

Marco Morales

Departamento de Sistemas Digitales
Instituto Tecnológico Autónomo de México
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Education

PH.D. IN COMPUTER SCIENCE. Texas A&M University, Dec. 2007

Ph.D. Dissertation: “Metrics for Sampling-Based Motion Planning”

Academic adviser: Prof. Nancy M. Amato

M.S. IN ELECTRICAL ENGINEERING. Universidad Nacional Autónoma de México (UNAM), Nov. 1998

M.S. Thesis: “Control de un Robot Móvil usando Redes Neuronales y Sistemas Expertos” (Mobile Robot Control with Neural Networks and Expert Systems)

Academic adviser: Prof. Jesús Savage Carmona

B.S. IN COMPUTER ENGINEERING. UNAM, Aug. 1996

B.S. Thesis: “Diseño, Construcción y Control de Vehículo Manipulador de Navegación Autónoma para transferencia de piezas” (Design, Construction, and Control of a Manipulator Vehicle with Autonomous Navigation for Parts Transfer)

Academic adviser: Prof. Ignacio Juárez Campos

Research Interests

Motion planning and supporting areas, especially machine learning and computational geometry, and its applications to robotics, bio-informatics, and computational science. In addition, artificial intelligence, computational neuroscience, computational biology, optimization, computer architectures, and parallel computing.

Honors and Awards

CANDIDATE TO NATIONAL RESEARCHER
CONACYT, México

National System of Researchers – SNI
1 Ene. 2009 – 31 Dic. 2012

FULBRIGHT-GARCIA ROBLES SCHOLARSHIP
to pursue Ph.D. at TAMU

Department of State – USA, CONACYT – México
Aug. 2000 – Aug. 2004

CONACYT SCHOLARSHIP
to pursue Master’s at UNAM

CONACYT
Sep. 1995 – Jun. 1997

SUPERCOMPUTING PROGRAM SCHOLARSHIP
for training in supercomputing systems

Cray Research, UNAM
Sep. 1994 – Mar. 1995

IEEE TRAVEL GRANT
to attend conference at Taipei, Taiwan

International Conf. in Robotics and Automation
Sep. 2003

GTA FELLOW AND CERTIFICATE OF COMPLETION
for the professional development in college teaching

Texas A&M Graduate Teaching Academy
Sep. 2004 – May. 2005

Professional Experience

VISITING PROFESSOR Dept. of Comp. Sc.& Eng., Texas A&M University
College Station, Texas, USA Aug. 2014 – Present

FACULTY MEMBER Instituto Tecnológico Autónomo de México (ITAM)
México, D.F., México Aug. 2007 – Present
Assistant Professor, (Profesor Titular II C), Dept. of Digital Systems (8/2011–Present)
Assistant Professor, (Profesor Titular I C), Dept. of Digital Systems (8/2009–7/2011)
Assistant Professor, (Profesor Asociado C) Dept. of Digital Systems (8/2007–7/2009)
Director, Robotics Lab (8/2008–Present)
Member, Complex Systems Lab (1/2009–Present)
Member, Center for the Modeling and Simulation of Systems (MaSaS) (9/2009–Present)

RESEARCH ASSISTANT for Prof. Nancy Amato Dept. of Computer Science, Texas A&M University
College Station, Texas, USA Sep. 2000 – Jul. 2007

FACULTY MEMBER Depto. de Ingeniería en Computación, UNAM
México, D.F., México 1996–2003
Lecturer (1/1997 – 7/2003)
Research Assistant for Jesús Savage Carmona (10/1996 – 07/2000) doing sysadmin and research at the micro computers lab and at the Intelligent Interfaces Lab.

CONSULTANT
México, D.F., México Ene. 1998 – Jul. 2000
Design, coding, testing, and installation of information systems and programming libraries. Tools and programming languages used include: C, C++, Microsoft Developer Studio (Visual C++, y Visual Basic), Matlab, Java, Oracle, MySQL, Excel, HTML, JavaScript. Projects developed:
Intracom Consultores – Internet-based store (8/1999-7/2000)
Intracom Consultores – Accounting system for the stock market (8/1999-7/2000)
Intracom Consultores – System to process and analyse results from tests with concrete (8/1999-7/2000)
Focus Consultores – Risk analysis library for the stock market (8/1998–5/1999)
Intercom – Analisis of system for management of images and documents for hospitals (1/1998–7/1999)

FACULTY MEMBER Div. de Informática, UTFV
Nicolás Romero, México, México 1996–1998
Lecturer (8/1997–12/1998)
Profesor Investigador (1–4/1996)

SYSTEM ADMINISTRATION STAFF Dept. of Supercomputing, DGSCA, UNAM
México, D.F., México Mar. 1995 – Feb. 1996
Member of the team in charge of user administration of the Cray-YMP/464 supercomputer of UNAM.

SOCIAL SERVICE STAFF Advanced Computing Lab, College of Eng., UNAM
México, D.F., México Dec. 1993 – Jun. 1994
Technical support and maintenance of software used in structure simulations.

Publications in Refereed Journals and Conferences

[1] Jory Denny, MARCO MORALES , Samuel Rodriguez, Nancy M. Amato, “Adapting RRT Growth for Heterogeneous Environments”, in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2013*, pp.1772-1778, Tokyo Big Sight, Japan, Nov 2013. Acceptance rate = 43% (903/2089).

[2] Fernando Esponda, Matías Vera-Cruz, Jorge Tarrasó, MARCO MORALES, “The Complexity of Partition Tasks”, *Complexity* (ISSN 1099-0526, ISI Impact Factor 2009 0.948), October 2010, vol. 16, issue 1,

pp. 56-64, doi: 10.1002/cplx.20324, submitted 12/18/2009, revised 03/26/2010, accepted 03/30/2010.

[3] Roger Pearce, MARCO MORALES, Nancy M. Amato, “Structural Improvement Filtering Strategy for PRM”, in *Proceedings of Robotics: Science and Systems IV (RSS) 2008*, Zurich, Switzerland, Jun. 2008. Acceptance rate = 25% (42/163).

[4] MARCO MORALES, Roger Pearce, Nancy M. Amato, “Analysis of the Evolution of C-Space Models Built through Incremental Exploration”, in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA) 2007*, pp. 1029-1034, Rome, Italy, Apr. 2007. Acceptance rate = 44% (787/1800).

[5] Shawna Thomas, MARCO MORALES, Xinyu Tang, Nancy M. Amato, “Biasing Samplers to Improve Performance”, in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA) 2007*, pp. 1625-1630, Rome, Italy, Apr. 2007. Acceptance rate = 44% (787/1800).

[6] Dawen Xie, MARCO MORALES, Roger Pearce, Shawna Thomas, Jyh-Ming Lien, Nancy M. Amato, “Incremental Map Generation (IMG)”, in Srinivas Akella, Nancy M. Amato, Wesley H. Huang, Bud Mishra (editors) *Algorithmic Foundations of Robotics VII, Springer Tracts in Advanced Robotics*, vol. 47/2008, pp 53-68, ISBN 978-3-540-68404-6, ISSN 1610-7438, 2008.

[6.bis] Dawen Xie, MARCO MORALES, Roger Pearce, Shawna Thomas, Jyh-Ming Lien, Nancy M. Amato, “Incremental Map Generation (IMG)”, in *Proceedings of the International Workshop on the Algorithmic Foundations of Robotics (WAFR) 2006*, pp. 53-68, New York, New York, U.S.A., Jul. 2006. Acceptance rate = 49% (32/65).

[7] MARCO A. MORALES A., Roger Pearce, Nancy M. Amato, “Metrics for Analyzing the Evolution of C-Space Models”, in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA) 2006*, pp. 1268-1273, Orlando, Florida, U.S.A., May 2006. Acceptance rate = 39% (680/1756).

[8] MARCO A. MORALES A., Lydia Tapia, Roger Pearce, Samuel Rodriguez, Nancy M. Amato, “C-Space Subdivision and Integration in Feature-Sensitive Motion Planning”, in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA) 2005*, pp. 3114-3119, Barcelona, Spain, May 2005. Acceptance rate = 44% (750/1700).

[9] MARCO MORALES, Lydia Tapia, Roger Pearce, Samuel Rodriguez, Nancy M. Amato, “A Machine Learning Approach for Feature-Sensitive Motion Planning”, in Michael Erdmann, David Hsu, Mark Overmars, Frank van der Stappen (editors) *Algorithmic Foundations of Robotics VI, Springer Tracts in Advanced Robotics*, vol 17/2005, pp. 361-376, ISBN 978-3-540-25728-8, ISSN 1610-7438, Nov. 1st, 2005.

[9.bis] MARCO MORALES, Lydia Tapia, Roger Pearce, Samuel Rodriguez, Nancy M. Amato, “A Machine Learning Approach for Feature-Sensitive Motion Planning”, in *Proceedings of the International Workshop on the Algorithmic Foundations of Robotics (WAFR) 2004*, pp. 361-376, Utrecht/Zeist, The Netherlands, Jul. 2004. Acceptance rate unavailable.

[10] MARCO MORALES, Samuel Rodríguez, Nancy M. Amato, “Improving the Connectivity of PRM Roadmaps”, in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA) 2003*, pp. 4427-4432, Taipei, Taiwan, Sep. 2003. Acceptance rate = 60% (711/1176).

[11] Jyh-Ming Lien, MARCO MORALES, Nancy M. Amato, “Neuron PRM: A Framework for Constructing Cortical Networks”, *Neurocomputing*, 52-54(28):191-197, ISSN 0925-2312, Impact Factor 1.434, Jun. 2003. (Poster presented at the Annual Computational Neuroscience Meeting (CNS), Chicago, U.S.A., Jul. 2002).

[12] Jesús Savage, MARCO MORALES, Roman Osorio, Andrés Pérez, Jimena Olveres, “Learning Mobile

Robot Paths Using Potential Field Methods”, *Proceedings of the IFAC/IFIP/IEEE Conference on Management and Control of Production and Logistics 2000 (MCPL '00)*, , pp. 1253-1256, Grenoble, Francia, Jul. 2000. Acceptance rate unavailable.

[13] MARCO ANTONIO MORALES AGUIRRE, Jesús Savage, “Mobile Robot Control using Expert Systems and Neural Networks”, *International Symposium on Robotics and Automation '98*, Saltillo, Coahuila, México, Dec. 1998. Acceptance rate unavailable.

Editorial Activities

[14] Greg Chirikjian, Howie Choset, Marco Morales, and Todd Murphey, “Editorial: Special Issue on the Eighth International Workshop on the Algorithmic Foundations of Robotics”, *The International Journal of Robotics Research* (ISSN: 0278-3649, Online ISSN: 1741-3176, 2008 Impact Factor 2.882), June 2010, vol. 29, no. 7, pp. 787-788, doi:10.1177/0278364910363634

Books

[15] Gregory S. Chirikjian, Howie Choset, MARCO MORALES, Todd Murphey (Eds.) “Algorithmic Foundations of Robotics VIII: Selected Contributions of the Eighth International Workshop on the Algorithmic Foundations of Robotics”, (WAFR) 2008, Springer. ISBN 978-3-642-00311-0. 2010.

Unrefereed Publications, Technical Reports and Posters

[16] MARCO MORALES, Jean-Bernard Hayet, Claudia Esteves, Rubén Anaya, “Cuauhipiltin 2012: Standard Platform League Team Description Paper”, RoboCup SPL, Jan. 2012

[17] Jesús Savage, Francisco Dorantes, Alejandra Sánchez, Rubén Anaya, Norma Chávez, Rodrigo Savage, Boris Escalante, MARCO MORALES, “Laboratory Assignments to Teach the Basics of Programmable Logic Applied to Mobile Robots”, 1st Mexican Workshop on Reconfigurable Computing and its Applications to Education and Engineering (ReConFig), Dec. 2010

[18] MARCO ANTONIO MORALES AGUIRRE “Metrics for Sampling-Based Motion Planning”, Texas A&M University, Dec. 2007 (Ph.D. Dissertation).

[19] Aimée Vargas, Jyh-Ming Lien, MARCO A. MORALES A., Samuel Rodriguez, Nancy M. Amato, “User-Guided Path Planning”, *Technical Report, TR05-011, Parasol Laboratory, Department of Computer Science, Texas A&M University*, Sep 2005.

[20] Jesús Savage, MARCO A. MORALES A., Edna Márquez, Fernando Lepe-Casillas, “The Use of Hidden Markov Models and Vector Quantization for Mobile Robot Localization”. *Robotics and Applications (RA)* 2005, IASTED, Boston, U.S.A. 2005.

[21] MARCO ANTONIO MORALES AGUIRRE “Control de Robot Móvil Usando Redes Neuronales y Sistemas Expertos”, Facultad de Ingeniería, Universidad Nacional Autónoma de México (UNAM), Nov. 1998 (M.S. Thesis).

[22] MARCO ANTONIO MORALES AGUIRRE “Diseño, Construcción y Control de un Vehículo Manipulador de Navegación Autónoma para Transferencia de Piezas”, Facultad de Ingeniería, Universidad Nacional Autónoma de México (UNAM), Aug. 1996 (B.S. Thesis).

Professional Service and Activities

CONFERENCE ORGANIZING AND PROGRAM COMMITTEES

Organizer. Machine Learning in Planning and Control of Robot Motion Workshop at IROS 2014. *Local Organizing Committee Member.* RoboCup 2012. *Local Chair.* RoboCup 2012 Small Size League. *Chair.* Torneo Mexicano de Robótica (TMR) 2011 and 3rd RoboCup Mexican Open (May 4-6 2011) *Conference Co-Chair.* International Workshop on the Algorithmic Foundations of Robotics (WAFR),

2008.

Co-Chair. Third Workshop of the Humanoids Research Group 2009 CINVESTAV-ITESM-UNAM-ULSA-ITAM.

Associate Editor. IEEE International Conference on Robotics and Automation (ICRA), 2011, 2012, 2013, 2014, 2015.

Associate Editor. IEEE/RSJ 2008 International Conference on Intelligent Robots and Systems (IROS), 2008, 2009, 2010, 2011, 2012, 2013.

Program Committee Member. Robotics: Robotics Science and Systems (RSS), 2008.

Program Committee Member. IEEE/RSJ 2008 International Conference on Intelligent Robots and Systems (IROS), 2008, 2009.

REVIEWER

For journals: IEEE Transactions on Robotics and Automation (TRA), IEEE Transactions on Robotics (TRO), International Journal of Robotics Research (IJRR), Journal of Intelligent and Robotic Systems (JINT), and Journal of Computing and Information Science in Engineering (JCISE)

For conferences: International Workshop on the Algorithmic Foundations of Robotics (WAFR), IEEE International Conference on Robotics and Automation (ICRA), IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Robotics: Science and Systems conference (RSS), IEEE International Parallel & Distributed Processing Symposium (IPDPS), y Latin American Robotics Symposium

CERTIFICATED EVALUATOR

Member of the Registro CONACYT de Evaluadores Acreditados (RCEA) belonging to the Sistema Nacional de Evaluación Científica y Tecnológica (SINECYT)

MEMBER OF PROFESSIONAL ASSOCIATIONS

Institute of Electrical and Electronics Engineers (IEEE), Association for Computing Machinery (ACM), Sociedad de Exalumnos de la Facultad de Ingeniería de la UNAM (Society of Former Students of the College of Engineering of UNAM: SEFI), Asociación de Ingenieros Universitarios Mecánicos y Electricistas (Association of Mechanical and Electrical Engineers from Mexican Universities: AIUME), Red Mexicana de Investigación y Desarrollo en Cómputo (Mexican Network for Research and Development on Computing: REMIDEC), and Federación Mexicana de Robótica (Founding Member)

VOLUNTEER IN CONFERENCES AND EVENTS

Interface 2006, Oct. 2006. International Workshop on Robotics and Automation (WAFR) Jul. 2006. IEEE International Conference on Robotics and Automation (ICRA) Sep. 2003. International Workshop on Languages and Compilers for Parallel Computing (LCPC) Oct. 2003.

Significant University Service and Community Outreach Activities

ESCUELA DE INVIERNO DE ROBÓTICA 2013 México, D.F., México
Organizing Committee Member

COMITTEE SO B ABET Fall 2012, Spring 2013, Fall 2013, Spring 2014
Coordinator
Definición de actividades de promoción y evaluación de Student Outcome B en el proceso de mejora continua para ABET.

MEXICAN ROBOTICS TOURNAMENT 2014 April 2014
Organizing Committee Member
In charge of the organization of the Standard Platform League Exhibition.

MASTER IN COMPUTER SCIENCE AND Fall 2011
ENGINEERING
Committee for the creation of the new program

Definition of profile and curriculum development.

MECHATRONICS ENGINEERING PROGRAM Fall 2009
Committee for the creation of the new program
Definition of profile and curriculum development.

TELECOMMUNICATIONS ENGINEERING PROGRAM Fall 2009
Committee for the creation of the new program
Reviews and recommendations to the proposed program.

IEEE RAS TECHNICAL COMMITTEE on Jul. 2008 – Present
Algorithms for Planning and Control of
Robot Motion
Member of the steering committee of the TC as newsletter chair for the second quarters.

JUDGE FIRST Lego League National Competition México, D.F., México, Jan. 2009
Williams College

JUDGE ExITAM Research Award México, D.F., México, Jan. 2009, Jan. 2010
ITAM

JUDGE Reading “Science for Everyone” Fondo de Cultura Económica
X Mexican y II Iberoamerican contest San Juan del Río, Querétaro, México, Abr. 2008
XII Contest Huejotzingo, Puebla, México, Abr. 2010

FIRST LEGO LEAGUE NATIONAL TOURNAMENT ITAM, México, D.F., México, Jan. 12 2008
ORGANIZER
In charge of recruiting, orienting, and coordinating a team of 40 volunteers and the 25 judges, during the national final of the FIRST LEGO League robotics competition for children from 8 to 14 years of age.

PARASOL SEMINAR COORDINATOR College Station, Texas, USA, Mar. 2003–Aug. 2005
Parasol Laboratory, Texas A&M University May-Jul. 2006, May – Jul. 2007

PRESIDENT, Texas A&M Fulbright Association College Station, Texas, USA, Jan. – Dec. 2005
Presided and organized all the activities of the Association in collaboration with vice-presidents, program coordinators, and members. Represented the Association in events and activities in Texas A&M University. Significant projects included:

- Coordinated with the Brazos Valley Chapter of the Fulbright Association to organize activities to enhance the experience of visitor Fulbrighters in Texas A&M including trips to the area surrounding College Station.
- Coordinated a mentor program for newly admitted Fulbrighters with support of the Sponsored Students Program office of Texas A&M.
- Coordinated a hospitality program for incoming Fulbrighters where members of the association helped in their arrival to find housing, roommates, and settle in College Station.
- Social and sports activities for Fulbrighters and their families.
- Collaborated with officials of Texas A&M in prioritizing key concerns of international students, these concerns were addressed through University policy changes.

HOSPITALITY PROGRAM COORDINATOR, College Station, Texas, USA, Jan. – Sep. 2004
Texas A&M Fulbright Association
Program for incoming Fulbrighters where members of the association helped in their arrival to find housing, roommates, and settle in College Station.

AI AND ROBOTICS SEMINAR COORDINATOR College Station, Texas, USA, Jan. 2001 - Feb. 2003
Department of Computer Science, Texas A&M University

QUESTION AUTHOR, EGEL INFO-COMP TEST México, D.F., México, Jul. 1999
CENEVAL (National Center for Evaluations)
Contributions to the “general test for graduates of B.S. on Informatics and Computing”

ORGANIZATION TEAM, Mobile Robots Competition México, D.F., México, Jan. 1999
UNIVERSUM, UNAM

JUDGE The Week of Engineering 1998 México, D.F., México, May 1998
College of Engineering, UNAM

MEMBER OF UNAM TEAM Querétaro, Querétaro, México, May 1998
Third National Minirobotics Competition

COACH OF UNAM TEAM Querétaro, Querétaro, México, Oct. 1997
Regional ACM Programming Competition

Courses Taught

UNDERGRADUATE Division of Engineering, ITAM
COM-23702: Compilers Spring 2013, 2014
SDI-11120: Elements of Physics Spring 2008 (lab)
SDI-11121: Elements of Electronics Fall 2007, 2008, 2009, 2010 (lab); Spring 2009 (lab), 2010, Fall 2011 (lab)
SDI-11322: Logic Circuits Fall 2007 (lab), 2012, 2013; Spring 2012, 2013(lab)
SDI-11441: Processors Design Fall 2009, 2010, 2011; Spring 2010, 2011, 2012, 2014
SDI-11561: Elements of Mechatronics Fall 2011, 2012; Spring 2012, 2013, 2014
SDI-11841: Electronic Design for Telematics Spring 2008, 2009
SDI-12515: Signals and Systems Fall 2008 (lab)
SDI-12626: Communication Systems Spring 2011 (Lab)
SDI-: Research Seminar Fall 2011, Spring 2012
SDI-11911: Robotics Fall 2013

GRADUATE PROGRAM Division of Engineering, ITAM
COM-34703 : Compilers Spring 2013, 2014

UNDERGRADUATE Division of Electrical Engineering
School of Engineering, UNAM
1206: Computers and Programming Fall 1997, 1998, 1999; Springs 1997, 1998, 1999, 2000
2138: Expert Systems Fall 1997, 1998, 1999; Springs 1998, 1999, 2000

UNDERGRADUATE: JUNIOR COLLEGE Division of Informatics, UTFV
Programming Logic Spring 1996
Advanced Programming Fall 1997, 1998
Analysis and Design of Information Systems Spring 1998

GRADUATE: CONTINUOUS EDUCATION Division of Continuous Education
School of Engineering, UNAM
Mobile Robots Design May 1999, May 1998

Professional and Invited Presentations (in addition to regular conference talks)

- ROS WORKSHOP Escuela de Invierno de Robótica INAOE, Tonantzintla, Puebla, Dec. 09 2013
- THE SMALL SIZE LEAGUE IN ROBOCUP Service Robots Workshop FI, UNAM, Aug. 29, 2013
Red de Robótica y Mecatrónica del CONACYT
- ALGORITHMS FOR ROBOTS DAI Research Seminar ITAM, May. 3, 2013
- MOTION PLANNING FOR ROBOTS Service Robots Workshop FI, UNAM, Jan. 18, 2013
Red de Robótica y Mecatrónica del CONACYT
- MOTION PLANNING AND CONTROL IN DYNAMIC ENVIRONMENTS Computing Seminar, CIMAT Guanajuato, Guanajuato, Mar. 23, 2011
- ITAM ROBOTICS LAB TV Interview Canal 11, Mexican TV, Nov. 16, 2011
- ROBOCUP 2012 MÉXICO Press conference Palacio de Minería, UNAM, Dec. 8, 2011
Radio Interview, “Alcanzando el Conocimiento” MVS Radio 102.5 FM, Dec. 15, 2011
- LA CORPORALIDAD EN LOS SISTEMAS INTELIGENTES
Workshop “La filosofía del cuerpo”, FES Acatlán, UNAM, Sep. 7, 2011
- MEXICAN ROBOTICS TOURNAMENT AND MEXICAN TEAMS IN ROBOCUP 2011
Radio Interview, “Ingeniería en Marcha”, Radio UNAM 860 AM México, Jun. 7, 2011
- THE COMPLEXITY OF PARTITION TASKS
Parasol Seminar, Texas A&M University College Station, Texas, U.S.A, Jul. 23, 2010
- LA PLATAFORMA ESTÁNDAR DE ROBOCUP: HUMANOIDE NAO
Third Workshop of the Humanoids Research Group 2009 CINVESTAV-ITESM-UNAM-ULSA-ITAM,
ITAM, México, Nov. 27, 2009
- COGNITIVE ROBOTICS: A MULTILEVEL APPROACH
(Alfredo Weitzenfeld, Alejandra Barrera, Marco Morales)
Workshop on Service Robots, Mexican International Conference on Artificial Intelligence, Aguascalientes,
México, Nov. 6, 2007
- VIZMO++: A VISUALIZATION, AUTHORING, AND EDUCATIONAL TOOL FOR MOTION PLANNING
(Aimée Vargas, Jyh-Ming Lien, Marco Morales, and Nancy M. Amato)
Workshop on Research in Robots for Education, Robotics: Science and Systems (RSS), Atlanta, Georgia,
USA, Jun. 30, 2007
- MOTION PLANNING TECHNIQUES AND APPLICATIONS IN ROBOTICS, GROUP BEHAVIOR MODELING,
MOLECULE MODELING, AND NEUROSCIENCE
Expo-Robótica, México, 13 Nov. 2009
Computer Science Department Seminar, CINVESTAV, México, 9 Nov. 2009
Master of Science on Information Science and Technology Seminar, UAM-Iztapalapa, México, 12 Mar.
2009
AI and Robotics School, Instituto de Biotecnología, UNAM Cuernavaca, Morelos, México, 27 Feb. 2009
Robotics Week, Instituto Tecnológico Autónomo de México México, D.F., México, Mar. 2007
- METRICS FOR SAMPLING-BASED MOTION PLANNING
2nd Workshop on Robotics and Motion Planning, CIMAT Guanajuato, México, Feb. 15 2008

Physical and Biological Computing Group Seminar, Rice University Houston, TX, USA, May 2007
Research Seminar, Instituto Tecnológico Autónomo de México México, D.F., México, Mar. 2007
Parasol Seminar, Texas A&M University College Station, TX, USA, Feb. 23, 2007

METRICS FOR ANALYZING THE EVOLUTION OF C-SPACE MODELS
Parasol Seminar, Texas A&M University College Station, TX, USA, May 12, 2006

EVALUATING THE QUALITY OF MOTION PLANNING ROADMAPS
Parasol Seminar, Texas A&M University College Station, TX, USA, Dec. 2, 2005

IMPROVING THE CONNECTIVITY OF PRM ROADMAPS
Parasol Seminar, Texas A&M University College Station, TX, USA, Sep. 5, 2003

ROBOTICS
5th National Week on Science and Technology, UTFV Nicolás Romero, México, México, Oct. 1998

PATH PLANNING FOR MOBILE ROBOTS
Week of Engineering, College of Engineering, UNAM., México, D.F., México, May 1998
Microsoft Academic Day, México, D.F., México, Apr. 1998
Academic Week, Universidad del Valle de México Tlalpan, D.F., México, Oct. 1997

CLIPS-BASED VISUALIZATION TOOL FOR ROBOT SIMULATIONS
Colloquium “Research at the College of Engineering”, UNAM México, D.F., México, Feb. 1997

THE INTERNET
Celebration week of the first anniversary of the UTFV Nicolás Romero, México, México, Jan 1996

Students

MASTER THESIS ADVISOR Division of Engineering, ITAM
Advisor for the following student on the development of his thesis to get the Masters Degree on Information Technology and Administration:

- *Maestro en Tecnologías de Información y Administración*
 - Guillermo Canchola Rico. Thesis: “Análisis del uso de tecnologías de seguridad electrónica en redes de telecomunicación”. Defended in January 2011.
- *Maestro en Tecnologías de Información y Administración and “Mastère Spécialisé en Réseaux et Systèmes D’Information Pur Les Entreprises”*
 - Jorge Luquín Rivera. Thesis: “Modelo predictivo del tipo de manejo de automóviles mediante árboles de decisiones”. Defended in March 2010. Special Mention
 - Raúl Homero Mendoza Terrazas. Thesis: “Modelo predictivo del tipo de manejo de automóviles mediante árboles de decisiones”. Defended in March 2010. Special Mention
 - Carlos Manuel Acosta Briseño. Thesis: “Análisis de tecnologías para la implementación de sistemas domóticos y propuesta de aplicación residencial”. Defended in March 2009

UNDERGRADUATE THESIS ADVISOR Division of Engineering, ITAM
Advisor for the following students on the development of their theses to get the following degrees:

- *B.S.in Telematics Engineering*
 - Horacio Flores Reynoso. Thesis: “Caza en grupo para múltiples robots utilizando modelos neuronales” (Group hunting behaviors for multiple robots using neural models). Defended in December 2013.

- Mauricio Sánchez Castellanos Prado. Thesis: “Alternativas tecnológicas para comunicar comunidades marginadas” (Technological options for communication in marginalized communities). Defended in May 2010.

- *B.S.in Computer Engineering*

- Karen Lorena Poblete Rodríguez. Minor Thesis: “Estrategias cooperativas en sistemas multi-agente aplicadas en fútbol robótico” (Cooperative strategies in multi-agent systems applied to robotic soccer). Defended in October 2014.
- Horacio Flores Reynoso. Thesis: “Caza en grupo para múltiples robots utilizando modelos neuronales” (Group hunting behaviors for multiple robots using neural models). Defended in June 2013.

UNDERGRADUATE THESIS ADVISOR

Division of Electrical Engineering, UNAM

Advisor for the following students on the development of their theses to get the B.S. in Computer Engineering:

- Mr. José Salvador Rentería Ibarra. “Propuesta de metodología para la creación de ambientes virtuales” (Proposal for a methodology to build virtual environments). Defended in Dec. 2001.
- Ms. Lizbeth Alejandra Mohzo Sánchez. “Propuesta de metodología para la creación de ambientes virtuales” (Proposal for a methodology to build virtual environments). Defended in Dec. 2001.
- Mr. Saúl Cristobal Figueroa Cáliz. “Control a distancia de un robot móvil utilizando principios de teleoperación” (Mobile robot control based on tele-operation). Defended in Jul. 2000.

JUNIOR COLLEGE STUDENT ADVISOR

Division of Informatics, UTFV (Junior College)

Supervised the industry internship and final project of two students to get the associate degree on Informatics.

ROBOTICS LABORATORY

Division of Engineering, ITAM

Academic adviser to a group of students to participate in robotics competitions and get started on research. This group has participated under Morales’ leadership in the following events:

- 1st place Penalty Shootouts. Primer concurso de robótica e Inteligencia Artificial NAO 2014. Nov. 13 – 14. Aguascalientes, México.
- RoboCup 2012. Small Size League, Standard Platform League. Jun. 18–24. Ciudad de México.
- RoboCup 2011. Small Size League. Jul. 5–11. Istanbul, Turkey.
- Torneo Mexicano de Robótica 2011. Seguidor de Laberintos. May. 4 – 6. ITAM. Ciudad de México.
- RoboCup 2010. Small Size League. Jun. 19–25. Singapur.
- RoboCup 2009. Small Size League, Standard Platform League. Jun. 29 – Jul. 5. Graz, Austria.
- Campus Party 2009. Nov. 15. Ciudad de México.
- Expo Robótica 2009. Nov. 12 – 16. Ciudad de México.
- Torneo Mexicano de Robótica 2009. Sep. 10 – 12. Zapopan, Jalisco, México.
- Competencia Latinoamericana de Robótica 2008. Standard Educational Kit. Oct. 26 – 29. Bahia, Salvador, Brasil.
- Torneo Mexicano de Robótica 2008. Standard Educational Kit. Sep. 4–6. Ciudad de México.

STUDENT RESEARCH MENTORING

Division of Engineering, ITAM

Research advisor to the following students:

- Alejandro Escalante Arrieta. Visitante a Texas A&M University. Verano 2013.
- Karen Lorena Poblete Rodríguez. Visitante a Texas A&M University. Verano 2013
- Sofia Gómez de Silva. Summer Research Intern from McMaster University, Canada, Summer 2010.
- Maria Elena Rocha Alonso. Visitor on the XVIII Scientific Research Summer 2008.

STUDENT RESEARCH MENTORING

Parasol Lab, Texas A&M University

As a PhD student, Morales mentored the following students:

- Mr. David Little. Participant of the USRG. Summer 2004.
- Ms. Terra Horton. Major in Computer Science and Mathematics and Minor in Accounting at Langston University (Langston, OK). Participant of the CRA-W Distributed Mentoring Project (DMP). Summer 2005.
- Terra Horton, Luke Hunter, Perpetual Amoah, John Maffei. Participants of a Motion Planning crash course for undergrads in the USRG, and DMP. Summer 2005.
- Luke Hunter, Varrian Hall, Dan Corlette, Sudharsan Gunanathan, John Maffei. Participants of a Motion Planning reading group for undergrads and grad students. Fall 2005.
- Mr. Samuel Rodríguez, Ph.D. student in Computer Science at Texas A&M University, Summer - Fall 2003

Languages

Spanish: native speaker; *English*: fluent; *Nahuatl*: beginner; *German*: beginner.

November, 2014