

CURRICULUM VITAE

Alireza Tavakkoli, Ph.D.

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Associate Professor of Computer Science

Chair of STEM Division

Digital Gaming and Simulation Program Director

School of Arts and Sciences

University of Houston – Victoria

Victoria, TX 77901

RESEARCH STATEMENT

I am interested in designing, developing, and evaluating systems that utilize mathematical and computational tools to help enable us efficiently interact with the world around us or in our imagination. To this end, I investigate the use of artificial intelligence and visual computing in applications ranging from simulation and gaming to robotics and human computer interaction. To learn more about my research and projects, please visit my Lab website (<http://ai.uhv.edu/cave>) or my academic page (<http://ai.uhv.edu/tavakkoli>). I hope to inspire my students and to help them design technologies to impact the world for generations.

TEACHING PHILOSOPHY

Growing up in a family of teachers, I have developed an intense passion for reaching out to all generations through education. During my tenure at the University of Houston-Victoria my teaching skills have improved by teaching a number of courses in digital gaming as well as theoretical and applied computer science. I use a diverse set of techniques in working with a wide range of students from freshmen to graduate students, effectively. My pedagogy has evolved from reliance on traditional lecturing techniques to a multimodal approach, which helps me successfully teach materials in face to face, online, and hybrid courses.

RESEARCH INTERESTS

- Artificial Intelligence and Machine Learning
 - Behavioral Modeling
 - Deep Learning
 - Intelligent Environments
 - Intent and Activity Recognition in the Visual Domain
- Human-Computer Interaction and Gaming
 - Immersive Virtual Reality
 - 3D User Interface Design
 - Serious Games
- Robotics
 - Tele-exploration
 - Tele-presence
 - Tele-robotics
- Parallel and High Performance Computing
 - Visual Computation with Graphics Processing Units

APPOINTMENTS

Chair <ul style="list-style-type: none">• STEM Department	University of Houston-Victoria	SEP 2017 – Present
Associate Chair <ul style="list-style-type: none">• STEM Department	University of Houston-Victoria	SEP 2015 – SEP 2017
Associate Professor <ul style="list-style-type: none">• Computation and Advanced Visualization Engineering Laboratory Director• Associate Director of Faculty Computing• Digital Gaming and Simulation Program Director• Master of Science in Computer Science Program Director	University of Houston-Victoria	SEP 2015 – Present
Assistant Professor <ul style="list-style-type: none">• Computer Science Department – Faculty Member	University of Houston-Victoria	SEP 2009 – SEP 2015
Research Fellow <ul style="list-style-type: none">• Object Tracking in Videos with Complex Quasi-Stationary Backgrounds	University of Nevada, Reno (NSF)	JUL 2006 – JUN 2008
Research Assistant <ul style="list-style-type: none">• Understanding of Activity and Intent in Videos in Visual Spectrum	University of Nevada, Reno	JAN 2005 – MAY 2009
Software Engineer and System Designer <ul style="list-style-type: none">• Design and Implementation of Trans-coder Modules for MMS Systems• Member of Signal Processing Team at Eimaa Telecommunication Inc.	Eimaa Telecommunication Inc., Iran	JAN 2004 – AUG 2004

Research Assistant	Sharif University of Technology, Tehran, Iran	SEP 2001 – FEB 2004
<ul style="list-style-type: none"> ● Content-Based Video Compression for Distant Learning Applications 		

EDUCATION

Ph.D. in Computer Science and Engineering	University of Nevada, Reno	MAY 2009
Advisor Dr. Mircea Nicolescu		
Dissertation A Non-Parametric Framework for Object Tracking in Videos with Quasi-Stationary Backgrounds		
M.Sc. in Computer Science and Engineering	University of Nevada, Reno	DEC 2006
Advisor Dr. Mircea Nicolescu		
Thesis Segmentation for Videos with Quasi-Stationary Backgrounds - A Non-Parametric Approach		
M.Sc. in Digital Electronics	Sharif University of Technology, Tehran, Iran	FEB 2004
Advisor Dr. Esmaeil Sanai and Dr. Shohreh Kasaei		
Thesis Content-Based Video Compression with Application to Distance Learning		
B.Sc. in Electronics	Sharif University of Technology, Tehran, Iran	SEP 2001
Advisor Dr. Bijan Vosoughi-Vahdat		
Thesis Design and Implementation of an 8-Bit Microprocessor with FPGA		

GRANT AWARDS / APPLICATIONS

AWARDED

Army Research Office – PI	\$412,457	SEP 2015 – SEP 2018
<ul style="list-style-type: none"> ● “Basic, Applied, and Advanced Research in Science and Engineering” Solicitation ● Tele-presence for Efficient Tele-robotics through Immersive Virtual Reality 		
Army Research Office – PI (co-PI: Donald Loffredo)	\$179,297	SEP 2016 – SEP 2017
<ul style="list-style-type: none"> ● “Basic, Applied, and Advanced Research in Science and Engineering” Solicitation ● Enhancing Tele-robotics with Immersive Virtual Reality 		
National Aeronautics and Space Administration– PI	\$100,000	SEP 2015 – SEP 2017
<ul style="list-style-type: none"> ● “MUREP Advanced STEM Training and Research (ASTAR) Fellowship” Solicitation ● Autonomous Cargo Manipulation using Parallelized Visual Odometry (Fellow: Bandon Wilson) 		
Texas Higher Education Academic Fund – PI	\$405,000	SEP 2014 – AUG 2018
<ul style="list-style-type: none"> ● Research and Teaching Infrastructure Upgrades ● Establish a Comprehensive Robotics and Gaming Facility 		
ALCOA Foundation Math/Computer Science/Robotics Consortium – PI	\$145,000	SEP 2011 – AUG 2018
<ul style="list-style-type: none"> ● Alcoa Foundation for Robotics/Engineering ● Robotics Research and Education Consortium for High School Students 		
UHV Internal Research Grant – PI	\$6,000	SEP 2015 – AUG 2016
<ul style="list-style-type: none"> ● Faculty Research Competition Solicitation ● Immersive Virtual Reality for Tele-robotics 		
Army Research Office – PI	\$4,800	JUN 2015 – SEP 2015
<ul style="list-style-type: none"> ● “Basic, Applied, and Advanced Research in Science and Engineering” Solicitation ● High School and Undergraduate Research Apprenticeships 		
Army Research Office – PI (co-PI: Donald Loffredo, Li Chao)	\$191,566	DEC 2014 – DEC 2015
<ul style="list-style-type: none"> ● “Basic, Applied, and Advanced Research in Science and Engineering” Solicitation ● Immersive Virtual Reality with Applications to Tele-Operation and Training 		
UHV Internal Grant Application – co-PI (PI: Mary Lasater)	\$6,000	SEP 2014 – AUG 2015
<ul style="list-style-type: none"> ● Contributed to the technical content of the grant proposal ● Utilizing On-line Fluency-Building Games to Enhance Exam Preparation for Teacher Education Students 		
Texas Higher Education Academic Fund – PI	\$525,000	SEP 2011 – AUG 2014
<ul style="list-style-type: none"> ● Established Computation and Advanced Visualization Engineering Laboratory ● Digital Gaming and Simulation Program Private-Public Partnership 		

UHV Internal Research Grant – PI	\$6,000	SEP 2012 – AUG 2013
<ul style="list-style-type: none">• Authored the intelligent robotics grant proposal to the office of research administration• Detection of Threat in Multi-Agent Robotics Environments		
UHV Junior Faculty Summer Research Grant – PI	\$10,000	JUL 2010 – SEP 2010
<ul style="list-style-type: none">• Authored the grant proposal to the office of research administration for the summer research• Evaluating the Performance Improvement of Visual Surveillance by Employing Intent Recognition		
Office of Naval Research (Student Investigator)	\$1,162,864	JUL 2006 – JUL 2012
<ul style="list-style-type: none">• Contributed to the technical contents of the proposal, (PI: Dr. Monica Nicolescu)• Context-Based Intent Understanding for Autonomous Systems in Naval and Collaborative Robotics		
NSF Nevada EPSCoR Grant in Cognitive Information Processing	\$75,600	JUL 2006 – JUN 2008
<ul style="list-style-type: none">• Graduate Student Fellowship (PI: Dr. Mircea Nicolescu)• A Non-parametric Framework for Object Tracking in Videos with Quasi-stationary Backgrounds		

SUBMITTED / UNDER REVIEW

National Aeronautics and Space Administration– PI	\$100,000	SEP 2017
<ul style="list-style-type: none">• “Aeronautics Scholarship and Advanced STEM Training and Research (AS&ASTAR) Fellowship• Enhancing Space Tele-robotics through Intuitive Intent Prediction and Recognition (Fellow: Sean Simmons)		
National Science Foundation – PI (co-PIs: Donald Loffredo)	\$499,142	NOV 2016
<ul style="list-style-type: none">• Authored the grant proposal for the “Cyber-Human Systems” Solicitation• A Unified Immersive Virtual Reality Framework for Teleoperation and Telepresence		
Johnson Foundation – PI	\$2,499,899.70	FEB 2016
<ul style="list-style-type: none">• Community Enhancement Projects• Virtual Victoria – An Immersive 3D Virtual Environment		
NASA – PI (co-Is: Donald Loffredo (UHV), Li Chao (UHV), George Bebis (UNR), Mircea Nicolescu (UNR), Monica Nicolescu (UNR), Terry Fong (Ames), and Michael Wolf (JPL))	\$4,874,072	JAN 2015
<ul style="list-style-type: none">• Authored the grant proposal for MUREP Institutional Research Opportunity (MIRO) Solicitation• Robotics Tele- and Co-operation with Virtual Reality		
Office of Naval Research – PI	\$120,800	SEP 2013
<ul style="list-style-type: none">• Authored the grant proposal• Immersive Virtual Reality Naval Simulation with Intelligent Robotic Environments		
Entertainment Software Association– PI	\$30,000	SEP 2013
<ul style="list-style-type: none">• Authored the grant proposal• K-12 Educational Engagement in STEM Fields by Utilizing Digital Gaming and Simulation		
National Science Foundation – PI (co-PIs: Donald Loffredo)	\$499,073	DEC 2012
<ul style="list-style-type: none">• Authored the grant proposal for the “Human Centered Computing” Solicitation• Immersive Virtual Reality for Cooperative Human Robotics Integration		
National Science Foundation – PI (co-PIs: Donald Loffredo, Richard Gunasekera, Siva Somasundaram)	\$998,731	JAN 2011
<ul style="list-style-type: none">• Authored the grant proposal for the “Algorithms for Threat Detection” Solicitation• Early Detection of Infectious Diseases in Subgroups of Human Populations Using Genetic Interactions between Human and Pathogen Organism Genomes		

TEACHING EXPERIENCE

Associate Professor	University of Houston – Victoria
<ul style="list-style-type: none">• 2017<ul style="list-style-type: none">• Automata and Formal Languages (COSC 6346)• Gaming Senior Project (GMNG 4340) (4.8)• Parallel Programming (COSC 6338) (4.4)• 2016<ul style="list-style-type: none">• AI and Behavioral Modeling (GMNG 4322)	

- Advanced Level Design (GMNG 4316)
- Digital Design with FPGA (COSC 6302) **New Course**
- Automata and Formal Languages (COSC 6346) (4.6)
- Gaming Networks Architecture (GMNG 4314) (4.4)

Assistant Professor **University of Houston – Victoria**

- 2015
 - Advanced Level Design (GMNG 4316) (5.0)
 - Gaming Network Architecture (GMNG 4314/6314) (5.0)
 - 3D Modeling (GMNG 3310) (5.0)
 - Internet Programming (COSC 6341) (4.8)
 - Internet Computing (COSC 4341) (4.5)
 - Game Engines Architecture (GMNG 4312) (5.0)
 - Parallel Programming (COSC 6338) (4.6)
 - AI and Behavioral Modeling (GMNG 4322/6343) (4.8)
- 2014
 - Automata and Formal Languages (COSC 6346) (5.0) **New Course**
 - Artificial Intelligence and Behavioral Modeling (GMNG 4322) (4.4)
 - Advanced Animation (GMNG 4318) (5.0)
 - Internet Programming (COSC 6341) (4.6)
 - Internet Computing (COSC 4341) (5.0)
 - Computer Architecture and Parallel Processing (COSC 6338) (5.0) **New Course**
 - 3D Modeling (GMNG 3310) (5.0)
 - Fundamentals of Programming II (COSC 1437) (4.6)
- 2013
 - Artificial Intelligence (GMNG 4322) (4.2)
 - Advanced Level Design (GMNG 4316) (4.5)
 - Gaming Networks Architecture (GMNG 4314) (4.6)
 - Fundamentals of Programming I (COSC 1436) (4.5)
 - Internet Programming (COSC 6341) (4.5)
 - Internet Computing (COSC 4341) (4.8)
 - Fundamentals of Programming II (COSC 1437) (4.5) **New Course**
 - Fundamentals of 3D Modeling (GMNG 6311/3310) (4.8)
 - Art for Gaming (GMNG 4317) (4.5)
 - Gaming Senior Project (GMNG 4340) (5.0)
- 2012
 - Fundamentals of Programming I (COSC 1436) (4.7)
 - Multimedia Development and Programming (COSC 6310) (4.6)
 - Fundamentals of Game Networks Architecture (GMNG 6314/4314) (5.0)
 - Advanced Animation (GMNG 4318) (5.0) **New Course**
 - Internet Programming (COSC 6341) (4.5)
 - Internet Computing (COSC 4341) (4.8)
 - Intelligent Agents and Applications (COSC 6343) (4.9)
 - Advanced Leveling (GMNG 4316) (5.0)
 - Game Engines (GMNG 4312) (5.0) **New Course**
- 2011
 - Artificial Intelligence and Behavioral Modeling (COSC/GMNG 4322) (5.0)
 - Technology and Problem Solving (COSC 1301) (4.5)
 - 3D Modeling (GMNG 3310) (4.9) **New Course**
 - Intelligent Agents and Applications (COSC 6343) (4.0)
 - Internet Programming (COSC 4341) (4.7)
 - Multimedia Development and Computing (COSC 6310) (4.3) **New Course**
 - Art for Gaming (GMNG 4317) (5.0) **New Course**
 - Technology and Problem Solving (COSC 1301) (4.2)
- 2010
 - Intelligent Agents and Applications (COSC 6343) (4.8) **New Course**
 - Internet Computing/Programming (COSC 6341/4341) (4.9)
 - Technology and Problem Solving (COSC 1301) (4.4) **New Course**
 - Data Mining and Data Warehousing (ISC 6329) (4.7)

- Advanced Level Design (GAM 4316 / ISC 6300) (4.5) **New Course**
- Client /Server Computing (ISC 4340) (4.2) **New Course**
- Fall 2009
- Special Topics in ISC – Computer Vision (ISC 4300) (5.0) **New Course**
- AI and Behavioral Modeling (ISC/GAM 4322-6300) (5.0)
- Multimedia Development and Programming (ISC 6310) (4.3) **New Course**

Teaching Assistant

University of Nevada, Reno

- Introduction to Computer Engineering (CPE 201) **AUG 2008 –MAY 2009**
Prepared and delivered laboratory lectures, graded assignments, and held office hours.

Teaching Assistant

Sharif University of Technology

- Advanced Digital Image Processing **SEP 2003 – FEB 2004**
- Computer Structure and Machine Languages **FEB 2001 – FEB 2003**
- Electronics I Laboratory **MAY 2002 – SEP 2002**

PUBLICATIONS

Books

- [B.1] **Alireza Tavakkoli**, *Game Development and Simulation with Unreal Technology*, AK Peters/CRC-Press, August 2015, ISBN: 9781498706247.

Book Chapters

- [BC.5] Thierry Bouwmans, **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, Junxian Wang, "Statistical Models for Background Subtraction: Support Vector Machines", in *Background Subtraction for Moving Object Detection: Theory and Practices*, CRC Press, in press.
- [BC.4] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, Junxian Wang, "Background Learning with Support Vectors: Efficient Foreground Detection and Tracking for Automated Visual Surveillance", *Background Modeling and Foreground Detection for Video Surveillance*, CRC Press, 2014.
- [BC.3] Richard Kelley, **Alireza Tavakkoli**, Christopher King, Amol Ambardekar, Liesl Wigand, Monica Nicolescu, Mircea Nicolescu, "Intent Recognition for Human-Robot Interaction", *Plan, Activity, and Intent Recognition*, Elsevier, 2014.
- [BC.2] Richard Kelley, **Alireza Tavakkoli**, Christopher King, Monica Nicolescu, Mircea Nicolescu, "Understanding Activities and Intentions for Human-Robot Interaction", *Advances in Human-Robot Interaction*, In-Tech, 2010.
- [BC.1] **Alireza Tavakkoli**, "Novelty Detection: Approaches and Applications", *Pattern Recognition*, In-Tech, 2009.

Journal Articles

- [J.12] Brandon Wilson, **Alireza Tavakkoli**, "An Efficient Parallel Architecture to Accelerate Non-Parametric Background Modeling", *under submission to the International Journal of Artificial Intelligence Tools (IJAIT)*, Under Submission.
- [J.11] Donald Loffredo, **Alireza Tavakkoli**, "Analyzing Motives, Preferences, and Experiences in Video Game Play", in *Journal of Systemics, Cybernetics, and Informatics*, 15(2), pp. 32-37, 2017.
- [J.10] Donald Loffredo, **Alireza Tavakkoli**, "What are European Union Public Attitudes towards Robots?", in *Journal of Systemics, Cybernetics, and Informatics*, 14(1), pp. 11-19, 2016.
- [J.9] **Alireza Tavakkoli**, Donald Loffredo, Mark Ward Sr., "What do Deep Statistical Analyses on Gaming Motivation and Game Characteristics Clusters Reveal about Targeting Demographics when Designing Gamified Contents?", *Journal of Systemics, Cybernetics, and Informatics*, 13(3), pp. 34-40, 2015.
- [J.8] **Alireza Tavakkoli**, Donald Loffredo, Mark Ward Sr., "Insights from Massively Multiplayer Online Role Playing Games to Enhance Gamification in Education", in *Journal of Systemics, Cybernetics, and Informatics*, 12(4), pp. 69-78, 2014.
- [J.7] Anson Brown, **Alireza Tavakkoli**, Donald Loffredo, Hashimul Ehsan, "Interactive Level Design for iOS Assignment Delivery", in *Journal of Systemics, Cybernetics, and Informatics*, 12(1), pp. 27-38, 2014.
- [J.6] **Alireza Tavakkoli**, Donald Loffredo, "Can Human Visual Surveillance be Improved with Intent Recognition?", in *Journal of Systemics, Cybernetics, and Informatics*, 11(1), pp. 43-50, 2013.
- [J.5] Matthew Boyett, **Alireza Tavakkoli**, Dmitri Sobolev, "Mathematical modeling of competition for ammonia among Bacteria, Archaea and cyanobacteria within cyanobacterial mats: can ammonia-oxidizers force nitrogen fixation?", in *Ocean Science Journal*, 48(3), pp. 269-277, 2013.

- [J.4] Richard Kelley, **Alireza Tavakkoli**, Christopher King, Amol Ambardekar, Mircea Nicolescu, and Monica Nicolescu, "Context-Based Bayesian Intent Recognition", to appear in *Transactions on Autonomous Mental Development*, 4(3), pp. 215-225, 2012.
- [J.3] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, Monica Nicolescu, "Non-parametric Statistical Background Modeling for Efficient Foreground Region Detection", *International Journal of Machine Vision and Applications*, 20(6), pp. 395-409, October 2009.
- [J.2] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, Monica Nicolescu, "A Support Vector Data Description Approach for Background Modeling in Videos with Quasi-Stationary Backgrounds", *International Journal of Artificial Intelligence Tools*, 17(4), pp. 635-658, August 2008.
- [J.1] Richard Kelley, Christopher King, **Alireza Tavakkoli**, Mircea Nicolescu, Monica Nicolescu, George Bebis, "An Architecture for Understanding Intent using Novel Hidden Markov Formulation", Special Issue on Cognitive Humanoid Robots, *International Journal of Humanoid Robotics*, 5(2), pp. 203-224, June 2008.

Peer Reviewed Conference Proceedings / Posters

- [C.37] **Alireza Tavakkoli**, Jace Regembrecht, Brandon Wilson, David McFadden. "Augmented Virtuality: A Real-time Process for Presenting Real-world Visual Sensory Information in an Immersive Virtual Environment for Planetary Exploration ", in *Innovative Visualization Technologies for Earth and Space Science Applications III: Immersive Technologies Workshop* (with the American Geophysical Union Conference), New Orleans, LA, December 2017.
- [C.36] Jace Regembrecht, **Alireza Tavakkoli**, Donald Loffredo, "A Robust and Intuitive 3D Interface for Teleoperation of Autonomous Robotic Agents through Immersive Virtual Reality Environments", in *Proceedings of the IEEE 3D User Interfaces Symposium (3DUI)*, Los Angeles, CA, March 2017.
- [C.35] David McFadden, **Alireza Tavakkoli**, Donald Loffredo, "Automatic Environment Map Construction for Mixed Reality Robotic Applications", in *the Proceedings of the International Symposium on Visual Computing*, Las Vegas, NV, December 2016.
- [C.34] Matthew Bounds, Brandon Wilson, **Alireza Tavakkoli**, Donald Loffredo, "An Integrated Cyber-Physical Immersive Virtual Reality Framework with Applications to Telerobotics", in *the Proceedings of the International Symposium on Visual Computing*, Las Vegas, NV, December 2016.
- [C.33] Brandon Wilson, **Alireza Tavakkoli**, Robert Deen, "A Portable and Unified CPU/GPU Parallel Implementation of Surface Normal Generation Algorithm from 3D Terrain Data", in *the Proceedings of the International Symposium on Visual Computing*, Las Vegas, NV, December 2016.
- [C.32] Matthew Bounds, Brandon Wilson, **Alireza Tavakkoli**, Donald Loffredo "An Integrated Architecture for Telerobotics Aided by Immersive Virtual Reality", in *Proceedings of the 25th IEEE International Symposium on Robot and Human Interactive Communication (Ro-Man)*, New York, NY, August 2016.
- [C.31] Jace Regembrecht, **Alireza Tavakkoli**, Donald Loffredo, "An Intuitive Human Interface for Remote Operation of Robotic Agents in Immersive Virtual Reality Environments", in *Proceedings of the 25th IEEE International Symposium on Robot and Human Interactive Communication (Ro-Man)*, New York, NY, August 2016.
- [C.30] Donald Loffredo, **Alireza Tavakkoli**, "Analyzing Motives, Preferences, and Experiences in Video Game Play", in *the Proceedings of World Multi-conference on Systemics, Cybernetics, and Informatics*, Orlando, FL, July 2016.
- [C.29] Brandon Wilson, Matthew Bounds, **Alireza Tavakkoli**, "Real-Time Hand Motion Integration with Full Body Animation in Immersive Virtual Environments", in *Software Engineering and Architectures for Real-time Interactive Systems (in conjunction w/ IEEE Virtual Reality Conference)*, Greenville, SC, March 2016.
- [C.28] Brandon Wilson, Matthew Bounds, **Alireza Tavakkoli**, "A Full-Body Motion Calibration and Retargeting for Intuitive Object Manipulation in Immersive Virtual Environments", in *the Proceedings of IEEE Virtual Reality Conference*, Greenville, SC, March 2016.
- [C.27] Brandon Wilson, **Alireza Tavakkoli**, "An Efficient Non-parametric Background Modeling Technique with CUDA Heterogeneous Parallel Architecture", in *the Proceedings of 11th International Symposium on Visual Computing*, Las Vegas, NV, December 2015.
- [C.26] **Alireza Tavakkoli**, Donald Loffredo, Mark Ward Sr., "What do Deep Statistical Analyses on Gaming Motivation and Game Characteristics Clusters Reveal about Targeting Demographics when Designing Gamified Contents? " (Best Paper), in *the Proceedings of 19th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2015*, Orlando, FL, July 2015.
- [C.25] **Alireza Tavakkoli**, Donald Loffredo, Mark Ward Sr., "Lessons from Game Studies to Enhance Gamification in Education" (Best Paper), in *the Proceedings of 18th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2014*, Orlando, FL, July 2014.
- [C.24] Anson Brown, **Alireza Tavakkoli**, Donald Loffredo, Hashimul Ehsan, "Integrating Interactive Level Design for iOS Assignment Delivery: Engaging Students with Technology" (Best Paper), in *the Proceedings of 17th World Multi-Conference on Systemics, Cybernetics and Informatics: WMSCI 2013*, Orlando, FL, July 2013.

- [C.23] Kolawole Akintola, **Alireza Tavakkoli**, "A Novel Gait Recognition System Based on Hidden Markov Models", in *the Proceedings of the 8th International Symposium on Visual Computing*, Crete, Greece, July 2012.
- [C.22] Kolawole Akintola, **Alireza Tavakkoli**, "Robust Foreground Detection in Videos using Adaptive Color Histogram Thresholding and Shadow Removal", in *the Proceedings of the 7th International Symposium on Visual Computing*, Las Vegas, NV, September 2011.
- [C.21] **Alireza Tavakkoli**, Donald Loffredo, "Efficient Video Surveillance with Intent Recognition"^(Best Paper), *Proceedings of the 15th World Multi-Conference on, Systemics, Cybernetics, and Informatics*, Orlando, FL, July 2011.
- [C.20] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis "A Spatio-Spectral Algorithm for Robust and Scalable Object Tracking in Videos", in *the Proceedings of the 6th International Symposium on Visual Computing*, Las Vegas, NV, 10 pages, December 2010.
- [C.19] Amol Ambardekar, **Alireza Tavakkoli**, Monica Nicolescu, Mircea Nicolescu, "A Developmental Framework for Visual Learning in Robotics", in *the Proceedings of the 14th International Conference on Image Processing, Computer Vision, and Pattern Recognition*, Las Vegas, NV, 6 pages, July 2010.
- [C.18] Richard Kelley, **Alireza Tavakkoli**, Chris King, Amol Ambardekar, Mircea Nicolescu, and Monica Nicolescu, "Integrating Context into Intent Recognition Systems," in *the Proceedings of 7th International Conference on Informatics in Control, Automation and Robotics*, Madeira, Portugal, 6 pages, June 2010.
- [C.17] Gholamreza Amayeh, **Alireza Tavakkoli**, George Bebis, "Accurate and Efficient Computation of Gabor Features in Real-time Applications", in *proceedings of the 5th International Symposium on Visual Computing*, Las Vegas, NV, 10 pages, December 2009.
- [C.16] **Alireza Tavakkoli**, Mircea Nicolescu, Monica Nicolescu, George Bebis, "Efficient Background Modeling Through Incremental Support Vector Data Description", in *proceedings of the 19th International Conference on Pattern Recognition*, Tampa, FL, 4 pages, December 2008.
- [C.15] Fabien Scalzo, George Bebis, Mircea Nicolescu, Leandro Loss, **Alireza Tavakkoli**, "Feature Fusion Hierarchies for Gender Classification", in *proceedings of the 19th International Conference on Pattern Recognition*, Tampa, FL, 4 pages, December 2008.
- [C.14] **Alireza Tavakkoli**, Richard Kelly, Christopher King, Mircea Nicolescu, Monica Nicolescu, George Bebis, "A Visual Tracking Framework for Intent Recognition in Videos", in *proceedings of 4th International Symposium on Visual Computing*, Las Vegas, NV, 10 pages, December 2008.
- [C.13] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, Monica Nicolescu, "Incremental SVDD Training: Improving Efficiency of Background Modeling", in *proceedings of IASTED Signal and Image Processing Conference*, Kona, HI, 6 pages, August 2008.
- [C.12] Richard Kelley, **Alireza Tavakkoli**, Christopher King, Mircea Nicolescu, Monica Nicolescu, George Bebis, "Understanding Human Intentions via Hidden Markov Models in Autonomous Mobile Robots", in *proceedings of the 3rd ACM/IEEE International Conference on Human-Robot Interaction*, Amsterdam, pp. 367-374, 2008.
- [C.11] **Alireza Tavakkoli**, Amol Ambardekar, Mircea Nicolescu, Sushil Louis, "A Genetic Approach to Training Support Vector Dada Descriptors for Background Modeling in Video Data", in *proceedings of the 3rd International Symposium on Visual Computing*, Lake Tahoe, NV, pp. 318-327, November 2007.
- [C.10] **Alireza Tavakkoli**, Richard Kelly, Christopher King, Mircea Nicolescu, Monica Nicolescu, George Bebis, "A Vision-Based Architecture for Intent Recognition", in *proceedings of the 3rd International Symposium on Visual Computing*, Lake Tahoe, NV, pp. 173-182, November 2007.
- [C.9] Gholamreza Amayeh, Shohreh Kasaei, George Bebis, **Alireza Tavakkoli**, Konstantinos Veropoulos, "Improvements of Zernike Moment Descriptors on Affine Transformed Shapes", in *proceedings of the International Symposium on Signal Processing and its Applications (ISSPA07)*, UAE, February 2007.
- [C.8] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, "A Novelty Detection Approach for Foreground Region Detection in Videos with Quasi-stationary Backgrounds", in *proceedings of the 2nd International Symposium on Visual Computing*, pp. 40-49, Lake Tahoe, NV, November 2006.
- [C.7] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, "Robust Recursive Learning for Foreground Region Detection in Videos with Quasi-Stationary Backgrounds", in *proceedings of the 18th International Conference on Pattern Recognition*, pp. 315-318, Hong Kong, August 2006.
- [C.6] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, "An Adaptive Recursive Learning Technique for Robust Foreground Object Detection", in *proceedings of the International Workshop on Statistical Methods in Multi-image and Video Processing (w European Conference on Computer Vision)*, Graz, Austria, 10 pages, May 2006.
- [C.5] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, "Automatic Statistical Object Detection for Visual Surveillance", in *proceedings of the IEEE Southwest Symposium on Image Analysis and Interpretation*, pp. 144-148, Denver, CO, March 2006.
- [C.4] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, "Automatic Robust Background Modeling Using Multivariate Non-Parametric Kernel Density Estimation for Visual Surveillance", in *proceedings of the 1st International Symposium on Visual Computing (LNCS vol. 3804)*, pp. 363-370, Lake Tahoe, NV, December 2005.

- [C.3] **Alireza Tavakkoli**, Gholamreza Amayeh and Shohreh Kasaei, “A Fast VOP Extraction Technique Based on Wavelet and Watershed Segmentation”, *in proceedings of 12th Iranian Conference on Electrical Engineering*, Mashhad, Iran, 6 pages, May 2004.
- [C.2] **Alireza Tavakkoli**, Shohreh Kasaei and Gholamreza Amayeh, “A Fast and Efficient Video Object Plane Extraction Method based on Watershed Segmentation”, *International Workshop on Computer Vision*, Tehran, Iran, April 2004.
- [C.1] Gholamreza Amayeh, Shohreh Kasaei, **Alireza Tavakkoli**, “A Modified Algorithm to Obtain Translation, Rotation And Scale Invariant Zernike Moment Shape Descriptors”, *International Workshop on Computer Vision*, Tehran, Iran, April 2004.

Technical Reports

- [T.5] **Alireza Tavakkoli**, “A Non- Parametric Framework for Object Tracking in Videos with Quasi-Stationary Backgrounds”, *Ph. D. Dissertation*, Department of Computer Science and Engineering, University of Nevada, Reno, NV, May 2009.
- [T.4] **Alireza Tavakkoli**, “Segmentation for Videos with Quasi-Stationary Backgrounds – A Non-Parametric Approach”, *M.S. Thesis*, Department of Computer Science and Engineering, University of Nevada, Reno, NV, December 2006.
- [T.3] **Alireza Tavakkoli**, “Content Based Video Compression with Application to Distance Learning”, *M.S. Thesis*, Department of Electrical Engineering, Sharif University of Technology, Tehran, Iran, February 2004.
- [T.2] Shohreh Kasaei, Gholamreza Amayeh, **Alireza Tavakkoli**, “Fingerprint Authentication”, *Sharif University of Technology*, Tehran, Iran , 2003.
- [T.1] **Alireza Tavakkoli**, “Designing a Microprocessor with FPGA”, *Department of Electrical Engineering, Sharif University of Technology*, Tehran, Iran, September 2001.

Invited Talks and Papers

- [I.12] **Alireza Tavakkoli**, “Science Fiction Panel: Immersive Virtual Reality for Remote Robotics”, Comicpalooza, Houston, TX, May 2016.
- [I.11] **Alireza Tavakkoli**, “Immersive Virtual Reality Environments and Their Application in Telerobotics”, Texas State University, San Marcos, TX, April 2016.
- [I.10] **Alireza Tavakkoli**, “Efficient Telerobotics through Immersive Virtual Reality”, California State University at Chico, Chico, CA, March 2016.
- [I.9] **Alireza Tavakkoli**, “Telepresence for Efficient Telerobotics through Immersive Virtual Reality”, De Paul University, Chicago, IL, February 2016.
- [I.8] **Alireza Tavakkoli**, “Center for Advanced Visualization Engineering Laboratory and Industrial Partnerships”, Victoria Economic Development Center, Victoria, TX, September 2014.
- [I.7] **Alireza Tavakkoli**, “Center for Advanced Visualization Engineering”, UHV President’s Advisory Board Meeting, Victoria, TX, September 2013.
- [I.6] **Alireza Tavakkoli**, “UDK for “Unreal” Surveillance Research: A Quantitative Study”, Power on for Texas Film, Interactive & Tourism Conference, Corpus Christi, TX, May 2012.
- [I.5] **Alireza Tavakkoli**, “Ninth Rock: Motion Capture Technologies in Digital Gaming and Simulation”, Power on for Texas Film, Interactive & Tourism Conference, Corpus Christi, TX, May 2012.
- [I.4] **Alireza Tavakkoli**, “Simulating Human Vision and the Theory of Mind – Statistical Computation from Robotics to Genomics”, University of Houston-Victoria Faculty Symposium Series, Victoria, TX, April 2011.
- [I.3] **Alireza Tavakkoli**, “Using Virtual Environments in Research”, SLActions Conference, Houston, TX, Nov. 2010.
- [I.2] **Alireza Tavakkoli**, “Object Tracking in Videos, Challenges, Approaches, and Applications”, University of Central Arkansas, Conway, AR, March 2009.
- [I.1] **Alireza Tavakkoli**, Mircea Nicolescu, George Bebis, “Recursive Background Learning for Visual Surveillance Applications”, Cognitive Information Processing EPSCoR State Conference, Reno, Nevada, May 22nd-24th, 2006.

ADVISING

Current Students

Graduate Thesis Committee Chair

- Brandon Wilson **MAY 2015 – MAY 2017**
- Sean Simmons **JAN 2017 – MAY 2018**
- David Mc Fadden **MAY 2016 – MAY 2018**
- Loveth Ohenhen **MAY 2016 – DEC 2017**
- Salman **MAY 2015 – MAY 2017**
- Brandon Wilson **MAY 2015 – MAY 2017**

Undergraduate Research Advisor

- Jace Regenbrecht AUG 2015 – MAY 2016
- Sean Simmons AUG 2015 – MAY 2016
- David Mc Fadden AUG 2015 – MAY 2016

Past Students

Graduate Thesis Committee Chair

- Johnathan Gaynor MAY 2015 – MAY 2016
- Peter Hu MAY 2015 – MAY 2016
- Avlin Ikpesa JAN 2014 – DEC 2014
- Matthew Bounds AUG 2014 – MAY 2016
- Yujue Wang AUG 2012 – MAY 2013
- Anson Brown SEP 2011 – MAY 2012
- Rose Mary Roy JAN 2011 – DEC 2011
- Akintola Kolawole JAN 2011 – AUG 2011
- Tracie Prior SEP 2010 – MAY 2011

Master Thesis Committee Member

- Nsi Idika Kalu MAY 2012 – MAY 2013
- Matthew Boyett MAY 2012 – DEC 2012

Research Advisor

- Brandon Wilson AUG 2014 – MAY 2015
- Thomas Brantley AUG 2013 – DEC 2014
- Matthew Cisneros AUG 2013 – DEC 2014
- Andrew Morales AUG 2012 – DEC 2014
- Juan Anderade AUG 2012 – MAY 2014
- Joshua Sanders AUG 2012 – DEC 2013
- Nebahat Alazcioglu AUG 2012 – MAY 2013
- Eric Shang JAN 2010 – DEC 2010
- Pradeep Katta SEP 2007 – AUG 2008
- Shoeil Amayeh SEP 2001 – FEB 2004

HONORS

- | | | |
|--|--|-------------|
| ● Outstanding Research and Scholarly Activity Award | UH-Victoria | 2016 |
| ● Best Session Paper/Presentation Award ^[C. 26, 25, 24, 21] | Systemics, Cybernetics, and Informatics Soc. | 2011 - 2015 |
| ● UHV Internal Research Award | University of Houston-Victoria | 2012 |
| ● Junior Faculty Summer Research Award | University of Houston-Victoria | 2010 |
| ● Outstanding International Graduate Student Award | University of Nevada, Reno | 2008 |
| ● Outstanding International Graduate Student Award | University of Nevada, Reno | 2007 |
| ● NEVADA NSF EPSCoR Graduate Research Fellowship | University of Nevada, Reno | 2007 |
| ● NEVADA NSF EPSCoR Graduate Research Fellowship | University of Nevada, Reno | 2006 |
| ● Top 2% Graduate Student in Electrical Engineering Department | Sharif University, Iran | 2004 |
| ● Merit-Based Scholarship | Sharif University, Iran | 2003 |
| ● Top 1% in the Nationwide Graduate Electrical Engineering Olympiad | Tehran, Iran | 2001 |
| ● Top 1% in the Nationwide Undergrad University Entrance Exam | Iran | 1996 |
| ● 2 nd in the Nationwide High School Graduation Exams | Iran | 1996 |

MEMBERSHIPS

- Association for Computing Machinery (ACM)
- Institute of Electrical and Electronic Engineers (IEEE)
- IEEE Robotics and Automation
- IEEE Circuit and Systems Society
- IEEE Computer Society

SYNERGISTIC ACTIVITIES

NASA

- Grant Reviewer and Panelist 2016
- AS&ASTAR Fellowship Proposals

Army Research Lab

- Grant Reviewer 2016
- Division of Computational Sciences

National Science Foundation

- Grant Review Panelist 2014
- CISE grant proposals

State of Texas Service

- Texas Higher Education Coordinating Board Computer Science Learning Outcome Workgroup 2015

Professional and Academic Service

- Organization and Editorship
 - Journal of Systemics, Cybernetics, and Informatics (Advisory Editorial Board Member) 2014
 - Unmanned Autonomous Systems Special Track at ISVC (co-Organizer) 2014
- Committee Chair
 - Models and Modeling Methodologies in Science and Engineering (co-Chair) 2011 - Present
 - Segmentation and Biometrics Sessions, Intl. Symposium on Visual Computing (Chair) 2011 - Present
 - Feature Extraction and Matching, 5th Intl. Symposium on Visual Computing (Chair) December 2009
- Committee Member
 - Intl. Symposium on Visual Computing (Program Committee) 2011 - Present
 - Lone Star College Digital Gaming and Simulation Advisory Committee 2012 - Present
 - Houston Community College Digital Gaming and Simulation Advisory Committee 2012 - Present
 - VISD Engineering and Technology Program Advisory Committee 2011 - Present
 - Intl. Symposium on Visual Computing Organization Committee 2005 - Present

Service at the University of Houston – Victoria

- Office of the Provost and Vice President for Academic Affairs
 - Promotion and Tenure Committee 2015 - Present
 - Associate Director of Faculty Computing 2013 - Present
 - School of Arts and Sciences (Senator) Fall 2013 - Present
 - Undergraduate Affairs Committee (member) Fall 2013 - Present
 - Faculty Advisory Committee on Technology (Chair) Fall 2012 - Fall 2014
 - Graduate Studies Committee (Chair) Fall 2011 - Fall 2013
 - Faculty Development Leave Committee (member) Fall 2009 - Fall 2011
- School of Arts and Sciences
 - Search Committee for Computer Science, Mathematics, and Biology Active
 - Graduate Computer Science Program Director (Victoria) 2014
 - Math and Computer Science Awareness Day Director 2010- Present
 - Digital Gaming and Simulation Program Director 2009 - Present
 - 1st Year Academic Experience Steering Committee 2011 - 2013
 - Curriculum Assessment 2009 - 2013

Journal and Conference Reviewer

- Sensors 2016 - Present
- Pattern Recognition Letters 2016 - Present
- International Journal on Pattern Recognition 2015 - Present
- International Journal on Artificial Intelligence Tools 2014 - Present
- IEEE Transactions on Multimedia 2014 - Present
- IEEE Transactions on Cybernetics 2014 - Present
- IEEE Transactions on Circuits and Systems for Video Technology 2014 - Present
- IEEE Transactions on Instrumentation and Measurements 2014 - Present
- IEEE International Conference on Robotics and Automation 2013 - Present
- IEEE Transactions on Image Processing 2013 - Present
- International Journal of Advanced Robotics Systems 2013 - Present

- International Journal of Computer Vision and Image Understanding 2011 – Present
 - International Journal of Electrical and Computer Engineering 2011 – Present
 - International Workshop on Applications of Computer Vision 2007 – 2011
 - IEEE Transactions on Pattern Analysis and Machine Intelligence 2007 – 2011
 - International Conference on Pattern Recognition 2006 – 2011
 - 13th International Computer Society of Iran Computer Conference 2008
 - 3rd International Signal-Image Technologies and Internet-Based Systems 2007
 - International Symposium on Visual Computing 2007 – Present
-

MEDIA COVERAGE

- [M.4] Victoria Advocate Education, “UHV Gaming Professor says Simulation Can Help Industry Training”, Sept. 2014.
[M.3] Victoria Advocate Education, “UHV, TimeGate Expand Partnership with New Gaming Certificate”, Nov. 2012.
[M.2] Victoria Advocate Education, “UHV Awards \$24,000 in Research Grant to Professors”, July 2012.
[M.1] Victoria Advocate Education, “UHV Digital Gaming Professor’s Research is Artificial Intelligence”, Jan. 2011.
-

References and Collaborators

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