursework (PI: J. Subhlok, Co-PIs: S. Shah, O. Johnson, Z. Deng)
National Science Foundation (Total Costs: $459,115) **2008 – 2013**

DURIP: A Heterogeneous Smart Camera Network for Collaborative Missions
(PI: S. Shah, Co-PIs: R. Zheng, E. Gabriel, M. Garbey)
Department of Defense (Total Costs: $150,000) **2008 – 2009**

Face Recognition for Physical and Logical Access Control: Demonstration &
Assessment (PI: I. A. Kakadiaris, Co-PI: S. Shah)
US Army Research Labs (Total Costs: $614,187) **2008 – 2010**

Video-Based Surveillance in Distributed Environments
(PI: I. A. Kakadiaris, Co-PI: S. Shah, O. Jejelowo)
Texas Advanced Research Program (Total Costs: $149,944) **2008 – 2010**

Video-based Change Detection (PI: S. Shah)
Sarnoff Corporation (Total Costs: $101,366) **2008 – 2009**

Virtual Reality Environment for Genomic Data Visualization (PI: S. Shah)
SoftImaging, LLC. (Total Costs: $15,000) **2007 – 2008**

A Wireless Network for Nonobtrusive Continuous Assessment of Astronaut Fatigue
(PI: G. Zouridakis, Co-PIs: S. Shah, R. Zheng, E. Gabriel)
Institute for Space Systems Operations (Total Costs: $41,555) **2007**

Multispectral Imaging for Brightfield Microscopy (PI: S. Shah)
International Remote Imaging Systems, Inc. (Total Costs: $22,500) **2005 – 2006**

Invited Presentations

- *Generative Models for Image Analysis* Shell Oil Company, Houston, TX 2024.
- *Hopes for Future of Video Analytics for Public Safety* Annual Stackeholder Meeting, Public Safety Communications Research, NIST, San Diego, CA, 2022.
- *Public Safety Video Technology – Current Capabilities and Future Directions* Municipal Special Events Summit, Reno, NV, 2020.
- *Public Safety Video, Analytics, and Workflow to Enable the End User - Lessons Learned* Public Safety Broadband Stakeholder Meeting, Chicago, IL, 2019.
- *Multi-tiered Video Analysis for Abnormality Detection & Alerting* Public Safety Broadband Stakeholder Meeting, San Diego, CA, 2018.
- *Is Video Surveillance Infrastructure ready for Video Analytics?* Video Quality in Public Safety Workshop, Albuquerque, NM, May 2018.
- *Person Re-identification in Wide Area Surveillance.* Swansea University, Wales, UK, November, 2017.
- *Person Re-identification in Wide Area Surveillance.* Swansea University, Wales, UK, November, 2017.
- *Social Cues in Modeling Local Human Behavior and its Utility in Human Motion Understanding.* Swansea University, Wales, UK, November, 2017.
- *Prediction Driven Algorithm Selection for Intelligent Image and Video Computing.* Swansea University, Wales, UK, November, 2017.
- *Body Management: Human Motion and [Social/Physical] Constraint.* Current Conversations, Houston, TX April, 2016.
- *Person Re-identification in Wide Area Surveillance.* FBI/DARPA/NSF Workshop on Frontiers in Image and Video Analysis, Arlington, VA, January, 2014.
- *Video Tracking Analytics for Physical Security.* Technical Discussion Workshop, NIST, July, 2013.
- *Modeling Human Motion.* University of Strasbourg, France, June 2013.
- *Social Cues in Modeling Local Human Behavior and its Utility in Human Motion Understanding.* Indian Institute of Technology, Gandhinagar, India, March 2013.
- *Local Human Behavior and its Utility in Human Motion Understanding.* Biology of Behavior Institute, University of Houston, March 2013.
- *Wide Area Surveillance in Distributed Camera Networks.* University of Houston-Clear Lake, TX, August 2012.
- *Wide Area Surveillance in Distributed Camera Networks.* Sardar Vallabhbhai National Institute of Technology, Surat, India, August 2011.

- *Adaptive Framework for Robust Object Tracking in Dynamic Environments.* Institute of Information and Communication Technology, India, December 2009.
- *Optimal Image Segmentation within a Predictive Framework.* Image Sciences, Computer Sciences and Remote Sensing Laboratory, University of Strasbourg, France, January 2009.
- *Automated Cell Segmentation and Computer-Aided Tool for Fast Screening of Thyroid Fine Needle Aspiration Cytology Smears.* Workshop on Computational Surgery and Dual Training, Strasbourg, France, December, 2008.
- *Image Registration in Medical Imaging.* Texas Instruments Medical Imaging Summit, Dallas, TX, April 2008.
- *Distributed Tracking for Surveillance.* Texas Instruments, Dallas, TX, April 2008.
- *Learning Systems in Computer Vision.* ECE Seminar Series, The University of Texas at Austin, Austin, TX, March 2008.
- *Multispectral Imaging and Automated Analysis for Cytopathology.* Symposium on Digital Life Technologies, Tainan, Taiwan, June 2007.
- *Automatic Cell Image Segmentation using a Shape-Classification Model.* Colloquium on Mathematics in Images, University of La Rochelle, France, May 2007.
- *Automated Cell Segmentation for Cancer Cytology.* Third Annual Workshop on Interdisciplinary Computational Science, University of Houston, TX, March 2007.
- *Internuclei Quantitation.* Research Seminar, The Methodist Hospital, Houston, TX, July 2006.
- *Entrepreneurship and Research: A Perspective.* Research Experience for Undergraduates Seminar, University of Houston, Houston, TX, July 2006.
- *Microscopic Image Analysis.* Emerging Researchers Forum, The Methodist Hospital, Houston, TX, May 2006.
- *Virtual Microscopy and High Performance Computing.* University of Houston High Performance Computing Workshop, Houston, TX, March 2006.
- *Multispectral Imaging for Particle Characterization.* Research Seminar, Advanced Digital Imaging Research, LLC., League City, TX, February 2006.
- *Quantitative Imaging.* Graduate Student Seminar, University of Houston, Houston, TX, October 2005.
- *Differential Thyroid Cytology.* Research Seminar, The University of Texas Medical Branch, Galveston, TX, July 2005.
- *High Throughput Imaging: Approaches and Applications in Biomedical Sciences.* Research Seminar, The University of Texas Health Sciences, Houston, TX, June 2005.
- *Genomic FISHing: Chromosomal Abnormality Screening Using DNA Arrays.* Research Seminar, Houston Community College: Biotechnology Program, Houston, TX, April 2005.

Workshops

- *Workshop on Group and Crowd Behavior Analysis and Understanding.* Co-Organizer of Workshop on Group and Crowd Behavior Analysis and Understanding in conjunction with CVPR 2015, Boston, June 2015.
- *Digital Image Processing.* Workshop at University of Strasbourg, France, June, 2013.
- *Digital Image Processing.* Five day workshop associated with the Indo-US Collaboration on Engineering Education, Punjab, India, June 2012.
- *Advances in Computer Vision.* Five day workshop associated with the Indo-US Collaboration on Engineering Education, Andhra Pradesh, India, July 2011.

Tutorials

- *Human Behavior Understanding.* Tutorial at Gujarat Technological University, India, March, 2015.
- *Context Aware Video Analytics and Understanding.* Tutorial at Gujarat Technological University, India, March, 2014.
- *3D-Aided Face Recognition.* Half day tutorial at the International Joint Conference on Biometrics, Washington, D.C., October 2011.
- *Image Computing and Digital Pathology.* Full day tutorial at the International Conference on Pattern Recognition, Tampa, FL, December 2008.

Publications

Books and Book Chapters — Published

1. F. Merchant, **S. Shah**, and K. Castleman, **Object Measurement**, *Microscope Image Processing*, Academic Press, 2023.
2. Y. Wu, **S. K. Shah** and I. A. Kakadiaris. **Tackling the Optimization and Precision Weakness of Deep Cascaded Regression for Facial Key-Point Localization**, *Deep Learning in Biometrics*, Eds. Mayank Vatsa, Richa Singh, Angshul Majumdar, 2018.
3. V. Murino, M. Cristani, **S. K. Shah** and S. Savarese. **The Group and Crowd Analysis Interdisciplinary Challenge**, Academic Press, 2017.
4. D. Chu, **S. K. Shah**, and I.A. Kakadiaris, **3D Face Recognition in the Presence of Partial Data: A Semi-Coupled Dictionary Learning Approach**, *Face recognition in Adverse Conditions*, Eds. Maria De Marsico, Michele Nappi and Massimo Tistarelli, 2014.
5. E. Gabriel, R. Smaoui, V. Venkatesan and **S. K. Shah**, **Hardware and Performance Considerations for Computational Medicine**, *Computational Surgery and Dual Training: Computing, Robotic and Imaging for the Surgery Platform*, Eds. M. Garbey and R. Tran-Son-Tay, Springer, 2014.

6. **S. K. Shah** and A. Gala, **Person Re-identification in Wide Area Camera Networks**, *Wide Area Surveillance*, Eds. V. Asari, Springer, 2014.

7. X. Wu, **S. K. Shah** and F Merchant, **Automated Prototype Generation for Multi-color Karyotyping**, *Color Medical Image Analysis*, Eds. M. Emre Celebi and Gerald Schaefer, Springer, 2013.

8. I.A. Kakadiaris, G. Passalis, G. Toderici, E. Efraty, P. Perakis, D. Chu, **S.K. Shah** and T. Theoharis, **Face Recognition Using 3D Images**, *Handbook of Face Recognition*, Eds. Stan Z. Li and Anil K. Jain, Springer-Verlag, 2011.

9. I. A. Kakadiaris and **S. K. Shah**, **Biomedical Computing in Complex Advanced Systems**, *Pumps and Pipes*, Eds. M. G. Davies *et al.*, Springer, 2011.

10. **S. Shah** and E. Gabriel, **Parallel Multispectral Image Segmentation for Computer Aided Thyroid Cytology**, *Computational Surgery and Dual Training*, Eds. M. Garbey and R. Tran-Son-Tay, Springer, 2010.

11. E. Gabriel and **S. Shah**, **Parallelizing Image Analysis Applications for Spectral Microscopy**, *Multivariate Image Processing: Methods and Applications*, Eds. J. Chanussot, K. Chehdi, and C. Collet, Springer Verlag, 2009.

12. J. Thigpen and **S. Shah**, **Spectral Imaging**, *Microscope Image Processing*, Academic Press, 2008.

13. F. Merchant, **S. Shah**, and K. Castleman, **Object Measurement**, *Microscope Image Processing*, Academic Press, 2008.

14. **Microarray Image Analysis - Nuts and Bolts. S. Shah** and G. Kamberova, DNA Press, 2002.

15. **S. Shah**, J. P. Gregg, M. Mohammed, W. Yu. S. Damani, and R. Locker, **BAC Microarrays**, *Microarray Image Analysis - Nuts and Bolts*, pp. 185-202, Edited by S, Shah and G. Kamberova, DNA Press, 2002.

16. A. Kuklin, **S. Shah**, B. Hoff, and S. Shams, **Data Management in Microarray Fabrication, Image Processing, and Data Mining**, *DNA Arrays: Technologies and Experimental Strategies*, CRC Press, 2001.

17. **S. Shah** and J. P. Gregg, **BAC Array and Applications**, *Handbook of Molecular Biology*, 2001.

18. **S. Shah** and S. Shams, **Microarray Image Analysis for Statistically Significant Gene Expression Analysis**, *Handbook of Microarray Analysis*, MIT Press, 2001.

19. J. K. Aggarwal and **S. Shah**, **Object Recognition and Performance Bounds**, *Lecture Notes in Computer Science: Image Analysis and Processing*, pp. 343–360, Edited by Alberto Del Bimbo, Springer Verlag, 1997.

20. **S. Shah** and J. K. Aggarwal, **Modeling Structured Environments using Robot Vision: A Review**, *Lecture Notes in Computer Vision: Recent Progress in Computer Vision*, pp. 113-128, Edited by Roland T. Chin et. al., Springer Verlag, 1995.

Refereed Journal Papers **Under Review**

21. V. D. Nguyen, P. Mantini, and **S. K. Shah**, Occlusion-aware Appearance and Shape Learning for Occluded Cloth-Changing Person Re-Identification, *Pattern Analysis and Applications*, 2025.

22. V. D. Nguyen, P. Mantini, and **S. K. Shah**, Bidirectional Feature Enhancement for Video-based Occluded Cloth-Changing Person Re-Identification, *IEEE Trans. Biometrics, Behavior, and Identity Science*, 2025.

Refereed Journal Papers **Published**

23. M. Rahman, R. Kota, **S. K. Shah**, T. Solorio, and J. Subhlok, Enhancing Lecture Video Navigation with AI Generated Summaries, *Education and Information Technologies*, 2023.

24. A. Barman and **S. K. Shah**. A Graph-based Approach for Making Consensus-based Decisions in Image Search and Person Re-identification, *IEEE Trans. on Pattern Analysis and Machine Intelligence*, DOI: 10.1109/TPAMI.2019.2944597, 2019.

25. P. Dou, Y. Wu, **S. K. Shah** and I. A. Kakadiaris. Monocular 3D facial shape reconstruction from a single 2D image with coupled-dictionary learning and sparse coding, *Pattern Recognition*, vol. 81, pp. 515–527, 2018.

26. Y. Wu, **S. K. Shah** and I. A. Kakadiaris. GoDP: Globally Optimized Dual Pathway deep network architecture for facial landmark localization in-the-wild, *Image and Vision Computing*, vol. 73, pp. 1–16, 2018.

27. Y. Wu, **S. K. Shah** and I. A. Kakadiaris. Annotated face model-based alignment: a robust landmark-free pose estimation approach for 3D model registration, *Machine Vision and Applications*, vol. 29(3), pp. 375–391, 2018.

28. L. Zhang, **S. K. Shah**, and I. A. Kakadiaris. Hierarchical multi-label classification using fully associative ensemble learning, *Pattern Recognition*, vol. 70, pp. 89–103, 2017.

29. I. A. Kakadiaris, G. Toderici, G. Evangelopoulos, G. Passalis, D. Chu, X. Zhao, **S. K. Shah** and T. Theoharis. 3D-2D face recognition with pose and illumination normalization, *Computer Vision and Image Understanding*, vol. 154, pp. 137–151, 2017.

30. T. Tuna, J. Subhlok, L. Barker, **S. K. Shah**, O. Johnson and C. Hovey. Indexed Captioned Searchable Videos: A Learning Companion for STEM Coursework, *Journal of Science Education and Technology*, vol. 26, pp. 82–99, 2017.

31. C. W. McCollum, J. Conde-Vancells, C. Hans, M. Vazquez-Chantada, N. Kleinstreuer, T. Tal, T. Knudsen, **S. K. Shah**, F. A. Merchant, R. H. Finnell, J. Gustafsson, R. Cabrera, and M. Bondesson. Identification of Vascular Disruptor Compounds by Analysis in Zebrafish Embryos and Mouse Embryonic Endothelial Cells, *Reproductive Toxicology*, 2016.

32. T. Tuna, J. Subhlok, L. Barker, **S. K. Shah**, O. Johnson, and C. Hovey. Indexed Captioned Searchable Videos: A Learning Companion for STEM Coursework, *Journal of Science Education and Technology*, pp. 1–18, 2016.

33. I. A. Kakadiaris, G. Toderici, G. Evangelopoulos, G. Passalis, D. Chu, X. Zhao, **S. K. Shah**, and T. Theoharis. 3D-2D Face Recognition with Pose and Illumination Normalization, *Computer Vision and Image Understanding*, vol. 154, pp. 137–151, 2016.

34. L. Zhao, A. Cheong, G. Reece, M. Fingeret, **S. K. Shah**, and F. A. Merchant. Inferior Breast-Chest Contour Detection in 3D Images of the Female Torso, *IEEE Journal of Translational Engineering in Health and Medicine*, 2016.

35. X. Zhao, Z. Gao, T. Feng, **S. K. Shah**, W. Shi. Continuous Fine-Grained Arm Action Recognition using Motion Spectrum Mixture Models, *Electronics Letters*, vol. 50-22, pp. 1633–1635, 2014.

36. T. Tal, C. McCollum, P. Harris, J. Olin, N. Kleinstreuer, C. Wood, C. Hans, **S. K. Shah**, F. A. Merchant, M. Bondesson, T. Knudsen, S. Padilla, and M. J. Hemmer. Immediate and Long-term Consequences of Vascular Toxicity during Zebrafish Development, *Reproductive Toxicology*, vol. 48, pp. 51–61, 2014.

37. C. McCollum, C. Hans, **S. K. Shah**, F. A. Merchant, J. Gustafsson, and M. Bondesson. Embryonic Exposure to Sodium Arsenite Perturbs Vascular Development in Zebrafish, *Aquatic Toxicology*, vol. 152, pp. 152–163, 2014.

38. K. N Tran, A. Gala, I. A. Kakadiaris, and **S. K. Shah**, Activity Analysis in Crowded Environments using Social Cues for Group Discovery and Human Interaction Modeling, *Pattern Recognition Letters*, vol. 44, pp. 49–57, 2014.

39. X. Zhao, G. Evangelopoulos, D. Chu, **S. K. Shah**, and I. A. Kakadiaris, Minimizing Illumination Differences for 3D to 2D Face Recognition Using Lighting Maps, *IEEE Trans. Cybernetics*, vol. 44-5, pp. 725–736, 2014.

40. A. Bedagkar-Gala and **S. K. Shah**, A Survey of Approaches and Trends in Person Re-identification, *Image and Vision Computing*, vol. 32-4, pp. 270–286, 2014.

41. X. Yan, I. A. Kakadiaris, and **S. K. Shah**, Modeling Local Behavior for Predicting Social Interactions towards Human Tracking, *Pattern Recognition*, vol. 47-4, pp. 1626–1641, 2014.

42. B. Soibam, **S. K. Shah**, G. H. Gunaratne, and G. W. Roman, Modeling Novelty Habituation During Exploratory Activity in Drosophila, *Behavioural Processes*, vol. 97, pp. 63–75, 2013.

43. O. Ocegueda, T. Fang, **S. K. Shah** and I. A. Kakadiaris, 3D-Face Discriminant Analysis using Gauss-Markov Posterior Marginals, *IEEE Trans. Pattern Analysis and Machine Intelligence*, vol. 35-3, pp. 728–739, 2013.

44. B. Soibam, R. L. Goldfeder, C. Manson-Bishop, R. Gamblin, S. D. Pletcher, **S. K. Shah**, G. H. Gunaratne, G. W. Roman, Modeling Drosophila Positional Preferences in Open Field Arenas with Directional Persistence and Wall Attraction, *PLoS One*, vol. 7-10, pp. e46570, 2012.

45. T. Fang, X. Zhao, O. Ocegueda, **S. K. Shah**, and I.A. Kakadiaris, 3D/4D Facial Expression Analysis: An Advanced Annotated Face Model Approach, *Image and Vision Computing*, vol. 30-10, pp. 738–749, 2012.

46. A. Bedagkar-Gala and **S. K. Shah**, Part-based Spatio-temporal Model for Multi-Person Re-identification, *Pattern Recognition Letters*, vol. 33-14, pp. 1908–1915, 2012.

47. K. Tran, I. A. Kakadiaris, and **S. K. Shah**, Part-based Motion Descriptor Image for Human Action Recognition, *Pattern Recognition*, vol. 45-7, pp. 2562–2572, 2012.

48. X. Wu and **S. K. Shah**, Embedding Topic Discovery in Conditional Random Fields Model for Segmenting Nuclei Using Multispectral Data, *IEEE Trans. Biomedical Engineering*, vol. 59-6, pp. 1539–1549, 2012.

49. B. Efraty, E. Bilgazyev, **S. Shah**, and I.A. Kakadiaris, Profile-based 3D-Aided Face Recognition, *Pattern Recognition*, vol. 45-1, pp. 43–53, 2012.

50. J. Thigpen and **S. Shah**, Photometric Calibration for Quantitative Spectral Microscopy under Transmitted Illumination, *Journal of Microscopy*, vol. 239-3, pp. 200–214, 2010.

51. E. Gabriel, V. Venkatesan, and **S. Shah**, Towards High Performance Cell Segmentation in Multispectral Fine Needle Aspiration Cytology of Thyroid Lesions, *Computer Methods and Programs in Biomedicine*, 2010.

52. **S. Shah**, Performance Modeling and Algorithm Characterization for Robust Image Segmentation, *International Journal of Computer Vision*, v. 80-1, pp. 92–103, 2008.

53. J. Thigpen, **S. Shah**, and F. Merchant, Cell Differentiation in Multispectral Image Cytology, *Journal of Algorithms and Computational Technology*, v. 2-4, pp. 469–499, 2008.

54. **S. Shah**, Automatic Cell Segmentation using a Shape-Classification Model in Immunohistochemically Stained Cytological Images, *IEICE Transactions on Information and Systems*, v. E91-D-7, pp. 1955–1962, 2008.

55. **S. Shah**, Image Enhancement for Increased Dot-Counting Efficiency in FISH, *Journal of Microscopy*, v. 228-2, pp. 211–226, 2007.

56. T. Man, X. Lu, K. Jaeweon, L. Perlaky, C. Harris, **S. Shah**, M. Ladanyi, R. Gorlick, C. Lau, and P. H. Rao, Genome-wide Array Comparative Genomic Hybridization Analysis Reveals Distinct Amplifications in Osteosarcoma, *BMC Cancer*, 4:45, 2004.

57. A. Kuklin, S. Shams, and **S. Shah**, High throughput screening of gene expression signatures, *Genetica*, vol. 108, pp. 41-46, 2000.

58. A. Kuklin, S. Shams, and **S. Shah**, Automation in Microarray Image Analysis with AutoGene, *Journal for the Association of Laboratory Automation*, vol. 5-5, pp. 67-70, 2000.

59. J. Wu, F.H. Sarkar, H. Singh, and **S. Shah**, Positron emission tomography, *IEEE Potentials*, vol. 17, no. 5, pp. 13-16, 1999.

60. **S. Shah** and J. K. Aggarwal, Mobile Robot Navigation and Scene Modeling Using Stereo Fish-Eye Lens Systems, *Machine Vision and Applications*, No. 10, pp. 159–173, 1997.

61. **S. Shah** and J. K. Aggarwal, Intrinsic Parameter Calibration Procedure for a (High Distortion) Fish-Eye Lens Camera with Distortion Model and Accuracy Estimation, *Pattern Recognition*, vol. 29, No. 11, pp. 1775-1788, November, 1996.

Non-Refereed Journal Papers **Published**

62. A. Kuklin, **S. Shah**, B. Hoff, and S. Shams, Information processing issues and solutions associated with microarray technology, *Laboratory Robotics and Automation*, vol. 12-6, pp. 317-327, 2000.

Refereed Conference Papers **Published**

Highly Competitive Conferences

1. C. Ung, P. Mantini, and **S. K. Shah**, Minimizing Number of Distinct Poses for Pose-Invariant Face Recognition, in *Proc. of 20th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP)*, pp. 447–455, 2025.

2. R. Aloui, P. Mantini, P. Devarakota, A. Gala, and **S. K. Shah**, Gam-UNet for Semantic Segmentation, in *Proc. of 20th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP)*, pp. 524–531, 2025.

3. S. Mirza, P. Mantini, P. Devarakota, A. Gala, and **S. K. Shah**, Integrating Image Quality Assessment Metrics for Enhanced Segmentation Performance in Reconstructed Imaging Datasets, in *Proc. of 20th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP)*, pp. 450–457, 2025.

4. V. D. Nguyen, P. Mantini, and **S. K. Shah**, CrossViT-ReID: Cross-Attention Vision Transformer for Occluded Cloth-Changing Person Re-Identification, to appear in *Proc. Asian Conference on Computer Vision*, 2024.

5. V. D. Nguyen, P. Mantini, and **S. K. Shah**, Cross-Modality Complementary Learning for Video-based Cloth-Changing Person Re-Identification, to appear in *Proc. Asian Conference on Computer Vision*, 2024.

6. V. D. Nguyen, P. Mantini, and **S. K. Shah**, ACML: Attention-based Cross-Modality Learning for Cloth-Changing and Occluded Person Re-Identification, to appear in *Prof. IEEE Int. Conference on Image Processing*, 2024.

7. V. D. Nguyen, P. Mantini, and **S. K. Shah**, Occlusion-Aware Cross-Attention Fusion for Video-based Occluded Cloth-Changing Person Re-Identification, in *Proc. IEEE Int. Joint Conference on Biometrics (IJCB)*, 2024.

8. V. D. Nguyen, P. Mantini, and **S. K. Shah**, Occluded Cloth-Changing Person Re-Identification via Occlusion-aware Appearance and Shape Reasoning, in *Proc. IEEE Int. Conference on Advanced Video and Signal Based Surveillance (AVSS)*, pp. 1–8, 2024.

9. V. D. Nguyen, S. Mirza, P. Mantini, and **S. K. Shah**, Attention-Based Shape and Gait Representations Learning for Video-Based Cloth-Changing Person Re-Identification, in *Proc. Int. Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications*, pp. 80–89, 2024.

10. V. D. Nguyen, S. Mirza, A. Zakeri, A. Gupta, K. Khaldi, R. Aloui, P. Mantini, F. Merchant, and **S. K. Shah**, Tackling Domain Shifts in Person Re-Identification: A Survey and Analysis, in *Proc. IEEE/CVF Computer Vision and Pattern Recognition (CVPR), Workshop on Continual Learning in Computer Vision*, pp. 4149–4159, 2024.

11. V. D. Nguyen, P. Mantini, and **S. K. Shah**, Contrastive Clothing and Pose Generation for Cloth-Changing Person Re-Identification, in *Proc. IEEE/CVF Computer Vision and Pattern Recognition (CVPR) Workshops*, pp. 7541–7549, 2024.

12. S. Mirza, V. D. Nguyen, P. Mantini, and **S. K. Shah**, Data Quality Aware Approaches for Addressing Model Drift of Semantic Segmentation Models, in *Proc. Int. Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications*, pp. 333–341, 2024.

13. V. D. Nguyen, P. Mantini, and **S. K. Shah**, Temporal 3D Shape Modeling for Video-Based Cloth-Changing Person Re-identification, in *Proc. IEEE/CVF Winter Conference on Applications of Computer Vision*, pp. 173–182, 2024.

14. K. Khaldi, V. D. Nguyen, P. Mantini, and **S. K. Shah**, Unsupervised Person Re-identification in Aerial Imagery, in *Proc. IEEE/CVF Winter Conference on Applications of Computer Vision*, pp. 260–269, 2024.

15. V. D. Nguyen, K. Khaldi, D. Nguyen, P. Mantini, and **S. K. Shah**, Contrastive Viewpoint-Aware Shape Learning for Long-Term Person Re-identification, in *Proc. IEEE/CVF Winter Conference on Applications of Computer Vision*, pp. 1041–1049, 2024.

16. P. Beniwal, P. Mantini, and **S. K. Shah**, Image Quality Assessment using Deep Features for Object Detection, in *Proc. International Conference on Image Analysis and Processing*, pp. 706–714, 2022.

17. K. Khaldi, P. Mantini, and **S. K. Shah**, Unsupervised Person Re-identification Based on Skeleton Joints Using Graph Convolutional Networks, in *Proc. International Conference on Image Analysis and Processing*, pp. 135–146, 2022.

18. P. Mantini and **S. K. Shah**, CQNN: Convolutional Quadratic Neural Networks, in *Proc. 25th International Conference on Pattern Recognition (ICPR)*, pp. 9819-9826. 2021.

19. K. Khaldi and **S. K. Shah**, CUPR: Contrastive Unsupervised Learning for Person Re-identification, in *Proc. of VISAPP*, pp. 92–100, 2021.

20. M. Aqqa and **S. K. Shah**, CAR-DCGAN: A Deep Convolutional Generative Adversarial Network for Compression Artifact Removal in Video Surveillance Systems, in *Proc. of VISAPP*, pp. 455–464, 2020.

21. P. Mantini, Z. Li, and **S. K. Shah**, A Day on Campus - An Anomaly Detection Dataset for Events in a Single Camera, in *Proc. of Asian Conference on Computer Vision (ACCV)*, 2020

22. M. Aqqa and **S. K. Shah**, CAR-CNN: A Deep Residual Convolutional Neural Network for Compression Artifact Removal in Video Surveillance Systems, in *Proc. of VISAPP*, pp. 569–575, 2020.

23. M. Rahman, J. Subhlok, and **S. K. Shah**, Visual Summarization of Lecture Video Segments for Enhanced Navigation, in *Proc. of IEEE International Symposium on Multimedia (ISM)*, 2020

24. P. Beniwal, P. Mantini, and **S. K. Shah**, Assessing the Impact of Video Compression on Background Subtraction, in *Proc. Asian Conference on Pattern Recognition*, pp. 105–118, 2019.

25. F. Z. Daha and **S. K. Shah**, Learning Motion Regularity for Temporal Video Segmentation and Anomaly Detection, in *Proc. of Asian Conference on Pattern Recognition*, 2019.

26. P. Beniwal, P. Mantini, and **S. K. Shah**, Assessing the Impact of Video Compression on Background Subtraction, in *Proc. of Asian Conference on Pattern Recognition*, 2019.

27. P. Mantini and **S. K. Shah**, Camera tampering detection using generative reference model and deep learned features, in *Proc. of VISAPP*, pp. 85–95, 2019. **(Best Paper Award)**.

28. P. Mantini and **S. K. Shah**, UHCTD: A Comprehensive Dataset for Camera Tampering Detection, in *Proc. of IEEE Conference on Advanced Video and Signal Based Surveillance (AVSS)*, 2019.

29. M. Aqqa, P. Mantini, and **S. K. Shah**, Understanding How Video Quality Affects Object Detection Algorithms, in *Proc. of VISAPP*, pp. 96–104, 2019.

30. A. Barman and **S. K. Shah**, A Generalized Optimization Framework for Score Aggregation in Person Re-identification Systems, in *Proc. of IEEE Conference on Advanced Video and Signal Based Surveillance (AVSS)*, 2019.

31. A. Barman and **S. K. Shah**, SHaPE: A Novel Graph Theoretic Algorithm for Making Consensus-based Decisions in Person Re-identification Systems, in *Proc. of IEEE International Conference on Computer Vision (ICCV)*, pp. 1124-1133, 2017.

32. P. Mantini and **S. K. Shah**, A signal detection theory approach for camera tamper detection, in *Proc. of IEEE Conference on Advanced Video and Signal Based Surveillance (AVSS)*, 2017.

33. P Dou, **S. K Shah**, I. A. Kakadiaris, End-to-end 3D face reconstruction with deep neural networks, in *Proc. of IEEE Conference on Computer Vision and Pattern Recognition*, pp. 21-26, 2017.

34. L. Wei and **S. K. Shah**, Human Activity Recognition using Deep Neural Network with Contextual Information, in *Proc. of VISAPP*, pp. 34–43, 2017.

35. Q. Mirsharif, S. Sadani, **S. K. Shah**, H. Yoshida and J. Burling, A Semi-Automated Method for Object Segmentation in Infant?s Egocentric Videos to Study Object Perception, in *Proc. of International Conference on Computer Vision and Image Processing*, pp. 59–69, 2017.

36. A. Barman and **S. K. Shah**, Improving person re-identification systems: A novel score fusion framework for rank-n recognition, in *Proc. of the Tenth Indian Conference on Computer Vision, Graphics and Image Processing*, 2016.

37. Y. Wu, **S. K. Shah**, and I. A. Kakadiaris, Rendering or normalization? An analysis of the 3D-aided pose-invariant face recognition, in *Proc. of IEEE International Conference on Identity, Security and Behavior Analysis (ISBA)*, 2016.

38. X. Xu, **S. K. Shah**, and I. A. Kakadiaris, Face alignment via an ensemble of random ferns, in *Proc. of IEEE International Conference on Identity, Security and Behavior Analysis (ISBA)*, 2016.

39. Y. Wu, X. Xu, **S. K. Shah**, and I. A. Kakadiaris, Towards Fitting a 3D Dense Facial Model to a 2D Image: A Landmark-free Approach, in *Proc. of Seventh International Conference on Biometrics: Theory, Applications and Systems*, 2015.

40. P. Dou, L. Zhang, Y. Wu, **S. K. Shah**, and I. A. Kakadiaris, Pose-Robust Face Signature for Multi-View Face Recognition, in *Proc. of Seventh International Conference on Biometrics: Theory, Applications and Systems*, 2015.

41. L. Zhang, P. Dou, **S. K. Shah**, and I. A. Kakadiaris, Hierarchical Multi-Label Framework for Robust Face Recognition, in *Proc. of IAPR International Conference on Biometrics*, pp. 127–134, 2015.

42. L. Wei and **S. K. Shah**, Subject Centric Group Feature for Person Re-identification, in *Proc. of Workshop on Group and Crowd Behavior Analysis and Understanding (Computer Vision and Pattern Recognition)*, 2015.

43. P. Mantini and **S. K. Shah**, Human Trajectory Forecasting in Indoor Environments using Geometric Context, in *Proc. of Indian Conference on Computer Vision, Graphics and Image Processing*, doi: 10.1145/2683483.2683547, 2014.

44. P. Dou, Y. Wu, **S. K. Shah**, and I. A. Kakadiaris, Benchmarking 3D Pose Estimation for Face Recognition, in *Proc. of 22nd International Conference on Pattern Recognition*, pp. 190–195, 2014.

45. X. Yan, A. Cheriyadat, and **S. K. Shah**, Hierarchical Group Structures in Multi-Person Tracking, in *Proc. of 22nd International Conference on Pattern Recognition*, pp. 2221–2226, 2014.

46. X. Wu, and **S. K. Shah**, Regularized Multi-View Multi-Metric Learning for Action Recognition, in *Proc. of 22nd International Conference on Pattern Recognition*, pp. 471–476, 2014.

47. X. Yan, I. A. Kakadiaris, and **S. K. Shah**, What Do I See? Modeling Human Visual Perception for Multi-person Tracking, in *Proc. of European Conference on Computer Vision*, pp. 314–329, 2014.

48. H. Haberdar and **S. K. Shah**, Change Detection in Dynamic Scenes using Local Adaptive Transform, in *Proc. of British Machine Vision Conference*, vol. 22-8, pp. 6.1–6.12, 2013.

49. K. N. Tran, A. Bedagkar-Gala, I. A. Kakadiaris, and **S. K. Shah**, Social Cues in Group Formation and Local Interactions for Collective Activity Analysis, in *Proceedings of 9th International Conference on Computer Vision Theory and Applications*, 2013. **(Best Paper Award)**.

50. X. Zhao, W. Zhang, G. Evangelopoulus, D. Huang, **S. K. Shah**, Y. Wang, I. A. Kakadiaris, and L. Chen, Benchmarking Asymmetric 3D-2D Face Recognition Systems, in *Proceedings of 10th IEEE International Conference on Automatic Face and Gesture Recognition*, pp. 1–8, 2013.

51. X. Zhao, **S. K. Shah**, and I. A. Kakadiaris, Illumination Alignment using Lighting Ratio: Application to 3D-2D Face Recognition, in *Proceedings of 10th IEEE International Conference on Automatic Face and Gesture Recognition*, pp. 1–6, 2013.

52. D. Chu, **S. K. Shah**, and I. A. Kakadiaris, Face Recognition based on 3D Partial Data using Semi-Coupled Dictionary Learning, in *Proceedings of 10th IEEE International Conference on Automatic Face and Gesture Recognition*, pp. 1–8, 2013.

53. C. Huang, B. A. Efraty, U. Kurkure, M. Papadakis, **S. K. Shah**, and I. A. Kakadiaris, Facial Landmark Configuration for Improved Detection, in *Proceedings of IEEE International Workshop on Information Forensics and Security (WIFS)*, pp. 13–18, 2012.

54. X. Yan, X. Wu, I. A. Kakadiaris and **S. K. Shah**, To Track or To Detect? An Ensemble Framework for Optimal Selection, in *Proceedings of European Conference on Computer Vision*, pp. 594–607, 2012.

55. M. Amer, E. Bilgazyev, S. Todorovic, **S. K. Shah**, I. A. Kakadiaris, and L. Ciannelli, Fine-grained Categorization of Events in Underwater Videos by Tracking Fish, in *Proceedings of the 3rd International Workshop on Video Event Categorization, Tagging and Retrieval for Real-World Applications (in conjunction with ICCV)*, 2011.

56. T. Fang, X. Zhao, **S. K. Shah** and I. A. Kakadiaris, 4D Facial Expression Recognition, in *Proceedings of IEEE International Conference on Computer Vision (Workshop)*, pp. 1594–1601, 2011.

57. O. Ocegueda, T. Fang, **S. K. Shah** and I. A. Kakadiaris, Expressive Maps for 3D Facial Expression Recognition, in *Proceedings of IEEE International Conference on Computer Vision (Workshop)*, pp. 1270–1275, 2011.

58. B. Efraty, C. Huang, **S. K. Shah**, and I. A. Kakadiaris, Facial Landmark Detection in Uncontrolled Conditions, in *Proceedings of International Joint Conference on Biometrics*, pp. 1–8, 2011.

59. V. Vijayan, K. Bowyer, P. Flynn, D. Huang, L. Chen, M. Hansen, O. Ocegueda, **S. K. Shah**, I. A. Kakadiaris, Twins 3D Face Recognition Challenge, in *Proceedings of International Joint Conference on Biometrics*, pp. 1–7, 2011.

60. E. Bilgazyev, B. Efraty, **S.K. Shah**, and I.A. Kakadiaris, Improved Face Recognition Using Super-Resolution, in *Proceedings of International Joint Conference on Biometrics*, pp. 1–7, 2011.

61. O. Ocegueda, G. Passalis, T. Theoharis, **S. K. Shah**, and I.A. Kakadiaris, UR3D-C: Linear Dimensionality Reduction for Efficient 3D Face Recognition, in *Proceedings of International Joint Conference on Biometrics*, pp. 1–6, 2011.

62. E. Bilgazyev, B. Efraty, **S.K. Shah**, and I.A. Kakadiaris, Sparse Representation-Based Super Resolution for Face Recognition At a Distance, in *Proceedings of British Machine Vision Conference*, pp. 52.1–52.11, 2011.

63. K. N. Tran, I. A. Kakadiaris and **S. K. Shah**, Modeling Motion of Body Parts for Action Recognition, in *Proceedings of British Machine Vision Conference*, pp. 64.1–64.12, 2011.

64. X. Yan, I. A. Kakadiaris and **S. K. Shah**, Predicting Social Interactions for Visual Tracking, in *Proceedings of British Machine Vision Conference*, pp. 102.1–102.11, 2011.

65. O. Ocegueda, **S. K. Shah**, and I.A. Kakadiaris, Which parts of the face give out your identity?, in *Proc. IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, pp. 641–648, Colorado Springs, CO, June 20-25, 2011.

66. X. Wu and **S. K. Shah**, Cell Segmentation in Multispectral Images using Level Sets with Priors for Accurate Shape Recovery, in *Proc. IEEE International Symposium on Biomedical Imaging*, pp. 2117–2120, Chicago, 2011.

67. B. Efraty, M. Papadakis, A. Profitt, **S.K. Shah**, and I.A. Kakadiaris, Facial Component Landmark Detection, in *Proc. IEEE International Conference on Automatic Face and Gesture Recognition*, pp. 278–285, Santa Barbara, CA, Mar. 21-23, 2011.

68. E. Bilgazyev, **S.K. Shah**, and I.A. Kakadiaris, Comparative Evaluation of Wavelet based Super-Resolution from Video for Face Recognition at a Distance, in *Proc. IEEE International Conference on Automatic Face and Gesture Recognition*, pp. 559–565, Santa Barbara, CA, Mar. 21-23, 2011.

69. T. Fang, X. Zhao, O. Ocegueda, **S. K. Shah**, and I.A. Kakadiaris, 3D Facial Expression Recognition: A Perspective on Promises and Challenges, in *Proc. IEEE International Conference on Automatic Face and Gesture Recognition*, pp. 603–610, Santa Barbara, CA, Mar. 21-23, 2011.

70. X. Wu and **S. K. Shah**, Level Set with Embedded Conditional Random Fields and Shape Priors for Segmentation of Overlapping Objects, in *Proceedings of Asian Conference on Computer Vision*, pp. 230–241, 2010.

71. Z. Zheng, T. Fang, **S. K. Shah**, and I. A. Kakadiaris, Personalized 3D-Aided 2D Facial Landmark Localization, in *Proceedings of Asian Conference on Computer Vision*, pp. 633–646, 2010.

72. C. Hans, F. A. Merchant, and **S. K. Shah**, Decision Fusion for Urine Particle Classification in Multispectral Images, in *Proceedings of Indian Conference on Computer Vision, Graphics, and Image Processing*, pp. 419–426, 2010.

73. M. Wendt and **S. K. Shah**, Segmentation of Crystalline Lens in Photorefraction Video, in *Proceedings of Indian Conference on Computer Vision, Graphics, and Image Processing*, pp. 322–329, 2010.

74. H. Haberdar and **S. K. Shah**, Disparity Map Refinement for Video Based Scene Change Detection Using a Mobile Stereo Camera Platform, in *Proceedings of 20th International Conference on Pattern Recognition, Istanbul, Turkey*, 2010.

75. A. Gala and **S. K. Shah**, Joint Modeling of Algorithm Behavior and Image Quality for Algorithm Performance Prediction, in *Proceedings of British Machine Vision Conference*, 2010.

76. X. Wu and **S. K. Shah**, A Bottom-Up and Top-Down Model for Cell Segmentation using Multispectral Data, in *Proceedings of IEEE International Symposium on Biomedical Imaging, Rotterdam, The Netherlands*, 2010.

77. D. Chittajallu, **S. Shah**, and I. A. Kakadiaris, A Shape-Driven MRF Model for the Segmentation of Organs in Medical Images, in *Proceedings of IEEE International Conference on Computer Vision and Pattern Recognition, San Francisco, CA*, 2010.

78. B.A. Efraty, D. Chu, E. Ismailov, **S. Shah**, and I.A. Kakadiaris, Autonomous Framework for 3D-Aided Profile-Based Face Recognition, in *Proceedings of IEEE Third International Conference on Biometrics: Theory, Applications and Systems, Washington, DC*, 2009.

79. Z. Zeng, T. Fang, **S. Shah**, and I.A. Kakadiaris, Local Feature Hashing for Face Recognition, in *Proceedings of IEEE Third International Conference on Biometrics: Theory, Applications and Systems, Washington, DC*, 2009.

80. X. Wu and **S. Shah**, A Fast Band Selection Method to Increase Image Contrast for Multispectral Image Segmentation, in *Proceedings of IEEE International Symposium on Biomedical Imaging, Boston, MA*, pp. 1123–1126, 2009.

81. X. Wu and **S. Shah**, Comparative Analysis of Cell Segmentation using Absorption and Color Images in Fine Needle Aspiration Cytology, in *Proceedings of IEEE Conference on Systems, Man, and Cybernetics, Singapore*, pp. 271–276, 2008.

82. **S. Shah**, Automatic Cell Segmentation using a Shape-Classification Model, in *Proceedings of IAPR Conference on Machine Vision Applications*, pp. 428–432, 2007.

83. J. Kim and **S. Shah**, Fast stereo matching using multilevel enhancement, *Proceedings of the Third International Conference on Information Fusion*, vol. 2, 3/3–3/8, 2000.

84. **S. Shah** and J. K. Aggarwal, Statistical Decision Integration Using Fisher Criterion, *Proceedings of International Conference on Information Fusion*, pp. 722–729, San Francisco, CA, 1999.

85. J. K. Aggarwal and **S. Shah**, Bayesian Paradigm for Recognition of Objects - Innovative Applications, *Proceedings of Third Asian Conference on Computer Vision*, vol. 2, pp. 275–282, Hong Kong, January, 1998.

86. **S. Shah** and J. K. Aggarwal, Multiple Feature Integration for Robust Object Localization, *Proceedings of IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, pp. 765–771, 1998.

87. K. Sato, **S. Shah**, and J. K. Aggarwal, Partial Face Recognition using Radial Basis Function Networks, *Proceedings of International Conference on Automatic Face and Gesture Recognition*, pp. 288–293, Nara, Japan, 1998.

88. **S. Shah** and J. K. Aggarwal, Hybrid Architecture for Performance Reasoning in Object Recognition Systems, *Proceedings of International Conference on Pattern Recognition*, vol. 1, pp. 326–330, 1998.

89. H. Zhao, **S. Shah**, J. H. Choi, D. Nair, and J. K. Aggarwal, Robust Automatic Target Detection/Recognition System for Second Generation FLIR Imagery, *Proceedings of Fourth IEEE Workshop on Applications of Computer Vision*, pp. 262-263, Princeton, NJ, 1998.

90. **S. Shah** and J. K. Aggarwal, A Bayesian Segmentation Framework for Textured Visual Images, *Proceedings of Computer Society Conference on Computer Vision and Pattern Recognition*, pp. 1014–1020, Puerto Rico, June 1997.

91. **S. Shah**, J. Eledath, J. Ghosh, and J. K. Aggarwal, Multisensor Integration for Scene Analysis: An Experiment in Human Form Detection, *Proceedings of the Fourth IEEE International Conference on Image Processing*, vol. 2, pp. 199–202, Santa Barbara, CA, October, 1997.

92. **S. Shah** and J. K. Aggarwal, Modeling Structured Environments Using Robot Vision, *Proceedings of Asian Conference on Computer Vision*, pp. 297–304, Singapore, December 1995.

93. **S. Shah** and J. K. Aggarwal, Depth Estimation Using Stereo Fish-Eye Lenses, *Proceedings of First IEEE International Conference on Image Processing*, pp. 740–744, Austin, TX, November 1994.

94. **S. Shah** and J. K. Aggarwal, A Simple Calibration Procedure for Fish-Eye (High Distortion) Lens Camera, *Proceedings of IEEE International Conference on Robotics and Automation*, pp. 3422–3427, San Diego, May 1994.

Refereed Conference Papers **Published**

Other Conferences

95. F. N. Patel, H. B. Shah, and **S. K. Shah**, A Technique to Find Out Low Frequency Rare Words in Medical Cancer Text Document Classification, in *Proc. Advances in Data Computing, Communication and Security*, pp. 121–132, 2022.

96. A. Barman and **S. K. Shah**, Distance aggregation based score fusion for improving person re-identification, in *Proc. of IEEE Symposium on Technologies for Homeland Security*, 2017.

97. P. Mantini and **S. K. Shah**, Person Re-Identification using Geometry Constrained Human Trajectory Modeling, in *Proc. of IEEE Symposium on Technologies for Homeland Security*, pp. 1–6, 2015.

98. A. Gala and **S. K. Shah**, Gait-assisted Person Re-identification in Wide Area Distributed Surveillance, in *Proc. of Workshop on Human Identification for Surveillance (Asian Conference on Computer Vision)*, pp. 633–649, 2014.

99. L. Zhao, **S. K. Shah**, and F. Merchant, Longitudinal Characterization of Breast Morphology during Reconstructive Surgery, in *Proc. of IEEE International Symposium on Multimedia*, pp. 407–408, 2013.

100. E. Bilgazyev, U. Kurkure, **S. K. Shah**, and I. A. Kakadiaris, ASIE: Application-specific Image Enhancement for Face Recognition, in *Proceedings of SPIE Defense, Security, and Sensing*, pp. 87120U–87120U-9, 2013.

101. C. Hans, C. W. McCollum, M. B. Bondesson, J. Gustafsson, **S. K. Shah**, and F. A. Merchant, Automated Analysis of Zebrafish Images for Screening Toxicants, in *Proceedings of 35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, pp. 3004–3007, 2013.

102. H. Haberdar and **S. K. Shah**, Video synchronization as One-class Learning, in *Proceedings of the 27th Conference on Image and Vision Computing New Zealand*, pp. 469–474, 2012.

103. X. Zhao, **S. K. Shah** and I. A. Kakadiaris, Illumination Normalization using Self-lighting Ratios for 3D-2D Face Recognition, *Proceedings of European Conference on Computer Vision (Workshop)*, pp. 220-229, 2012.

104. J. Lee, T. Feng, W. Shi, A. Bedagkar-Gala, **S. K. Shah**, and H. Yoshida, Towards Quality Aware Collaborative Video Analytic Cloud, in *Proceedings of IEEE 5th International Conference on Cloud Computing*, pp. 147–154, 2012.

105. T. Tuna, J. Subhlok, L. Barker, V. Varghese, O. Johnson, and **S. K. Shah**, Development and Evaluation of Indexed Captioned Searchable Videos for STEM Coursework, in *Proceedings of SIGCSE: ACM Technical Symposium on Computer Science Education*, pp. 129–134, 2012.

106. T. Tuna, **S. K. Shah**, and J. Subhlok, Indexing and Keyword Search to Ease Navigation in Lecture Videos, in *Proceedings of the Applied Imagery Pattern Recognition Workshop*, pp. 1–8, 2011.

107. C. Hans, A. Shete, **S. K. Shah**, C. W. McCollum, M. B. Bondesson, and F. A. Merchant, 3D Imaging for Quantitative Assessment of Toxicity on Vascular Development in Zebrafish, in *Proceedings of 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, pp. 5969–5972, Boston, 2011.

108. A. Bose, **S. K. Shah**, G. P. Reece, M. A. Crosby, E. K. Beahm, M. C. Fingeret, M. K. Markey, and F. A. Merchant, Automated Spatial Alignment of 3D Torso Images, in *Proceedings of 33rd Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, pp. 8455–8458, Boston, 2011.

109. B. Efraty, M. Papadakis, A. Profitt, **S. K. Shah** and I.A. Kakadiaris, Pose invariant facial Component-landmark detection, in *Proc. of IEEE International Conf. on Image Processing*, pp. 569–572, Belgium, 2011.

110. K. Tran , I.A. Kakadiaris, and **S.K. Shah**, Fusion of Human Postures for Continuous Action Recognition, in *Workshop on Sign, Gesture, and Activity, European Conference on Computer Vision*, 2010.

111. X. Wu and **S. Shah**, Malignancy Detection in Fine-Needle Aspiration Biopsy of the Thyroid using Multispectral Microscopy and Bag-of-Features, in *Proceedings of Fourth International Workshop on Microscopic Image Analysis with Applications in Biology, Bethesda, MD*, 2009.

112. B. Soibam and **S. Shah**, Quantitative Comparison of Metrics for Change Detection for Video Patrolling, in *Proceedings of IEEE International Workshop on Video-Oriented Object and Event Classification, Kyoto, Japan*, 2009.

113. X. Wu and **S. Shah**, A Conditional Random Field Model for Cell Segmentation Using Multispectral Data, in *Proceedings of MICCAI Workshop on Optical Tissue Image analysis in Microscopy, Histopathology and Endoscopy, London, UK*, 2009.

114. P. Viswanath, I.A. Kakadiaris, and **S. Shah**, Simplified Error Models for Height Estimation using a Single Camera and its Applications in Visual Surveillance, in *Proceedings of IEEE Ninth International Workshop on Visual Surveillance, Kyoto, Japan*, 2009.

115. B.A. Efraty, D. Chu, E. Ismailov, **S. Shah**, and I.A. Kakadiaris, 3D-Aided Profile-based Face Recognition, in *Proceedings of IEEE International Conference on Image Processing Cairo, Egypt*, 2009.

116. J. Thigpen, X. Wu, and **S. Shah**, Multispectral Microscopy and Cell Segmentation for Analysis of Thyroid Fine Needle Aspiration Cytology Smears, in *Proceedings of 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Minneapolis, MN*, 2009.

117. X. Wu and **S. Shah**, Automated Cell Segmentation in Absorption Image of Papanicolaou Stained Cell Smears, in *Proceedings of 3rd Workshop on Microscopic Image Analysis with Applications in Biology (in conjunction with MICCAI, NY)*, 2008.

118. E. Gabriel, V. Venkatesan, and **S. Shah**, Towards High Performance Cell Segmentation in Multispectral Fine Needle Aspiration Cytology of Thyroid Lesions, in *Proceedings of 1st Workshop on High-Performance Medical Image Computing & Computer Aided Intervention (in conjunction with MICCAI, NY)*, 2008.

119. J. Thigpen, and **S. Shah**, Multispectral Microscopy for Cell Differentiation in Thyroid Cytology, in *Proceedings of IEEE Conference on Multisensor Fusion and Integration for Intelligent Systems, Seoul, Korea*, pp. 267–271, 2008.

120. J. Thigpen, **S. Shah**, and F. Merchant, Automatic Cell Differentiation using Multispectral Microscopy, in *Proceedings of 11th WSEAS International Conference in Computers*, vol. 4, pp. 616–621, 2007.

121. **S. Shah** and F. Merchant, I-FISH: Increasing Detection Efficiency for Fluorescent Dot Counting in Cell Nuclei, in *6th International Conference on Advances in Pattern Recognition, India*, pp. 220-225, 2007.

122. J. Thigpen, **S. Shah**, F. Merchant, and K. Castleman, Photometric Calibration for Automated Multispectral Imaging of Biological Samples, in *Proceedings of 1st Workshop on Microscopic Image Analysis with Applications in Biology (in conjunction with MICCAI, Copenhagen)*, pp. 27–33, 2006.

123. **S. Shah**, Quantitative Analysis of Array CGH, in *Proceedings of Workshop on Challenges in Clinical Oncology (in conjunction with MICCAI, Copenhagen)*, pp. 69–76, 2006.

124. **S. Shah**, Statistical Framework for Quantitative Analysis of Array CGH, *Proceedings of IEEE International Conference of the Engineering in Medicine and Biology Society*, pp. 5806–5809, 2006.

125. J. Thigpen, **S. Shah**, F.A. Merchant, and K. Castleman, Calibrating Multispectral Imaging System for Biological Particle Analysis under Transmitted Illumination, *Proceedings of Microscopy and Microanalysis*, vol. 12-2, pp. 1678–1679, 2006.

126. **S. Shah** and F. A. Merchant, Fluorescence Dot Counting Efficiency in Radiance Mapped Images, *Proceedings of Microscopy and Microanalysis*, vol. 12-2, pp. 1676–1677, 2006.

127. **S. Shah**, Multispectral Integration for Segmentation of Chromosome Images, *Proceedings of 11th International Conference on Computer Analysis of Images and Patterns*, pp. 506–513, France 2005.

128. **S. Shah**, J. Kim, M. Mohammed, J. Kang, N. Dzidic, and R. Locker, Genomic FISHing: Data Analysis for Chromosomal Imbalances using DNA Arrays, *24th Annual Conference of IEEE Engineering in Medicine and Biology Society and Biomedical Engineering Society*, vol. 3, pp. 2190–2191, Houston, TX, 2002.

129. **S. Shah** and J. K. Aggarwal, Hierarchical Multifeature Integration for Automatic Object Recognition in Forward Looking Infrared Images, *Proceedings of International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems*, pp. 590–599, Cairo, Egypt, 1999.

130. **S. Shah** and J. K. Aggarwal, Multichannel Integration for Landcover Classification in Satellite Imagery, *Proceedings of Asilomar Conference*, vol. 1, pp. 583–587, Monterey, CA, 1998.

131. **S. Shah** and J. K. Aggarwal, Autonomous Mobile Robot Navigation Using Fish-Eye Lenses, *Proceedings of Image Analysis Applications and Computer Graphics, Third International Computer Science Conference*, pp. 9–16, Hong Kong, 1995.

Non-Refereed Conference Papers **Published**

132. J. Thigpen, **S. Shah**, and F. Merchant, Multispectral Imaging and Automated Analysis for Cytopathology, *Proceedings of the Symposium on Digital Life Technologies: Building a Safe, Secure, and Sound (3S) Living Environment*, 2007.

133. **S. Shah** and J. K. Aggarwal, Hierarchical Multifeature Integration for Automatic Target Recognition, *Proceedings of SPIE – Volume 3720: Signal Processing, Sensor Fusion, and Target Recognition VIII*, pp. 357–365, Orlando, FL, 1999.

134. **S. Shah** and J. K. Aggarwal, Bayesian Framework for Multifeature/Multisensor Integration - Automatic Target Detection and Recognition, *Proceedings of Annual Conference on Information Sciences and Systems*, pp. 118-123, Baltimore, MD, 1999.

Abstracts **Published**

135. N. Valenzuela, P. Rao, **S. Shah**, and F. Merchant, Automated Prototype Generation for Multi-Color Karyotyping, Biomedical Engineering Society Annual Meeting, Pittsburgh, PA, 2009.

136. J. Thigpen, **S. Shah**, M. R. Schwartz, D. R. Mody, M. Scheiber–Pacht, and M. Amrikachi, The Role of Multispectral Microscopy in Differentiating Benign and Malignant Thyroid Nodules – A Pilot Study of 24 Cases, *Annual Meeting of the United States and Canadian Academy of Pathology*, Denver, CO, 2008.

137. **S. Shah** and G. Spaulding, Ultra High Throughput Cytometry, *Proceedings of the 22nd Annual Meeting of The Houston Society for Engineering in Medicine and Biology*, Houston, TX, 2005.

138. **S. Shah** and G. Spaulding, Differential Scatter Sensing for Hemocytometry, *Proceedings of the 22nd Annual Meeting of The Houston Society for Engineering in Medicine and Biology*, Houston, TX, 2005.

139. M. Mohammed, B. Bejjani, **S. Shah**, J. Lupski, and L. Shaffer, Development and Validation of a High-Resolution Genomic Microarray for Identifying Constitutional Chromosome Abnormalities, *51st Annual Meeting of the American Society of Human Genetics*, San Diego, CA, 2001.

Memberships in Professional Societies

ACM	**2014 – Present**
IEEE Computer Society	**2000 – Present**
Biomedical Engineering Society	**2002 – 2010**
Microscopy Society of America	**2005 – 2011**
SPIE-International Society for Optical Engineering	**2001 – 2003**
American Society of Human Genetics	**2001 – 2002**
International Society for Information Fusion	**1999 – 2001**

Teaching and Related Scholarship

Honors and Awards

Academic Excellence Award,
Department of Computer Science, University of Houston **2015**

John C. Butler Teaching Excellence Award,
College of Natural Science and Mathematics, University of Houston **2015**

Academic Excellence Award,
Department of Computer Science, University of Houston **2009**

Teaching related Grants and Contracts

BPC-AE: An Extended CAHSI Alliance to Broaden Participation in Graduate Studies (PI: S. Shah)
UT El Paso, National Science Foundation (Total Costs: $66,946) **2021 – 2024**

Security Technologies Kitchen (PI: S. Shah, Co-PI: I. A. Kakadiaris)
Department of Homeland Security (Project under DHS Center of Excellence for Borders, Trade and Immigration Research (Total Costs: $659,603) **2015 – 2020**

Preparing Computer Science Students for Global Challenges of the Twenty-first Century (PI: PI: R. Verma, Co-PIs: S. Shah, S. Huang, and C. Yun)
National Science Foundation (Total Costs: $583,597) **2014 – 2017**

QEP: Redesigning Courses in Visual Computing (PI: I. A. Kakadiaris, Co-PI: S. Shah)
University of Houston (Total Costs: $10,000) **2012 – 2013**

Automatic Indexing and Captioning of Tablet PC Based Video Lectures for Computer Science Coursework (PI: J. Subhlok, Co-PIs: S. Shah, O. Johnson, Z. Deng)
National Science Foundation (Total Costs: $459,115) **2008 – 2013**

Teaching and Student Mentoring

Courses Taught (since 2010)

COSC 1336, Computer Science and Programming **Fall 2024**

COSC 3337, Data Science I **Spring 2024**

COSC 3337, Data Science I **Fall 2023**

COSC 2306, Data Programming **Spring 2023**

COSC 2306, Data Programming **Fall 2022**

COSC 2306, Data Programming **Spring 2022**

COSC 2306, Data Programming **Fall 2021**

COSC 6380, Data Image Processing **Spring 2021**

COSC 1306, Computer Science and Programming **Fall 2020**

COSC 6373, Computer Vision **Spring 2020**

COSC 1306, Computer Science and Programming (Co-taught with J. Subhlok) **Fall 2019**

COSC 4393/6380, Data Image Processing (Co-taught with P. Mantini) **Spring 2019**

COSC 1306, Computer Science and Programming (Co-taught with J. Subhlok) **Spring 2019**

COSC 1306, Computer Science and Programming **Fall 2018**

COSC 4397, Physical Computing for Image Analytics **Spring 2017**

COSC 1306, Computer Science and Programming (Co-taught with J. Subhlok) **Fall 2017**

COSC 4397, Physical Computing for Image Analytics (New course developed & taught) **Spring 2017**

COSC 6373, Computer Vision **Spring 2017**

COSC 4393/6380, Data Image Processing **Fall 2016**

COSC 4354/6354, Software Development Practices (Co-taught with V. Subramaniam) **Spring 2016**

COSC 4393/6380, Data Image Processing **Fall 2015**

COSC 4354/6354, Software Development Practices (Co-taught with V. Subramaniam) **Spring 2015**

COSC 4393/6380, Data Image Processing **Fall 2014**

COSC 6343, Topics in Pattern Analysis: Markov Models (New course developed & taught) **Summer 2014**

COSC 6373, Computer Vision (Guest lectures) **Spring 2016**

COSC 6397, Big Data Analytics (Guest Lectures) **Spring 2016**

COSC 4354/6354, Software Development Practices (Co-taught with V. Subramaniam) **Spring 2014**

COSC 4393/6380, Data Image Processing **Fall 2013**

COSC 4354/6354, Software Development Practices (Co-taught with V. Subramaniam) **Spring 2013**

COSC 4397, Visual Computing (New course developed and co-taught with I. Kakadiaris) **Spring 2013**

COSC 4393/6380, Data Image Processing **Fall 2012**

COSC 7373, Advanced Computer Vision **Spring 2012**

COSC 4393/6380, Data Image Processing **Fall 2011**

COSC 6373, Computer Vision **Spring 2011**

COSC 4393/6380, Data Image Processing **Fall 2010**

Advising

Fellows

- Dr. Pranav Mantini (Research Scientist) 2016-Present.
- Dr. Xuqing Wu (Postdoctoral Fellow) 2011-2013.
- Dr. Georgios Evangelopoulos (Postdoctoral Fellow) (Co-advised with Prof. Kakadiaris), 2011–2013.
- Dr. Xi Zhao (Postdoctoral Fellow) (Co-advised with Prof. Kakadiaris), 2010–2012.
- Dr. Zhihong Zeng (Research Assistant Professor) (Co-advised with Prof. Kakadiaris), 2008–2010.
- Dr. Boris Efraty (Postdoctoral Fellow) (Co-advised with Prof. Kakadiaris), 2008–2011.

Current Students

- Ms. Samiha Mirza (Ph.D., expected December 2025)
- Mr. Vuong Nguyen (Ph.D., expected Summer 2025)
- Ms. Rahma Aloui (Ph.D., expected Summer 2026)
- Ms. Monika Kommineni (M.S., expected May 2025)
- Mr. Shireesh Kumar (M.S., expected May 2025)
- Ms. Hanna Asfaw (B.S., expected December 2025)
- Ms. Angelina Zeng (B.S., expected May 2026)

Graduated (Ph.D.)

- Ms. Khadija Khaldi (Ph.D., Spring 2023)
- Ms. Poonam Beniwal (Ph.D., Summer 2022)
- Mr. Miloud Aqqa (Ph.D., Fall 2020)
- Ms. Fatima Daha (Ph.D., Summer 2020)
- Mr. Arko Barman (Ph.D., Spring 2018)
- Ms. Qazaleh Mirsharif (Ph.D., Summer 2017)
- Mr. Li Wei (Ph.D., Fall 2016)
- Mr. Pranav Mantini (Ph.D., Fall 2015)
- Ms. Charu Hans (Ph.D., Spring 2015)
- Ms. Lijuan Zhao (Ph.D., Spring 2015) (Co-advised with Prof. Merchant)
- Mr. Xu Yan (Ph.D., Summer 2014)
- Ms. Apurva Gala (Ph.D., Spring 2014)
- Mr. Hakan Haberdar (Ph.D., Summer 2013)
- Mr. Khai Tran (Ph.D., Summer 2013)
- Mr. Benjamin Soibam (Ph.D., Spring 2012)
- Mr. Xuqing Wu (Ph.D., Spring 2011)

Graduated (M.S. and B.S.)

- Mr. Carter Ung (B.S., Fall 2024)
- Mr. Zhenggang Li (M.S., Spring 2022)
- Ms. Shikha Tripathi (M.S., Fall 2019)
- Mr. Justin Brown (M.S., Summer 2019)
- Mr. Sidharth Sadani (M.S., Summer 2018)
- Mr. Prashanth Reddy (M.S., Spring 2018)
- Ms. Kinjal Kotadia (M.S., Spring 2018)
- Mr. Yaser Karbaschi (M.S., Spring 2018)
- Mr. Irteza Nasir (M.S., Spring 2018)
- Ms. Can Cao (M.S., Summer 2016)
- Mr. David Chotard (M.S., Summer 2015)

- Mr. Adrien Sitter (M.S., Summer 2015)
- Mr. Ilyes Sghir (M.S., Summer 2014)
- Mr. Joseph Dombrowski (M.S., Fall 2013)
- Mr. Varun Maheshwari (M.S., Summer 2013)
- Mr. Daniel Biediger (M.S., Fall 2012)
- Mr. Arnaud Bonset (M.S., Summer 2012)
- Mr. Ashish Kapadia (M.S., Spring 2012)
- Mr. Sandeep Belure (M.S., Spring 2011)
- Mr. Joseph Mathew (M.S., Summer 2010)
- Mr. Divye Kumar (M.S., Spring 2010)
- Ms. Charu Hans (M.S., Spring 2010)
- Mr. Arunim Devroy (M.S., Fall 2009)
- Mr. Benjamin Soibam (M.S., Summer 2009)
- Mr. Prashanth Viswanath (M.S., Spring 2009)
- Mr. Vyom Munshi (M.S., Fall 2008)
- Mr. Mark Wendt (M.S., Fall 2008)
- Ms. Mary Chou (M.S., Summer 2008)
- Mr. James Thigpen (M.S., Summer 2007)

Service

Service to the Department, College, and University

Department Chair, Computer Science **2019 – Present**

Member, University Intellectual Property Committee **2020 – Present**

Associate Chair, Computer Science **2016 – 2019**

Chair, Undergraduate Committee of the Faculty Senate **2016 – 2018**

Member of the Faculty Senate **2012 – 2018**

Faculty Advisor, CS GSA (Graduate Student Association)	**2019 – Present**
Faculty Advisor, CSGirls (ACM-W Chapter)	**2013 – 2016**
Member of the NSM Teaching Excellence Award Committee	**2013 – 2015**
Member of the NSM Undergraduate Committee	**2011 – 2015**
Member of the CS Department Undergraduate Committee	**2010 – 2015**
Member of the CS Department Undergraduate Committee	**2010 – 2016**
Director of Undergraduate Studies, Computer Science	**2010 – 2016**
STAR Mentor	**2010 – 2016**
Member of the Department Industrial Advisory Committee, Computer Science	**2007 – 2009**
Member of the Department Recruiting Committee, Computer Science	**2008 – 2009**
Participated in recruiting efforts and faculty visits to expand research and teaching relationships with National Cheng Kung University, University of La Rochelle, and University of Lyon, Computer Science	**2007**
Organized and managed the High School Programming Contest at the Department Open House, Computer Science	**2006 – 2007**
Member of the Department Space Committee, Computer Science	**2006 – 2008**
Served as Mentor to Computer Science Undergraduates in the REU program	**2008 – 2015**
Member of the City of Houston Mayor's IT Task Force, Houston	**2010 – 2011**
Served as Mentor to the High School Science Club	**2005–2007, 2009–2010, 2011–2012**
Served as a judge at the Science and Engineering Fair of Houston	**2006–2008, 2010–2012**
Served on the Scientific Advisory Board, Houston Community College, Biotechnology Program	**2003–2009**
Served on the Scientific Advisory Board, San Jacinto College, Biotechnology Program	**2005–2009**
Served on the Biotech Advisory Committee, College of Technology, University of Houston	**2006–2008**
Served on the Board of Directors, TiE: The Indus Entrepreneurs	**2003–2007**