

Curriculum Vitae

Cell: +971-50-763-2071

E-mail: trabie@sharjah.ac.ae

Citizenship: Canadian

Birth Date: June 26, 1967

Prof. Tamer Rabie
Professor of Computer Engineering
College of Computing & Informatics
University of Sharjah
Sharjah, UAE
P.O. Box: 27272

Education

- **(Ph.D.)**, “*Animat Vision: Active Vision in Artificial Animals*”, Department of Electrical and Computer Engineering, **University of Toronto**, Canada (**January 1999**). Supervisor: Dr. Demetri Terzopoulos (from Dept. of Computer Science at Univ. of Toronto).
- **(M.Sc.)**, “*Adaptive-Neighborhood and Iterative Methods for Image Restoration*”, Department of Electrical and Computer Engineering, **University of Calgary**, Canada (**June 1993**). Supervisor: Dr. Raj Rangayyan; ranga@enel.ucalgary.ca
- **(B.Eng. with Honors)**, *Electronics and Communications Engineering*, Faculty of Engineering, Cairo University, Egypt (**July 1989**) (Ranked 6th from a class of 400 graduates that year).

Summary of Skills

- Curriculum Development and Student-Centered Teaching. (20 years)
- Administrative Leadership in Canada and at UAE Universities (20 years)
- 3D Computer Graphics Research and OpenGL® programming. (16 years)
- Active Computer Vision research and algorithm development. (25 years)
- Digital Image Processing research and algorithm development. (25 years)
- C/C++ programming under UNIX and NT. (25 years)
- Matlab Programming (20 years)

Work Experience

September 2019 – Present: PROFESSOR

College of Computing & Informatics, Department of Computer Engineering, University of Sharjah, Sharjah, UAE.

September 2013 – August 2019: ASSOCIATE PROFESSOR

College of Engineering, Department of Electrical and Computer Engineering, University of Sharjah, Sharjah, UAE.

September 2012 – August 2013: ADJUNCT PROFESSOR

Intelligent Transportation Systems Center, University of Toronto, Toronto, Ontario, Canada.

September 2011 – August 2012: ASSOCIATE PROFESSOR

School of Engineering Applied Science and Technology, Canadian University of Dubai, Dubai, UAE.

September 2006 – August 2011: ASSOCIATE PROFESSOR

College of Information Technology, Intelligent Systems Program, UAE University, Al-Ain, UAE.

September 2001 – August 2006: ASSISTANT PROFESSOR

College of Information Technology, Intelligent Systems Program, UAE University, Al-Ain, UAE.

January 2000 – August 2001: ASSISTANT PROFESSOR

Department of Electrical and Computer Engineering, Ryerson University, Toronto, Ontario, Canada.

October 1998 – December 1999: POST DOCTORAL FELLOW

Department of Computer Science, University of Toronto, Toronto, Ontario, Canada.

May 1998 - September 1998: SOFTWARE ENGINEER

ISG Technologies Inc., Mississauga, Ontario, Canada.

Research Statement and Goals

Vision has been regarded in its early stages as the problem of determining “what is where by looking.” Until the mid-80s, the limitations of computing power restricted experimentation in computer vision to the analysis of static scenes. In the last decade, powerful, general purpose processors have become widely available, as have special-purpose vision hardware such as video frame grabbers and pipelined low-level image analysis systems. This has resulted in an increased interest by vision researchers to study perception from the point of view of an active observer or agent in a dynamic world. It has led to a re-evaluation of the goals of computer vision itself and the emergence of a new dominant paradigm commonly known as *active vision*.

Since the early 1990s, my research focus was on the study of image processing and computer vision algorithms applied to natural and simulated environments. During the mid-90s, I introduced the *animat vision* paradigm, a novel approach for active vision research, which draws upon recent advances in the fields of “artificial life” and computer graphics. A software alternative to the prevailing hardware vision mindset, animat vision prescribes artificial animals, or animats, situated in physics-based virtual worlds as autonomous virtual robots with active perception systems. Computer vision algorithms continuously analyze the retinal image streams acquired by the animat’s eyes, enabling it to interact purposefully within its world. I have implemented active vision systems that achieve this goal by combining optical flow based retinal image stabilization, gaze control through combined motion and stereo analysis, and color analysis for object recognition.

Towards the late-90s, I developed a prototype animat vision system in virtual human models situated in a simulated environment, and during 2001-2002 I further developed this prototype to be suitable for real-world computer vision applications in the field of Intelligent Transportation Systems. This research work focused on the development of a mobile, bus-mounted active vision system for traffic monitoring in urban corridors. Mounting active vision systems on buses has the advantage of providing real-time feedback of the current traffic conditions, while possessing the intelligence and visual skills which allow them to interact with a rapidly changing dynamic environment, such as moving traffic.

My current work involves research and development of low-level vision algorithms and novel space domain filters for pre-processing virtual as well as natural imagery degraded by additive white Gaussian noise based on robust statistics-based noise estimators and adaptive neighborhood image processing techniques. The main purpose of which is to prepare the image pipeline for further processing by a Robotic Vision System. I am also involved in research and development of novel algorithms and techniques for steganography and watermarking, embedding compressed speech into speech signals for the purpose of archiving and transmission, novel compression technique for super resolution color photography, image processing and video surveillance application for high performance computing (HPC) benchmarking on the IBM Cell Broadband Engine processor as part of the ‘C-Cube’ IBM Cell Centre of Competency research project at the UAE University.

These research contributions have made significant impact on the direction of thought and activity in my research community through gaining wide acceptance evidenced by the publication of my work in reputable refereed journals and conferences, and by the funding that I was awarded from Canadian funding agencies and universities, as well as the annual research grants I have been receiving for my research since 2001 from both the UAE and Sharjah Universities. My work has also influenced other researchers in the computer science community who have used and cited my work as a basis for their research.

My future research directions draw upon recent advances in the fields of physics-based human simulation, computer vision and computer graphics to address the limitation in current active vision research carried out in simulated dynamic environments. The goal of my future research program is, thus, to develop a virtual reality simulator for studying active computer vision implemented in realistic artificial life emulation of humans, tightly coupled to accurate physical and environmental emulation of terrain and weather. To this end, I have fully developed and taught computer engineering courses at the UAE University and at University of Sharjah to serve this research program, namely Signals and Systems, Computer Vision, Smart Computer Graphics, Great Principles of Information Technology, Digital Image Processing, Autonomous Robotics, and Human Computer Interaction.

This type of virtual reality-based computer vision research program could have profound outcomes which can be utilized in unprecedented and revolutionary ways. One application of this research, which is of utmost importance to the vision community, is rapid prototyping of active vision systems without the need for expensive real-time mobile robot hardware that can be a hassle to maintain in working order. When the prototype system has been tested extensively and is ready for production, the computer vision models that have been developed using this simulator can be transferred to the hardware robot vision system with minimal changes and at a lower cost to the manufacturer. Lastly, this research program would serve the community by contributing to the training of highly qualified personnel who undertake the courses and research work furnished by this program.

Interdisciplinary Collaborative Research Projects

- **Progressively Trainable and Adaptable Intelligent Humanoid Robots for Autism Spectrum Disorders:** Awarded 100,000 dhs from University of Sharjah for this collaborative research project for 2015-2017. This research project award is a significant step towards starting fruitful collaboration with the Sharjah Autism Center for developing robotics applications to help rehabilitate autistic children. This robotics research project together with the newly established Robotics & Computer Vision lab in the Electrical & Computer Engineering department at the University of Sharjah will have a significant impact by opening research ideas for our graduate students for pursuing their thesis in a related topic while allowing them to practically apply their research and see the results. It will also impact our undergraduate students through opening new exciting areas for their senior design projects.
- **FaceBots: Robots utilizing and publishing social information in FaceBook:** This is a Microsoft Research Award for US\$50,000 aiming at supporting the creation of sustainable and meaningful human-robot relationships through exploitation and publishing of social information available on the World Wide Web (Facebook). Applications resulting from this harmonious and mutually beneficial human-robot symbiosis include assistance of children, youth and elderly with disabilities, increasing productivity in the workplace and home, supporting education, and entertainment. This was a very competitive award as Microsoft awarded only 8 Universities worldwide, UAEU being the only university outside North America. Media coverage include an article in Gulf News (Major UAE Newspaper) in April 2008, titled "UAE laboratory will help develop robots", (<http://archive.gulfnews.com/articles/08/04/25/10208339.html>). This research project is jointly investigated by Dr. Nikolaos Mavridis and myself. My focus in this project was on the implementation of algorithms for computer vision based face recognition for the purpose of enabling the robot to recognize familiar human faces thus allowing natural interaction between the robot and the human.
- **'C-Cube' IBM Cell Centre of Competency research project:** This project aims at enriching IBM's new Cell Broadband Engine (Cell BE) processor with applications and libraries, developing research tools, simulators and infrastructures, training and education, and software enabling and regional customer support. This IBM Shared University Research Award, which is in the form of an equipment grant comprising a 3-blade (27-core) IBM Cell BE Machine, will help us establish the first Cell Center of Competency (C-cube) in the Middle-East at the College of IT at the UAE University. There were ten winners worldwide, including 4 outside the USA. Winners in USA include University of Illinois - Urbana Champaign, Georgia Tech and other major universities. Winners outside the USA include the top engineering school in China (Tsinghua University), the UAE University, Universities of Dublin and Barcelona. The award was covered by the international press including CNN. My achievements in this project include delivering Image Processing, 2D graphics, and Video Processing and Surveillance applications on the IBM Cell BE and benchmarking the performance of these applications against single core processors, while the long term involvement includes Real-Time Virtual Vision Simulation the goal of which is the design and development of highly realistic virtual reality simulators for computer vision research.
- **An Innovative Mobile-Vision-Based Approach to Traffic Surveillance in Urban Corridors:** As adjunct professor at the University of Toronto's Intelligent Transportation Systems Centre (<http://www.civil.engineering.utoronto.ca/research/transport/subpages/its.htm>), I have conducted collaborative research work in Active Computer Vision-based Traffic Surveillance and Control through a 2-year (2001-2002) CITO funded collaborative research project focused on the development of a mobile, bus-mounted active vision system for traffic monitoring in urban corridors, as required by Intelligent Transportation Systems (ITS). Mounting active vision systems on buses will have the advantage of providing real-time feedback of the current traffic conditions, while possessing the intelligence and visual skills which allow them to interact with a rapidly changing dynamic environment, such as moving traffic. This research project was in collaboration with Lockheed Martin Canada, the City of Toronto, the Toronto Transit Commission, the University of Toronto, and Ryerson University. This project was awarded the top award of \$200,000. In his email to me, Vic DiCiccio, former Vice President of Research at CITO, writes: *"The Machine Vision Evaluation Panel was delighted by the close partnering you have arranged with the City of Toronto and Lockheed Martin. They thought it was quite a coup that the City might actually allow you to influence the traffic signals to provide priority for buses."*

Teaching Philosophy and Goals

I believe that teaching Electrical & Computer Engineering courses with competence can only be achieved through mutual interaction between the professor and the students. Although reading lecture material from textbooks and class notes is valuable, true learning is accomplished through the students own work and effort in solving problems that emerge throughout the course being studied. This can be achieved through take-home assignments, but is better accomplished through in-class discussions and interactive exercises where the student has access to the professor as well as modern learning aids such as electronic discussion boards and web-based course management tools.

My teaching strategy in class starts by motivating students' enthusiasm to learn the subject being taught. Once this has been accomplished, the student becomes the center of the learning process and the instructor becomes a facilitator of knowledge for the student. My teaching philosophy, thus, advocates student-centered learning with emphasis on student active participation in class. This has been aided by the use of modern teaching technology such as web-based course management tools (e.g. Moodle and Blackboard), animated PowerPoint slide shows that simplify the ideas being taught to the student, mini-lectures interlaced with group exercises and discussions, and one-on-one interaction between the professor and the student (very rewarding for less active students that may shy away from directly questioning the instructor). This is in contrast to the traditional lecturing methods which are teacher-centered, where the student had the role of a passive listener with the occasional raising of a hand to ask questions. The problem with this technique is the lack of full interaction between the lecturer and the student, and, consequently, the lack of understanding of the needs of individual students (e.g. students that are too shy need more one-on-one interaction which is missing in a passive learning environment). My teaching goals include promoting student understanding of the course subject matter, helping students to think in an analytical and logical manner, teaching students how to solve problems individually and in teams, and helping them to improve their writing skills. I also try to prepare students for the successful pursuit of graduate studies in the area of their interest through research-oriented projects that require writing final project reports using the IEEE standard guidelines for conference papers.

Courses Taught at University of Sharjah

1. 0403-449 **Autonomous Robotics Control** (Fully Proposed and Developed)
2. 0403-445 **Digital Image Processing** (Fully Developed)
3. 0403-642 **Computer Vision** (Graduate Course) (Fully Developed)
4. 0403-101 **Introduction to Computer Engineering** (Fully Developed)
5. 0403-460 **Special Topics in CE/EE (Mobile Robotics)** (Fully Developed)
6. 0403-575 **Independent Studies in Computer Engineering (Advanced Image Processing)** (Fully Developed)
7. 0403-493 **Senior Seminar in CE/EE (Autonomous Robotics)** (Fully Developed)
8. 0402-240 **Signals and Systems** (Co-Developed)
9. 0403-300 **Professional & Social Issues in Engineering** (Co-Developed)
10. 0402-340 **Engineering Computation & Linear Algebra** (Co-Developed)
11. 0402-203 **Circuit Analysis I Lab**

Membership in Professional Societies

- **Senior Member of the IEEE** since 2003, member of the IEEE Signal Processing, and have been previously a member of the Computer Societies.
- **Member of the Professional Engineers of Ontario (PEO)** Association in Toronto, Canada, and licensed as a professional engineer in the province of Ontario since 2001.

University Service Activities

- **Member of the University's Educational Outcomes Assessment Committee:** (2005 – 2006) I was the College of Information Technology (CIT) representative on this UAE University committee, participating in the organization and delivery of the workshop on Program Outcomes Assessment for new faculty members. My contribution to this workshop included leading and mentoring new CIT faculty members who participated in the workshop in understanding the program outcomes assessment process, its tools, the difference between program outcomes (expectations at time of graduation) and program educational objectives (expectations 3 to 5 years after graduation).
- **Faculty Scientific and Social Activities Committee:** (2005 – 2006) proposed the Distinguished Lecture Series (DLS) and coordinated research seminars for researchers from CIT faculty as well as external renowned scientists.
- **Strategic Planning and Assessment Committee:** (2005 - 2007) chaired the ABET committee task force to develop instruments and timelines. We developed student, faculty, alumni, and employer surveys for CIT program educational objectives and program outcomes, as well as mapping survey questions to outcomes.
- **Chair of the CIT recruitment committee:** (2006 - 2007) organizing and coordinating interviewing of potential faculty for open positions at the CIT.
- **Member of the College of Information Technology (CIT) Promotions Committee:** (2008 - 2009) reviewed promotion portfolios of faculty members applying for promotion at the CIT, and presenting recommendations to the dean. We have completed promotion recommendations for 8 faculty members during 2008/2009, 4 of which have been promoted to the associate professor rank.
- **Chair of the CIT search committee:** (2009 - 2010) reviewing, organizing and coordinating interviews of potential faculty for open positions at the CIT.
- **Departmental Graduate Studies and Research Coordinator** (2015 - 2017) at Dept. of Electrical and Computer Engineering, University of Sharjah.
- **Member of the College Research & Graduate Studies Committees** (2015 - 2017) at Dept. of Electrical and Computer Engineering, University of Sharjah.
- **Chair of the Undergraduate Department Accreditation Committee** (2013 - 2019) at Dept. of Electrical and Computer Engineering, University of Sharjah.
- **Member of the Signals and Image Processing Specialty Group** (2013 - Present) at Dept. of Electrical and Computer Engineering, University of Sharjah.
- **Coordinator of the Autonomous Robotics and Active Vision Research Group** (2015 - Present) at Research Institute of Sciences and Engineering (RISE), University of Sharjah.
- **Chair of the University level committee for establishment of the Artificial & Robotics Intelligence Laboratory** (May 2018 - Present) at Research Institute of Sciences and Engineering (RISE), University of Sharjah.

Community Service Activities at the International Level

1. **Guest Editor** for the 'Robotic Control Systems' specialty section of *Frontiers in Robotics and AI*, led by Chief Editor Prof Kostas Kyriakopoulos, National Technical University of Athens, Greece (2019-Present)
<http://www.frontiersin.org>
2. **Organizing Committee** member of the IEEE Signal Processing Society International Conference on Image Processing (ICIP 2020) to be held in Abu Dhabi, UAE on October 25-28, 2020.
3. **Associate Editor** for the Journal of Machine Intelligence and Data Science (JMIDS), formerly known as International Journal on Computer Vision, Machine Learning, and Data Mining (CVMLDM) (2014-present)
<https://jmids.avestia.com/board/>
4. **Associate Editor** for the International Journal on Computer Vision, Machine Learning and Data Mining (2013-2014)
<http://cvmlm.avestia.com/board/>
5. **Editorial Board** member for the Journal of International Research in Computer Science (2016-Present)
<https://gudapuris.com/international-journal-of-research-in-computer-science-editorial-board.php>
6. **Program Committee** member of the 2018 International Conference on Robotics and Intelligent Control (ICRIC 2018).
7. **Reviewer** for the International Association of Science and Technology for Development (IASTED) and appointed as a member of the Technical Committee on Computer Vision and the Technical Committee on Image Processing (2001-2013). Duties include serving as an expert advisor to IASTED by helping in the planning and organization of IASTED activities such as meetings and publications, assisting in reviewing paper submissions, suggesting keynote speakers for international conferences, suggesting conference topics and procedures.
8. **Program Committee** member and reviewer for The 14th IASTED International Conference on Computer Graphics and Imaging (CGIM 2013), February 12 – 14, 2013, Innsbruck, Austria.
9. **Program Committee** member and reviewer for The Thirteenth IASTED International Conference on Computer Graphics and Imaging (CGIM 2012), June 18 – 20, 2012, Crete, Greece.
10. **Program Committee** member and reviewer for The Twelfth IASTED International Conference on Computer Graphics and Imaging (CGIM 2011), February 16 – 18, 2011, Innsbruck, Austria.
11. **Reviewer** for IEEE Transactions on Image Processing for years 2010/2011.
12. **Program Committee** member and reviewer for The Eleventh IASTED International Conference on Computer Graphics and Imaging (CGIM 2010), Innsbruck, Austria, February 17 - 19, 2010.
13. **Reviewer** of Journal paper titled: "A Pilot Study to Compare the Driving Habits of Crash-Involved versus Non-Crash-Involved Older Drivers using GPS-Instrumented Vehicles" for the Journal of Transportation Engineering (2009).

Publications

Refereed Journals

1. **Tamer Rabie**, Mohammed Baziyad, Talal Bonny, and Raouf Fareh, “Toward a Unified Performance Metric for Benchmarking Steganography Systems”, <https://doi.org/10.1142/S0218126620500425>, Journal of Circuits, Systems, and Computers, (World Scientific Publishing Company), published in vol. 29, No. 3, to appear March 15, 2020. (Thomson-Reuters Impact Factor **0.595**)
2. Talal Bonny, **Tamer Rabie**, Mohammed Baziyad, Walid Balid, “SHORT: Segmented Histogram Technique for Robust Real-Time Object Recognition”, Multimedia Tools and Applications, Springer Verlag, (ISSN: 1380-7501, DOI: 10.1007/s11042-019-07826-4), June 3, 2019. (Thomson-Reuters Impact Factor **1.541**)
3. Raouf Fareh, Mohammed Baziyad, Mohammad H. Rahman, **Tamer Rabie**, and Maamar Bettayeb, “Investigating Reduced Path Planning Strategy for Differential Wheeled Mobile Robot”, DOI:10.1017/S0263574719000572, Robotica, Cambridge University Press, May 14, 2019. (Thomson-Reuters Impact Factor **1.177**)
4. Raouf Fareh, **Tamer Rabie**, Said Grami, Mohammed Baziyad, “A Vision-Based Kinematic Tracking Control System Using Enhanced-PRM For Differential Wheeled Mobile Robot”, International Journal of Robotics and Automation, ACTA Press, Accepted April 22, 2019. (Thomson-Reuters Impact Factor **1.065**)
5. **Tamer Rabie**, and Mohammed Baziyad, “The *Pixogram*: Addressing High Payload Demands for Video Steganography”, DOI: 10.1109/ACCESS.2019.2898838, IEEE Access, vol. 7, pp. 21948 – 21962, Feb. 2019. (Thomson-Reuters Impact Factor **3.557**)
6. Talal Bonny, **Tamer Rabie**, and AH Abdul Hafez. “Multiple histogram-based face recognition with high speed FPGA implementation”, Multimedia Tools and Applications, Springer Verlag, (ISSN: 1380-7501, <https://doi.org/10.1007/s11042-018-5647-8>), vol. 77, No. 18, Sept. 2018. (Thomson-Reuters Impact Factor **1.541**)
7. **Tamer Rabie**, Mohammed Baziyad, Ibrahim Kamel, “Enhanced high capacity steganography using discrete wavelet transform and the Laplacian pyramid”, Multimedia Tools and Applications, Springer Verlag, (ISSN: 1380-7501, <https://doi.org/10.1007/s11042-018-5713-2>), Feb. 1, 2018. (Thomson-Reuters Impact Factor **1.541**)
8. **Tamer Rabie**, “Training-less Color Object Recognition for Autonomous Robotics”, Information Sciences, Elsevier, (ISSN: 0020-0255, DOI: 10.1016/j.ins.2017.08.015), Dec. 2017, vol. 418-419C, pp. 218–241 (Thomson-Reuters Impact Factor **4.305**)
9. **Tamer Rabie**, Mohammed Baziyad, “Visual fidelity without sacrificing capacity: an adaptive Laplacian pyramid approach to information hiding”, Journal of Electronic Imaging, SPIE—The International Society for Optical Engineering (ISSN: 1017-9909, <https://doi.org/10.1117/1.JEI.26.6.063001>), Nov. 2017, vol. 26, No. 6. (Thomson-Reuters Impact Factor **0.78**)
10. **Tamer Rabie**, Ibrahim Kamel, Mohammed Baziyad, “Maximizing Embedding Capacity and Stego Quality: Curve-Fitting in the Transform Domain”, Multimedia Tools and Applications, Springer Verlag, (ISSN: 1380-7501, DOI: 10.1007/s11042-017-4727-5), May 2017, vol. 77, No. 7, pp. 8295-8326. (Thomson-Reuters Impact Factor **1.541**)
11. **Tamer Rabie**, Ibrahim Kamel "Toward optimal embedding capacity for transform domain steganography: a quad-tree adaptive-region approach", Multimedia Tools and Applications, Springer Verlag, (ISSN: 1380-7501, DOI: 10.1007/s11042-016-3501-4), vol. 76, No. 6, March 15th 2017. (Thomson-Reuters Impact Factor **1.541**)
12. **Tamer Rabie**, Ibrahim Kamel "High-capacity steganography: a global-adaptive-region discrete cosine transform approach", Multimedia Tools and Applications, Springer Verlag, (ISSN: 1380-7501, DOI: 10.1007/s11042-016-3301-x), vol. 76, No. 5, March 1st 2017. (Thomson-Reuters Impact Factor **1.541**)
13. **Tamer Rabie**, Ibrahim Kamel "Toward optimal embedding capacity for transform domain steganography: a quad-tree adaptive-region approach", Multimedia Tools and Applications, Springer Verlag, (ISSN: 1380-7501, DOI: 10.1007/s11042-016-3501-4), vol. 76, No. 6, March 15th 2017. (Thomson-Reuters Impact Factor **1.541**)
14. **Tamer Rabie**, Ibrahim Kamel "High-capacity steganography: a global-adaptive-region discrete cosine transform approach", Multimedia Tools and Applications, Springer Verlag, (ISSN: 1380-7501, DOI: 10.1007/s11042-016-3301-x), vol. 76, No. 5, March 1st 2017. (Thomson-Reuters Impact Factor **1.541**)
15. Raouf Fareh, Maarouf Saad, Sofiane Khadraoui, and **Tamer Rabie**. “Lyapunov-Based Tracking Control For Nonholonomic Wheeled Mobile Robot”, International Journal of Electrical, Computer, Energetic, Electronic and Communication Engineering, World Academy of Science, Engineering and Technology, Vol:10, No:8, pp. 973-978, 2016.
16. **Tamer Rabie**, Ibrahim Kamel “On the Embedding Limits of the Discrete Cosine Transform”, Multimedia Tools and Applications, Springer Verlag, (ISSN: 1380-7501, DOI: 10.1007/s11042-015-2557-x) , vol. 75, No. 10, May 2016. (Thomson-Reuters Impact Factor **1.541**)
17. **Tamer Rabie**, "Lossless Quality Steganographic Color Image Compression", International Journal of Advanced Computer Science and Applications, ISSN: 2158-107X, DOI: 10.14569/IJACSA.2015.060416, May 2015; vol. 6, No. 4, pp. 114-123 (indexed in Thomson-Reuters Web of Science Emerging Sources Citation Index, Research Gate Impact Factor 0.63)
18. **Tamer Rabie**, Driss Guerchi "Spectral Magnitude Speech Steganography", International Journal of Computer Applications FCS® (Foundation of Computer Science - ISSN 0975-8887, DOI: 10.5120/20329-2547), 116(5):1-6, April 2015. (Google Scholar Impact Factor 0.715)
19. **Tamer Rabie**, “Rapid 2D-3D Conversion for Low-Cost 3D Television”, International Journal of Computer Applications FCS® (Foundation of Computer Science - ISSN 0975-8887, DOI: 10.5120/17816-8751), 102(6):1-7, September 2014. Editor’s Choice Award. (Google Scholar Impact Factor 0.715)

20. **Tamer Rabie**, Hashir K. Kidwai, Fadi N. Sibai “Massive video surveillance parallelization on the Cell broadband engine processor”, IBM Journal of Research and Development, Special issue on "Technologies From Emerging Markets", vol. 54, No. 6, Paper 11, pages: 11:1 - 11:8, Nov./Dec. 2010 (ISSN: 0018-8646, Thomson-Reuters Impact Factor (2010): **4.86**, Thomson-Reuters Impact Factor (2016): **1.083**)
21. Hashir Karim Kidwai, Fadi N. Sibai, **Tamer Rabie**, “Performance and Scalability Analysis of Image Processing Applications on the IBM Cell BE Simulator”, Journal of Communication and Computer, David Publishing Company, USA, Volume 6, No.3 (Serial No.52), pp. 1-8, ISSN 1548-7709, USA, Mar. 2009.
22. Hashir Karim Kidwai, Fadi N. Sibai, **Tamer Rabie**, “Parallelization and Performance Evaluation of an Edge Detection Algorithm on a Streaming Multi-Core Engine”, Journal of Information Technology Research (JITR), IGI Global (Disseminator of Knowledge Since 1988), Hershey PA 17033-1240 USA, vol.2, No. 4, pp. 82-92, October-December 2009 (SJR: 0.12)
23. Hashir Kidwai, **Tamer Rabie**, Fadi Sibai, “Parallel Video Processing Performance Evaluation on the IBM Cell Broadband Engine Processor”, Special Issue on Grid and Parallel Computing, International Journal of Computer Science and Applications, ©Technomathematics Research Foundation (ISSN 0972-9038), Vol. 6, No. 1, pp. 13 – 25, 2009. (SJR: 0.13)
24. Driss Guerchi, Harmain Harmain, **Tamer Rabie**, Emad Mohamed, “Speech Secrecy: An FFT-based Approach”, Special Issue on Evolving Computer Science Applications, International Journal of Mathematics and Computer Science, vol. 3, No. 2, pp. 1-19, Jan. 2008
25. M. Boulmalf, **Tamer Rabie**, K. Shuaib, A. Lakas, and H. Elsayed, " Performance Evaluation Study of an Indoor IEEE 802.11g", International Journal of Value Chain Management, Inderscience Publishers Ltd (ISSN: 1741-5357), Switzerland, vol. 2, No. 1, pp. 109-118, 2008. (SJR Impact Factor: 0.20)
26. **Tamer Rabie**, “Frequency-Domain Data Hiding Based on the Matryoshka Principle”, Special Issue on Advances in Video Processing and Security Analysis for Multimedia Communications, International Journal of Advanced Media and Communication, Inderscience Publishers Ltd (ISSN: 1462-4613), Switzerland, vol. 1, No. 3, pp. 298–312, June 2007. (SJR Impact Factor: 0.31)
27. Zouheir Trabelsi, Hesham El-Sayed, Lilia Frikha and **Tamer Rabie**, “A Novel Covert Channel Based on the IP Header Record Route Option”, International Journal of Advanced Media and Communication, Inderscience Publishers Ltd, Switzerland, vol. 1, No. 4, pp. 328-350, August 2007. (SJR Impact Factor: 0.31)
28. **Tamer Rabie**, “Robust Estimation Approach for Blind Denoising”, IEEE Transactions on Image Processing, USA, vol. 14, Issue 11, pp. 1755-1765, November 2005. (Thomson-Reuters Impact Factor (2016): **4.83**)
29. **Tamer Rabie**, Baher Abdulhai, Amer Shalaby, and Ahmed El-Rabbany, “Mobile Active-Vision Traffic Surveillance in Urban Networks”, special issue on Computing and Information Technologies in Transportation Systems, International Journal of Computer-Aided Civil and Infrastructure Engineering (CACAIIE), John Wiley & Sons, Inc., USA, vol. 20, Issue 4, pp. 231-241, July 2005.
30. **Tamer Rabie**, “Adaptive Hybrid Mean and Median Filtering of High-ISO Long-Exposure Sensor Noise for Digital Photography”, International Society for Optical Engineering (SPIE) Journal of Electronic Imaging, USA, vol. 13, No. 2, pp. 264-277, April 2004. (Thomson-Reuters Impact Factor (2017): **0.78**)
31. Demetri Terzopoulos and **Tamer Rabie**, “Animat Vision: Active Vision in Artificial Animals”, Videre: Journal of Computer Vision Research, vol. 1, No. 1, Fall 1997.
32. **Tamer Rabie**, Raj M. Rangayyan, and Raman B. Paranjape, “Adaptive-Neighborhood Image Deblurring”, International Society for Optical Engineering (SPIE) Journal of Electronic Imaging, vol. 3, No. 4, pp. 368-378, October 1994. (Thomson-Reuters Impact Factor (2017): **0.78**)
33. **Tamer Rabie**, Raman B. Paranjape, and Raj M. Rangayyan, “An Iterative Method for Blind Deconvolution”, International Society for Optical Engineering (SPIE) Journal of Electronic Imaging, vol. 3, No. 3, pp. 245-250, July 1994. (Thomson-Reuters Impact Factor (2017): **0.78**)
34. Raman B. Paranjape, **Tamer Rabie**, and Raj M. Rangayyan, “Image Restoration by Adaptive-Neighborhood Noise Subtraction”, Applied Optics, vol. 33, No. 14, pp. 2861-2869, May 1994. (Thomson-Reuters Impact Factor (2016): **1.650**)

Refereed Conferences

1. Baraa Al Jilani, **Tamer Rabie**, and Mohammed Baziyad, “Autonomous motion tracking for dynamic objects using a temporal quadtree algorithm”, 2019 International Conference on Aviation and Space Technology - Advances in Science and Engineering Technology (ASET 2019), Higher Colleges of Technology, Dubai, March 26-28, 2019.
2. **Tamer Rabie**, Mohammed Baziyad, Ibrahim Kamel, “High Payload Steganography: Surface-Fitting the Transform Domain”, International Conference on Communications, Signal Processing, and their Applications (ICCSA'19), American University of Sharjah (AUS), March 19-21, 2019.
3. Mohammed Baziyad, **Tamer Rabie**, Ibrahim Kamel, "Extending steganography payload capacity using the $L^*a^*b^*$ color space", 13th International Conference on Innovations in Information Technology (IEEE IIT'18), Al Ain, UAE, Nov. 18-19, 2018.
4. Mahmoud A. Y. Abdallah, Mohammed Saeed Baziyad, Raouf Fareh and **Tamer Rabie** "Tracking Control for Robotic Manipulator Based on FABRIK Algorithm", Advances in Science and Engineering Technology Multi-Conference (ASET'18), Dubai Men's College, Higher Colleges of Technology, UAE, February 6-7, 2018.
5. Waleed Obaid, **Tamer Rabie**, and Mohammad Baziyad, "Real-Time Color Object Recognition and Navigation for QUARC QBOT2", International Conference on Computer and Applications (ICCA'17), pp. 102-106, Dubai, United Arab Emirates, September 06-07, 2017. (<http://www.ijcis.info/icca17.htm>)

6. Raouf Fareh, **Tamer Rabie**, Mohammed Baziyad, "Tracking Control For Wheeled Mobile Robot Using RGBD Sensor", 2017 4th International Conference on Control, Decision and Information Technologies (CoDIT'17), Barcelona, April 5-7, 2017 at Barcelona, Spain (website: <http://codit2017.com>)
7. Saif ur-Rehman Muhammad, **Tamer Rabie**, Saleh Suleiman, "A Novel Wireless Mesh Network for Indoor Robotic Navigation", Proc. of the 5th International Conference on Electronic Devices, Systems, and Applications (ICEDSA-2016, DOI: 10.1109/ICEDSA.2016.7818485), pp. 1-4, Ras Al Khaimah, UAE, 6-8 December 2016.
8. Raouf Fareh, Maarouf Saad, Sofiane Khadraoui, and **Tamer Rabie**, "Lyapunov-Based Tracking Control for Nonholonomic Wheeled Mobile Robot", ICCDSR 2016: International Conference on Control, Dynamic Systems, and Robotics, Amsterdam, The Netherlands, Aug 04-05, 2016.
9. Raouf Fareh, **Tamer Rabie** "Tracking trajectory for non-holonomic mobile manipulator using distributed control strategy", 10th International Symposium on Mechatronics and its Applications, American University of Sharjah, December 8-10, 2015.
10. **Tamer Rabie**, "High-Capacity Steganography", 2013 6th International Congress on Image and Signal Processing (CISP 2013), Vol. 2, pp.858-863, Hangzhou, China, 16-18 Dec. 2013. (Print ISBN: 978-1-4799-2763-0)
11. **Tamer Rabie**, "Digital Image Steganography: An FFT Approach", the 4th International Conference on Networked Digital Technologies (NDT 2012), Canadian University of Dubai, Dubai, pp. 217-230, Springer-Verlag Berlin Heidelberg, April 24-26, 2012.
12. **Tamer Rabie**, Hashir Kidwai, Fadi Sibai, "Parallel video surveillance on the multi-core Cell broadband engine", International Joint Conference on Computational Sciences and Optimization, 2009 (CSO 2009), International Symposium on Applied Computing and Computational Sciences (ACCS 2009), Sanya, Hainan Island, China, Volume 1, pp. 85 – 89, 24-26 April, 2009.
13. N. Mavridis, **T. Rabie**, "FaceBots: Robots utilizing and publishing Social Information on FaceBook", poster presentation at Microsoft External Research Symposium, Seattle, March 2009 (poster presentation)
14. Nikolaos Mavridis, Chandan Datta, Shervin Emami, Chiraz BenAbdelkader, Andry Tanoto, **Tamer Rabie**, "FaceBots: social robots utilizing facebook", Proceedings of 4th ACM/IEEE International Conference on Human-Robot Interaction (HRI 2009), pp. 195-196, La Jolla, California, March 10-13, 2009.
15. Nikolaos Mavridis, Chandan Datta, Shervin Emami, Andry Tanoto, Chiraz BenAbdelkader, **Tamer Rabie**, "FaceBots: robots utilizing and publishing social information in facebook" Proceedings of 4th ACM/IEEE International Conference on Human-Robot Interaction (HRI 2009), pp. 273-274, La Jolla, California, March 10-13, 2009.
16. Hashir Kidwai, F. N. Sibai, and **T. Rabie**, "Simulating Image Resizing on the IBM Cell Simulator," 3rd IEEE International Conference on Modeling, Simulation, and Applied Optimization (ICMSAO'09), Sharjah, UAE, Jan. 2009.
17. Hashir Kidwai, F. N. Sibai, and **T. Rabie**, "Video Processing using Optical Flow Estimation on the Cell BE Simulator," 3rd IEEE International Conference on Modeling, Simulation, and Applied Optimization (ICMSAO'09), Sharjah, UAE, Jan. 2009.
18. Hashir Kidwai, F. N. Sibai, and **T. Rabie**, "Highly Parallel Image Processing on the STI Cell," 2009 IEEE Int. Conference on Computer Systems and Application (AICCSA'09), Rabat, Morocco, May 2009.
19. Hashir Kidwai, F. N. Sibai, and **T. Rabie**, "Parallel Edge Detection on the Multi-core Cell Broadband Engine," Proceedings of the IEEE International Conference on Innovations in Information Technology (IIT2008), pp. 92-96, Al-Ain, December 2008.
20. Hashir Kidwai, F. N. Sibai, and **T. Rabie**, "Simulating Image Processing Applications on the IBM Cell Simulator," Proc. of the 3rd International Conference on Mathematical Sciences (ICM08), Vol. I, pp. 278-287, Al Ain, UAE, March 2008.
21. Hashir Kidwai, F. N. Sibai, and **T. Rabie**, "Image Magnification and Reduction Using High Order Filtering on the Cell Broadband Engine," Proc. of the 5th IEEE International Multi-Conference on Systems, Signals and Devices (SSD'08), Amman, Jordan, July 2008.
22. **Tamer Rabie** and Driss Guerchi, "Magnitude Spectrum Speech Hiding", IEEE International Conference on Signal Processing and Communication (ICSPC07), Dubai, UAE, November 24-27, 2007.
23. Driss Guerchi, **Tamer Rabie**, and Abdelrhani Louzi, "Voicing-Based Codebook in Low-Rate Wideband CELP Coding", Proceedings of the eighth Interspeech conference - tenth biennial EUROSPEECH conference (Interspeech2007), Antwerp, Belgium, August 27-31, 2007.
24. Driss Guerchi, **Tamer Rabie**, "Narrowband CELP Hiding by Wideband Speech", The Ninth IASTED International Conference on Signal and Image Processing (SIP 2007), Honolulu, Hawaii, USA, August 20-22, 2007.
25. **Tamer Rabie**, "A Novel Compression Technique for Super Resolution Color Photography", Proceedings of the IEEE International Conference on Innovations in Information Technology (IIT2006), pp. 1-5, Jumeirah Beach Hotel, Dubai, UAE, November 19-21, 2006.
26. Zouheir Trabelsi, Hesham El-Sayed, Lilia Frikha and **Tamer Rabie**, "Traceroute Based IP Channel for Sending Hidden Short Messages", Advances in Information and Computer Security, First International Workshop on Security (IWSEC 2006), Kyoto, Japan, pp. 427 – 442, Springer-Verlag Berlin Heidelberg, October 23-24, 2006.
27. M. Boulmalf, **T. Rabie**, K. Shuaib, H. Elsayed, and A. Lakas, "Performance Characterization of IEEE 802.11g in an Office Environment", Proceedings of the European and Mediterranean Conference on Information Systems 2006 (EMCIS2006), Costa Blanca, Spain, pp. 1-7, July 6-7, 2006.
28. **Tamer Rabie**, "Robust Color Video Denoising", Proc. of the 4th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA-06), pp. 792-798, Dubai/Sharjah, UAE, March 8-11, 2006.

29. **Tamer Rabie**, "Hybrid Mean Adaptive Center Weighted Median Filter for Color Sensor Denoising", Proc. of the IEEE International Symposium on Intelligent Signal Processing and Communications Systems (ISPACS 2004), pp. 321-326, Seoul, Korea, November 18-19, 2004.
30. **Tamer Rabie**, "Artificial Vision Systems for Dynamic Virtual Environments", Proc. of the IEEE International Workshop on Haptic Virtual Environments and their Applications (HAVE 2002), pp. 85-90, Ottawa, Canada, November 17-18, 2002.
31. **Tamer Rabie**, Amer Shalaby, Baher Abdulhai, and Ahmed El-Rabbany, "Mobile Vision-based Vehicle Tracking and Traffic Control", Proc. of the IEEE 5th International Conference on Intelligent Transportation Systems (ITSC 2002), pp. 13-18, Singapore, September 3-6, 2002.
32. **Tamer Rabie**, Gasser Auda, Ahmed El-Rabbany, Amer Shalaby, and Baher Abdulhai, "Active-Vision-based Traffic Surveillance and Control," Proc. of the Fourteenth Canadian Vision Interface Conference (VI 2001), pp. 87-93, Ottawa, Canada, June 7-9, 2001.
33. **Tamer Rabie** and Demetri Terzopoulos, "Modeling Active Vision Systems for Dynamic Simulated Environments", IASTED International Symposium on Modeling and Simulation (MS'2001), pp. 34-41, Pittsburgh, Pennsylvania, USA, May 16-18, 2001.
34. **Tamer Rabie**, Gasser Auda, Ahmed El-Rabbany, Amer Shalaby, and Baher Abdulhai, "An Innovative Active-Vision-Based Approach for Traffic Surveillance and Control", Proceedings of the 3rd International Symposium on Mobile Mapping Technology, Cairo, Egypt, January 3-5, 2001.
35. **Tamer Rabie** and Demetri Terzopoulos, "Active Perception in Virtual Humans", Proceedings of the thirteenth Canadian Vision Interface Conference (VI '2000), Montréal, Quebec, May 14-17, 2000.
36. **Tamer Rabie** and Demetri Terzopoulos, "Stereo and Color Analysis for Dynamic Obstacle Avoidance", Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR '98), pp. 245-252, Santa Barbara, California, June 23-25, 1998.
37. **Tamer Rabie** and Demetri Terzopoulos, "Motion and Color Analysis for Animat Perception", Proceedings of the Thirteenth National Conference on Artificial Intelligence (AAAI '96), pp. 1090-1097, Portland, Oregon, August 4-8, 1996.
38. Demetri Terzopoulos, **Tamer Rabie**, and Radek Grzeszczuk, "Perception and Learning in Artificial Animals", Proceedings of the Fifth International Conference on Artificial Life (ALife V), pp. 313-320, Nara, Japan, May 16-18, 1996.
39. Demetri Terzopoulos and **Tamer Rabie**, "Animat Vision: Active Vision in Artificial Animals", Proceedings of IEEE Fifth International Conference on Computer Vision (ICCV '95), pp. 801-808, MIT, Cambridge, Massachusetts, June 20-23, 1995.

Chapters in Books

1. **Tamer Rabie**, "Data Secrecy: An FFT Approach", in Advanced Techniques in Multimedia Watermarking: Image, Video and Audio Applications, IGI Global, Chapter 2, pages 21-35, April 2010. (ISBN13: 9781615209033 |ISBN10: 1615209034 |EISBN13: 9781615209040 |DOI: 10.4018/978-1-61520-903-3)
2. Gasser Auda, **Tamer Rabie**, Ahmed El-Rabbany, Amer Shalaby, and Baher Abdulhai, "An Active-Vision Intelligent Traffic Monitoring System", in *Recent Research Developments in Pattern Recognition*, vol. 4, Chapter 1, pp. 1-13, Transworld Research Network (ISBN: 81-7895-157-6), November 2004.

Acknowledgment of research work by Tamer Rabie

1. "Every picture tells a (secret) story", Jen Thomas, July 21, 2012, The National newspaper coverage of research work by Dr. Tamer Rabie, <http://www.thenational.ae/news/uae-news/every-picture-tells-a-secret-story>
2. "UAE laboratory will help develop robots", Microsoft Research Award coverage in Gulf News (Major UAE Newspaper), April 2008, <http://archive.gulfnews.com/articles/08/04/25/10208339.html>
3. "Perceptive Agents and Systems in Virtual Reality", D. Terzopoulos, Proceedings of the ACM symposium on Virtual reality software, ACM Press New York, NY, USA, 2003 - portal.acm.org
4. "Animated Artificial Fishes", Arthur Ed LeBouthillier, The Robot Builder, 12(2), February 2000, pp. 1-3.
5. "Visual modeling for computer animation: Graphics with a vision", D. Terzopoulos, Computer Graphics, 33(4), November, 1999, pp. 42-45. Special issue on Applications of Computer Vision to Computer Graphics.
6. "Modeling living systems for computer vision", (invited paper) D. Terzopoulos, Proc. 14th International Joint Conference on Artificial Intelligence (IJCAI'95), Montreal, QC, August, 1995, pp. 1003-1013.
7. "Fishes of the Silicon Sea", G. Levinson, Editor, *The World and I*, 10(6), June, 1995, pp. 222-229.

Invited Talks

1. **Tamer Rabie**, "Progressively Trainable and Adaptable Intelligent Humanoid Robots for Autism Spectrum Disorders", Autism Forum 2015 (Outside The Maze), under the patronage of Shaikha Jameela Bint Mohammad Al-Qasimi, general director of Sharjah City for Humanitarian Services, Sharjah chamber of commerce and industry - United Arab Emirates - Sharjah, April 2, 2015, http://www.schs.ae/News/Speakers_eng.aspx
2. **Tamer Rabie**, "Modeling Computer Vision Systems in Virtual and Real-World Environments", Live Demonstration Presented at the GITEX 2003 UAEU Booth, Dubai, October 19 - 23, 2003.