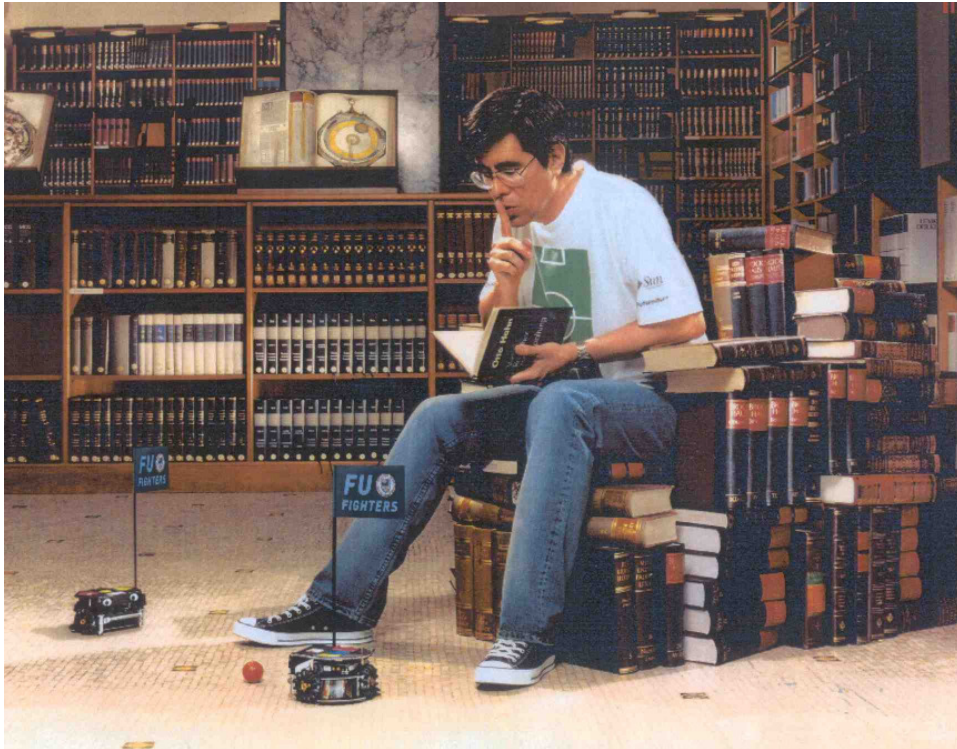


# Résumé

Updated January 2008

**Raúl Rojas**

**Professor of Computer Science (C4)**



## 1 Personal data

Name:	Raúl Rojas
Date of birth:	06.25.55
Place of birth:	Mexico City
Marital status:	Married, 1 child
Nationality:	German (since 1996)

## Address

Prof. Dr. Raúl Rojas  
Freie Universität Berlin  
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## 2 Education

- 1994 Habilitation in Computer Science at the Department of Mathematics and Computer Science, Free University of Berlin. The Habilitation is a German title that can be only obtained after the PhD.
- Habilitation thesis: "The Theory of Neural Networks" (in German). Published by Springer-Verlag, Berlin.
- 1988 PhD (summa cum laude) at the Otto Suhr Institute, Free University of Berlin (PhD in Economics and Social Sciences).
- Thesis: "On the History of the Critique of Political Economy" (in German). Published by Rotbuch Verlag, Berlin.
- 1981 Master of Economics at the Department of Economics, National Autonomous University of Mexico (UNAM).
- 1980 Master of Science (Mathematics) at the Department of Mathematics, National Polytechnic Institute, Mexico.
- Thesis: "New Results in the Theory of Oscillations of Solutions of Differential Equations" (in Spanish)
- 1977 Bachelor of Mathematics at the Department of Mathematics, National Polytechnic Institute, Mexico. Ranked first in the class of 1977.
- Thesis: "Nonlinear Optimization Algorithms" (in Spanish)

### 3 Professional experience

- 2007 Visiting Professor (Spring term, during my sabbatical), Department of Statistics, Rice University, Houston, Texas.
- 1997-2008 Tenured Professor of Artificial Intelligence (C4) at the Mathematics and Computer Science Department, Free University of Berlin. Chairman of the Department of CS from 1999 to 2001.
- 2002 Visiting Professor (Fall term, during my sabbatical), Department of Mathematics and Computer Science, Mills College, Oakland, California.
- 1994-1997 Tenured Professor of Artificial Intelligence (C3) at the Mathematics and Computer Science Department, Martin Luther University Halle-Wittenberg.
- 1994 Visiting Professor (six months), Institute of Electronics of the Technical University of Vienna, Laboratory of Neural Electronics.
- 1993 Visiting Professor (six months), Computer Science Department, Martin Luther University Halle-Wittenberg.
- 1989-1994 Researcher at the Mathematics and Computer Science Department, Free University of Berlin. Leader of the Neural Networks group.
- 1986-1989 Researcher at the German National Corporation for Mathematics and Computer Science (GMD-FIRST). Member of the Prolog-Machines group.
- 1984-1986 Lecturer (part-time) at the Free University of Berlin and at the Technical College of Berlin.
- 1979-1982 Lecturer (part-time) at the Economics Department, National Autonomous University of Mexico (UNAM).
- 1977-1981 Lecturer ("Profesor Asociado C") at the Mathematics and Computer Science Department, National Polytechnic Institute, Mexico.
- 1977-1978 Leader of the Operating Systems Group at the National Nuclear Research Center, Mexico.
- 1976-1976 Systems analyst for the steel company Lázaro Cárdenas-Las Truchas in Mexico City.
- 1974-1976 Programmer at the National Nuclear Research Center, Mexico.

#### 4 Research visits

- 2006 Visiting Professor at the Department of Computer Science, Stanford University, (Fall quarter 2006).
- 2003 Visiting Professor at the Department of Electrical and Systems Engineering, University of Pennsylvania (Spring term 2003).
- 2002 Invited Professor at the Stanford Center for Innovations in Learning. Stanford University (Fall term 2002).
- 2000 Visiting Professor at the Center for Mathematics Research (CIMAT), Guanajuato, Mexico (one month).
- 1998 Senior visitor at the International Computer Science Institute (ICSI) and Distinguished Lecturer at the EE/CS Department, University of California at Berkeley (five months).
- 1995 Senior visitor at the International Computer Science Institute (ICSI) with the AI group (two months)
- 1994 Senior visitor at the International Computer Science Institute (ICSI) with the speech recognition group (three months).
- 1993 Senior visitor at the International Computer Science Institute (ICSI) with the speech recognition group (three months).

#### 5 Membership on boards

- 2006- Member of the Editorial Board of the journal *Information Technology*, Oldenbourg Verlag, Munich.
- 2002- Member of the Editorial Board of *Journal of Universal Computer Science*, Springer-Verlag, Berlin.
- 2001-2004 Member of the Editorial Board of the *Iterations Journal* published by the Charles Babbage Institute for the History of Computing, University of Minnesota.
- 2000-2005 Member of the Executive Committee of the RoboCup Organization.
- 1999- Member of the Editorial Board of the *Annals of the History of Computing* published by the IEEE.
- 1999- Member of the Green Academy of the Heinrich-Böll-Foundation
- 1998- Director of the Konrad Zuse Internet Archiv, a project funded by the German Research Association.
- 1996- Member of the advisory council of the Journal *Künstliche Intelligenz* of the Gesellschaft für Informatik, Germany.

## 6 Awards

- 2006 *JAX Innovation Award 2006* (second prize), Wiesbaden, Germany, May 2006.
- 2005 *Wolfgang von Kempelen Prize for the History of Computing*, awarded jointly by the Austrian Computing Society and the Austrian Ministry for Communication, Innovation and Technology. 5000 Euro prize.
- 2002 Recipient of the *European Academic Software Award 2002* with the “E-Chalk” system during the finals held in Ronneby Sweden in November 2002. Co-recipients: Lars Knipping, Gerald Friedland.
- 2001 *First Prize in the Multimedia Contest* of the Economics Ministry with the project "E-Chalk: A Multimedia Tool for the Classroom and the Internet". In collaboration with Lars Knipping, Gerald Friedland and Ulrich Raffel. 50,000 DM prize.
- 1999 *Distinguished Scholar Award* from the German-American Academic Council and visit thereof to the University of Pennsylvania, Moore School of Engineering. As awardee I was selected to start the Moore School Lectures Series, which now takes place annually.
- 1982 German Academic Exchange Program (DAAD) award to conduct PhD studies in Germany.
- 1977 Winner of Mexico's National Council for Science and Technology Prize as best student of the class of 1972-1977 in the field of Mathematics at the National Polytechnic Institute, Mexico City.

### Awards in Robotic Soccer

- 2005 First place at the Robotic Soccer World Championship (RoboCup 2005) in Osaka, Japan, F-180 League, with my FU-Fighters Team (July 2005).  
Second place in the Mid-Size League with the FU-Fighters Team (July 2005)
- 2004 First place at the Robotic Soccer World Championship (RoboCup 2004) in Lisbon, Portugal, F-180 League, with my FU-Fighters Team (July 2004).
- 2004 Small-Size League *Engineering Award* at RoboCup 2004, Lisbon, Portugal.
- 2004 First place at the Robotic Soccer Championship (German Open 2004) in Paderborn, Germany, F-180 League, with my FU-Fighters Team (April 2004).
- 2002 Second place at the Robotic Soccer World Championship (RoboCup 2002) in Fukuoka, Japan, F-180 League, with my FU-Fighters Team.
- 2000 Second place at the Robotic Soccer World Championship (RoboCup 2000) in Melbourne, Australia, F-180 League, with my FU-Fighters Team.
- 2000 First place at the Robotic Soccer European Championship (EuroCup 2000) in Amsterdam, Netherlands, F-180 League, with my FU-Fighters Team. 10,000 DM prize.
- 1999 Second place at the Robotic Soccer World Championship (RoboCup 1999) in Stockholm, Sweden, F-180 League, with my FU-Fighters Team.

### Awards for theses directed

- 2002 Thesis director of the project "Exymen – An extendable media editor", which received the best undergraduate thesis award from the Gesellschaft fuer Informatik in Germany.
- 2001 Thesis director of the project "Reactive Robotics for Soccer" which received the special prize in the third biannual German "Studienpreis" competition.
- 1997 Thesis director of the project "Recognition of Handwritten Digits for the Postal Service" which received third prize in the first biannual German "Studienpreis" competition.

### 7 Service on committees (until 2006)

- 2006 Member of the program committee of IROS, ICRA, and other conferences.
- 2005 Member of the program committee of Autonomous Agents and Multiagent Systems AAMS06, Hakodate, Japan.
- 2004 Member of the program committee of ICWL-04 in Beijing, China, and keynote speaker.
- 2002 Program Co-Chairman of the RoboCup Workshop, Fukuoka, Japan.
- 2002 Member of the program committee of the Sixth International Conference "Neural Networks and Soft Computing", in Poznan, Poland.
- 2001 Member of the program committee of ENC-01 (Encuentro Nacional de Computación), Mexico.
- 2001 Member of the program committee of Fuzzy Days, Dortmund, Germany.
- 2001 Member of the program committee of KI-01, Vienna, Austria.
- 2001 Chairman of the organizing committee of the small-size league tournament during *RoboCup 200*.
- 2001 Member of the program committee of NN'01, *Neural Networks and Applications*, Tenerife, Spain.
- 2000 Publications chairman of *Neural Computation 2000*, NC2000, in Berlin, Germany.
- 2000 Member of the organizing committee of *the European Conference on Artificial Intelligence*, ECAI 2000, Berlin, Germany.
- 1999 Member of the program committee of NN'99, *Neural Networks in Applications*, Magdeburg, Germany.
- 1999 Guest editor of the special issue on Handwriting Recognition of the Journal *Künstliche Intelligenz* of the Gesellschaft für Informatik.
- 1998 Chairman of *Interdisziplinäres Kolleg 98*, Spring School on Neuroscience and AI, Günne, Germany.
- 1998 Chairman of the *International Conference on the History of Computing*, Paderborn, Germany.
- 1998 Member of the program committee of *Neural Computation*, NC98, Vienna.
- 1998 Member of the program committee of *Neuronale Netze in der Anwendung*, NN'98, Magdeburg.
- 1998 Member of the program committee of *Fuzzy-Neuro Systems 98*, Munich.
- 1996 Member of the program committee of *Herbstschule Konnektionismus*, HeKoNN-96, Münster, Germany
- 1996 Member of the program committee of *Intercon 96*, Trujillo, Peru.
- 1996 Member of the program committee of *BioNet 96*, Berlin.
- 1995 Member of the program committee of *Herbstschule Konnektionismus*, HeKoNN-95, Münster, Germany

## 8 Teaching experience

<i>Period</i>	<i>Institution</i>	<i>Courses</i>
1989-2008	Free University of Berlin	97
2007	Rice University, Houston	2
2002	Mills College, Oakland, California	3
2001	Stanford University (Berlin unit)	1
1993-1997	Martin Luther University at Halle-Wittenberg	14
1994	Technical University of Vienna	2
1985	Technical College of Berlin	1
1977-1981	National Polytechnic Institute, Mexico	9
<u>1979-1982</u>	<u>National Autonomous University of Mexico</u>	<u>6</u>
Total		133

The list of courses is given separately in a two-page supplement.

## 9 Languages

Spoken and written: Spanish, German, English, French, and Italian

## 10 Publications in the field of Computer Science

### 10.1 Books

- 1993 *Theorie der neuronalen Netze*, Springer-Verlag, Berlin, 1993; second print August 1993; third print April 1994; fourth print September 1995; fifth print August 1996; sixth and seventh print in 1998 and 1999.
- 1996 *Neural Networks - A Systematic Introduction*, Springer-Verlag, New York, 1996. Second print in 2001. Third print in 2003. Fourth print in 2004.
- 1998 R. Rojas (ed.), *Die Rechenmaschinen von Konrad Zuse*, Springer-Verlag, Berlin, 1998.
- 2000 R. Rojas, U. Hashagen (eds.), *The First Computers - History and Architectures*, MIT Press, Cambridge, Mass., 2000. Nominated for the "2001 Book Award for Individual and Group Contributions Promoting History and Computing" of the American Association of History and Computing.
- 2001 R. Rojas (ed.), *Encyclopedia of Computers and Computer History*, Fitzroy Dearborn, Chicago, 2001.
- 2003 G. Kaminka, P. Lima, R. Rojas (eds.), *RoboCup-2002: Robot Soccer World Cup VI*, Springer-Verlag LNAI 2752, Berlin, 2003.
- 2008 R. Rojas (ed.), *Konrad Zuses Plankalkül*, Springer-Verlag, Berlin, 2008 (forthcoming).

### 10.2 Commercial products and patents

1. Raul Rojas, Frank Darius, Jürgen Drepper, "68008-Karte für den Apple-II", MC-Mikrocomputer Zeitschrift, N. 9, 1985. Five hundred of these coprocessor boards for the Apple II were sold in Germany from 1985 to 1987.
2. Raul Rojas, Sergio Guevara, "Netbios-kompatible Netzwerkkarte für MS/PC-DOS-Systeme", Design & Elektronik, N. 4, February 1987. This network board was sold in Germany and the US from 1987 to 1990.
3. Raul Rojas, Lars Knipping, Gerald Friedland, "E-Chalk". This software, written in Java, allows the storage and transmission of lectures through the Internet. The software includes an audio, video and whiteboard module. Release 1.0 in distribution since December 2001. For this program we have received three prizes, the last one being the European Academic Software Award 2002.
4. Patent "Reading Device for Blind or Visually Impaired Persons", US Nr. 609901635. Europe Nr. EP07122042.0, November 2007 (pending).



### 10.3 Refereed papers in Journals and Conferences

- 2007 Alexander Lüning, Gerald Friedland, Raul Rojas: "Scaling Large-Screen Electronic Chalkboard Content to Handheld Devices", *2nd IEEE International Workshop on Multimedia Technologies for E-Learning at 9th IEEE Symposium on Multimedia*, Taichung, Taiwan (R.O.C.), December 10-12, 2007.
- 2007 Kristian Jantz, Gerald Friedland, Lars Knipping, Raul Rojas, "A Low-Cost Mobile Pointing and Drawing Device", *ACM Workshop on Educational Multimedia and Multimedia Education at the ACM SIGMM Conference on Multimedia*, Augsburg, Germany, September 2007.
- 2007 Erik Cuevas, Daniel Zaldivar, Ernesto Tapia and Raul Rojas, "An Incremental Fuzzy Algorithm for The Balance of Humanoid Robots", chapter in: A. Lazinika, *Humanoid Robots – New Developments*, ARS, Vienna, June 2007.
- 2007 Gerald Friedland, Kristian Jantz, Tobias Lenz, Fabian Wiesel, Raul Rojas, "Object Cut and Past in Images and Videos", *International Journal of Semantic Computing*, World Scientific, USA, June 2007.
- 2007 David Schneider, Marco Block, Raul Rojas, "Robust Document Warping with Interpolated Vector Fields", *International Conference on Document Analysis and Recognition 2007*, Curitiba, Brasilien, April 2007.
- 2007 Marte Ramirez, Marco Block, Ernesto Tapia, Raul Rojas, "Quantile Linear Algorithms for Robust Binarization of Digitalized Letters", *International Conference on Document Analysis and Recognition 2007*, Curitiba, Brasil, April 2007.
- 2007 Kristian Jantz, Gerald Friedland, Raul Rojas, "Ubiquitous Pointing and Drawing", *International Journal on Emerging Technologies for Learning (iJET)*, Vol.2, No. 1, ISSN: 1863-0383, Wien, Austria, March 2007.
- 2007 Felix von Hundelshausen, Marco Block, H. J. Wünsche, Raul Kompass, Raul Rojas, "Mesh-Based Active Monte Carlo Recognition", *International Joint Conference on Artificial Intelligence*, Hyderabad, India, January 2007.
- 2006 G. Friedland, K. Jantz, T. Lenz, F. Wiesel, R. Rojas: "A Practical Approach to Boundary-Accurate Multi-Object Extraction from Still Images and Videos", to appear in *Proceedings of IEEE International Symposium on Multimedia*, San Diego, California, December 11-13, 2006.
- 2006 G. Friedland, R. Rojas: "Human-Centered Webcasting of Interactive-Whiteboard Lectures", in *Proceedings of Seventh IEEE International Workshop in Multimedia Technologies for E-Learning*, San Diego, California, December 11-13, 2006.
- 2006 E. Tapia, R. Rojas, "A Neural Architecture for Blind Source Separation", *ICA Research Network International Symposium*, Liverpool, September 2006.
- 2006 S. Jeschke, L. Knipping, R. Rojas, R. Seiler: *Intelligent Chalk-Systems for Modern Teaching: in Math, Science & Engineering Areas*, accepted for ASEE`06

- 2006 Raul Rojas, Mark Simon, Oliver Tenchio, "Parabolic Flight Reconstruction from Multiple Images from a Single Camera", *RoboCup-2006 International Symposium*, Bremen, June 2006.
- 2006 Jochen Brunhorn, Oliver Tenchio, Raul Rojas, "An Omnidirectional Wheel Based on Reuleaux Triangles", *RoboCup-2006 International Symposium*, Bremen, June 2006.
- 2006 R. Rojas, "The S1 and S2 computing machines: Konrad Zuse's work for the German military 1941-1945", submitted to *IEEE Annals of the History of Computing*.
- 2006 T. Zoppke, R. Rojas, "The Virtual Life of ENIAC: Simulating the Operation of the First Electronic Computer", *IEEE Annals of the History of Computing*.
- 2006 Alexander Gloye, Raul Rojas, "Holonomic Control of a Robot with an Omnidirectional Drive", *Künstliche Intelligenz*, Springer-Verlag, 2006.
- 2005 G. Friedland, K. Jantz, R. Rojas, "SIOX: Simple Interactive Object Extraction in Still Images", Proceedings of the *7th IEEE Symposium on Multimedia (ISM2005)*, Irvine, California, December 2005.
- 2005 G. Friedland, C. Zick, K. Jantz, L. Knipping, R. Rojas, "An Interactive Datawall for an Intelligent Classroom", DeLFI2005, Workshop Proceedings, pp. 25-30, Rostock, September 13th-16th, 2005.
- 2005 R. Rojas, F. Darius, C. Göktekin, and G. Heyne, "The Reconstruction of Konrad Zuse's Z3", *IEEE Annals of the History of Computing*, Vol. 27, N. 3, 2005, pp. 23-32.
- 2005 R. Rojas, Editor of the Special Issue "Autonomous Robotic Soccer" of *Information Technology*, Oldenbourg-Verlag, Editorial, Vol. 47, N. 5, 2005, pp. 239-240.
- 2005 Ketill Gunnarson, Fabian Wiesel, Raul Rojas, "Automatic On-Line Color Calibration for Autonomous Robots", *RoboCup 2005 International Symposium*, Osaka, July 2005.
- 2005 Bastian Hecht, Mark Simon, Artem Petakov, Raul Rojas, "A Neural Coach for Teaching Robots Using Diagrams", *Workshop Agents in Real Time and Dynamic Environments, IJCAI 2005*, Edinburgh, July 2005.
- 2005 Erik V. Cuevas, Daniel Zaldívar, and Raúl Rojas, "Robust fuzzy segmentation", *International Congress on Computer Sciences, Biomedical Engineering and Electronics CONCIBE 2005*, Guadalajara, Mexico, October 2005.
- 2005 Erik V. Cuevas, Daniel Zaldívar, and Raúl Rojas, "Vision tracking prediction", *International Congress on Computer Sciences, Biomedical Engineering and Electronics CONCIBE 2005*, Guadalajara, Mexico, October 2005.
- 2005 Erik V. Cuevas, Daniel Zaldívar, and Raúl Rojas, "Incremental fuzzy control for a biped robot balance", *International Conference on Robotics and Applications 2005*, October 31 - November 2, 2005 Cambridge, USA
- 2005 Ernesto Tapia and Raúl Rojas, "Recognition of On-line Handwritten Mathematical Formulas in the E-Chalk System – An Extension", *Eighth International Conference on Document Analysis and Recognition (ICDAR)*, August 2005, Seoul, Korea.
- 2005 Gerald Friedland, Kristian Jantz, Lars Knipping, Raul Rojas, "The Virtual Technician: An Automatic Software Enhancer for Audio Recording in Lecture Halls," *9th International Conference on Knowledge-Based & Intelligent Information & Engineering Systems*, Melbourne, Australia, September 2005.

- 2005 Eric Cuevas, Daniel Zaldivar, Raul Rojas, "Dynamic Control Algorithm for a Biped Robot," *7th International Conference on Control and Applications*, Cancún, Mexico, May 18-20, 2005.
- 2005 Gerald Friedland, Lars Knipping, Raul Rojas, Joachim Schulte, Christian Zick, "Die E-Chalk Software: Einsatz und Evaluation in Präsenzunterricht- und E-Learning Szenarien," in C. Lattemann, T. Köhler (eds.) *Multimediale Bildungstechnologien I - Anwendungen und Implementationen*, Verlag Peter-Lang, pp. 243-256, 2005.
- 2004 Eric Cuevas, Daniel Zaldivar, Raul Rojas, "Fuzzy segmentation in image processing," *XXVI International Congress on Electrical Engineering*, ELECTRO 2004.
- 2004 Eric Cuevas, Daniel Zaldivar, Raul Rojas, "Fuzzy condensed algorithm applied to control a robotic head for visual tracking", *International Symposium on Robotics and Automation*, IEEE, ISRA 2004, Queretaro, Mexico, August 25-27, 2004
- 2004 Eric Cuevas, Daniel Zaldivar, Raul Rojas, "Neurofuzzy prediction for visual tracking," *International Conference on Electrical and Electronics Engineering*, IEEE, ICEEE 2004, Acapulco, México, June 2004.
- 2004 Eric Cuevas, Daniel Zaldivar, Raul Rojas, "LVQ Color segmentation applied to face localization," *International Conference on Electrical and Electronics Engineering*, IEEE, ICEEE 2004, Acapulco, México, June 2004.
- 2004 Raúl Rojas, Lars Knipping, Gerald Friedland, Ernesto Tapia, "Teaching with an Intelligent Electronic Chalkboard", *ACM Multimedia 2004*, Workshop on Effective Telepresence, October 2004, NY, USA.
- 2004 Ernesto Tapia and Raúl Rojas. Recognition of On-Line Handwritten Mathematical Expressions using a Minimum Spanning Tree Construction and Symbol Dominance, in Josep Lladós and Young-Bin Kwon, (eds.), *Graphics Recognition: Recent Advances and Perspectives*, Fifth International Workshop, GREC 2003, Lecture Notes in Computer Science, Vol. 3088, Springer Verlag, July 2004.
- 2004 Margarita Esponda, Raúl Rojas, "Learning Algorithms with an Electronic Chalkboard over the Web", *3<sup>rd</sup> International Conference on Web-based Learning 2004*, Tsinghua University, Beijing, China, August 2004.
- 2004 Felix von Hundelshausen, Michael Schreiber, Raúl Rojas, „A Constructive Feature Detection Approach for Robotic Vision“, in D. Nardi, M. Riedmiller, C. Sammut, J. Santos-Victor, J. (eds.): *RoboCup-2004 - Robot Soccer World Cup VIII*, Springer-Verlag, 2004.
- 2004 Alexander Glove, Cüneyt Göktekin, Anna Egorova, Oliver Tenchio, Raúl Rojas, "Learning to Drive and Simulate Autonomous Mobile Robots", in D. Nardi, M. Riedmiller, C. Sammut, J. Santos-Victor, J. (eds.): *RoboCup-2004 - Robot Soccer World Cup VIII*, Springer-Verlag, 2004.
- 2004 Mark Simon, Fabian Wiesel, Anna Egorova, Alexander Glove, Raúl Rojas, "Plug & Play: Fast Automatic Geometry and Color Calibration for Tracking Mobile Robots", in D. Nardi, M. Riedmiller, C. Sammut, J. Santos-Victor, J. (eds.): *RoboCup-2004 - Robot Soccer World Cup VIII*, Springer-Verlag, 2004.

- 2004 Felix von Hundelshausen, and Raúl Rojas: "Tracking Regions", in D. Polani, B. Browning, A. Bonarini, K. Yoshida (eds.): *RoboCup-2003 - Robot Soccer World Cup VII*, Springer, 2004.
- 2004 Sven Behnke, Anna Egorova, Alexander Gloye, Raúl Rojas, and Mark Simon: "Predicting away the Delay", in D. Polani, B. Browning, A. Bonarini, K. Yoshida (eds.): *RoboCup-2003 - Robot Soccer World Cup VII*, Springer, 2004.
- 2003 Raúl Rojas, "Networks of Width One are Universal Classifiers", *Proceedings of the International Joint Conference on Neural Networks*, Portland, OR, July 2003.
- 2003 Anna Egorova, Alexander Gloye, Achim Liers, Raúl Rojas, Michael Schreiber, Mark Simon, Oliver Tenchio, and Fabian Wiesel: "FU-Fighters 2003 (Global Vision)", in D. Polani, B. Browning, A. Bonarini, K. Yoshida (Co-chairs): *RoboCup-2003 - Proceedings of the International Symposium*.
- 2003 Felix von Hundelshausen, Raúl Rojas, Fabian Wiesel, Erik Cuevas, Daniel Zaldivar, and Ketill Gunnarsson: "FU-Fighters Team Description 2003", in D. Polani, B. Browning, A. Bonarini, K. Yoshida (Co-chairs): *RoboCup-2003 - Proceedings of the International Symposium*.
- 2003 Tapia und R. Rojas, "Recognition of On-Line Handwritten Mathematical Expressions using a Minimum Spanning Tree Construction and Symbol Dominance", in *Proceedings of the Fifth IAPR International Workshop on Graphics Recognition (GREC)*, Barcelona, Spain, July 30-31, 2003.
- 2003 Tapia und R. Rojas, "Recognition of On-line Handwritten Mathematical Formulas in the E-Chalk System", in *Proceedings of the Seventh International Conference on Document Analysis and Recognition (ICDAR)*, Edinburgh, Scotland, August 3-6, 2003.
- 2003 Friedland, L. Knipping, E. Tapia, R. Rojas, "Web Based Education as a Result of AI Supported Classroom Teaching", in *Proceedings of the Seventh Conference on Knowledge-Based Intelligent Information & Engineering Systems (KES)*, Oxford, England, September 3-5, 2003. To appear in: *Lecture Notes in Artificial Intelligence (LNAI) Vol. 2774*, pp. 290f, Springer Verlag, Berlin Heidelberg.
- 2003 G. Friedland, L. Knipping, R. Rojas, C. Zick, "Mapping the Classroom into the Web: Case Studies from several Institutions", *Proceedings of the 12th EDEN Annual Conference*, Rhodos, June 2003.
- 2002 Sven Behnke, Alexander Gloye, Felix von Hundelshausen, and Raúl Rojas: *FU-Fighters 2002 (Middle Size)*, in: G. A. Kaminka, P U. Lima, R. Rojas (eds.): *RoboCup-2002: Robot Soccer World Cup VI*, The 2002 International RoboCup Symposium Proceedings.
- 2002 Raúl Rojas, Sven Behnke, Achim Liers, and Lars Knipping, "FU-Fighters 2001 (Global Vision)", in: A. Birk, S. Coradeschi, and S. Tadokoro (editors): *RoboCup-2001: Robot Soccer World Cup V*, Springer-Verlag.
- 2002 Raúl Rojas, Felix von Hundelshausen, Sven Behnke, Bernhard Frötschl "FU-Fighters Omni 2001 (Local Vision)", in: A. Birk, S. Coradeschi, and S. Tadokoro (editors): *RoboCup-2001: Robot Soccer World Cup V*, Springer-Verlag.
- 2001 Felix v. Hundelshausen, Sven Behnke, Raul Rojas, "An omnidirectional vision system that finds and tracks color edges and blobs", in: A. Birk, S. Coradeschi, and S. Tadokoro (editors): *RoboCup-2001: Robot Soccer World Cup V*, Springer-Verlag.

- 2001 R.Rojas, L.Knipping, G.Friedland, U.Raffel,C.Zick: "Elektronische Kreide - Eine Java-Multimedia-Tafel fuer den Praesenz- und Fernunterricht". In *GMW-Forum 2001*, Gesellschaft fuer Medien in der Wissenschaft, Siegen, 2001.
- 2001 Sven Behnke, Raúl Rojas, "A Hierarchy of Reactive Behaviors Handles Complexity", in: M. Hannebauer, J. Wendler, and E. Pagello (editors): *Balancing Reactivity and Social Deliberation in Multi-Agent Systems*, pp. 125-136, Springer 2001.
- 2001 Raúl Rojas, Lars Knipping, Ulrich Raffel, Gerald Friedland, Bernhard Frötschl, "Ende der Kreidezeit - Die Zukunft des Mathematikunterrichts", *DMV Mitteilungen*, Nr. 1/2001, Berlin.
- 2001 Raúl Rojas, Lars Knipping, Ulrich Raffel, Gerald Friedland, "Elektronische Kreide: Eine Java-Multimedia-Tafel für den Präsenz und Fernunterreicht", in *Informatik: Forschung und Entwicklung*. Vol. 16, N. 3, pp. 159-168. Also in Beck, Sommer (eds.), *Learntec Tagungsband*, Vol. 2, pp. 533-539, Karlsruhe, October 2001.
- 2001 Raul Rojas, Sven Behnke, Lars Knipping, Bernhard Frötschl, "Team Description: FU-Fighters 2000", Peter Stone (Hrsg.), "RoboCup-2000: Robot Soccer World Cup IV", in: P. Stone, T. Balch, and G. Kraetzschmar (editors): *RoboCup-2000: Robot Soccer World Cup IV*, pp. 547-550, Springer-Verlag.
- 2000 Sven Behnke, Raul Rojas, and Gerd Wagner, "A hierarchy of reactive behaviors handles complexity", *Proceedings of: Balancing Reactivity and Social Deliberation in Multi-Agent Systems*, Workshop at ECAI, 14th European Conference on Artificial Intelligence, Berlin, 2000.
- 2000 S. Behnke, B.Frötschl, R. Rojas, P. Ackers, W. Lindstrot, M. de Melo, M. Preier, A. Schebesch, M. Simon, M. Sprengel, and O. Tenchio, "RoboCup-99 (F180) Team Description: FU-Fighters," Team Descriptions RoboCup'99 - Stockholm, 1999. revised Version in *RoboCup-99: Robot Soccer World Cup III*, pp. 667-670, Springer, 2000.
- 2000 S. Behnke, B.Frötschl, R. Rojas, P. Ackers, W. Lindstrot, M. de Melo, M. Preier, A. Schebesch, M. Simon, M. Sprengel, and O. Tenchio, "Using hierarchical dynamical systems to control reactive behavior," *Proceedings IJCAI'99 - International Joint Conference on Artificial Intelligence*, The Third International Workshop on RoboCup - Stockholm, pp. 28-33, 1999. New version in *RoboCup-'99: Robot Soccer World Cup III*, pp. 186-195, Springer, 2000.
- 2000 R.Rojas, "Soccer Without Reason - Sensor fusion in the FU-Fighters Team", *Proceedings of the International Workshop Data Fusion and Perception*, Udine, Oktober 2000.
- 2000 Mark Simon, Sven Behnke, and Raul Rojas, "Robust Real Time Color Tracking", Peter Stone (Hrsg.), *Proceedings of: The Fourth International Workshop on RoboCup*, Melbourne, Australia, 2000, pp. 62-71.
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