

CURRICULUM VITAE

1. PERSONAL DETAILS

Name: Susana Vegas-Azcárate

Place and Date of Birth: Madrid (Spain), February 11th 1978

Position: Teaching Assistant Doctor, University Carlos III, Madrid

Work Details: Universidad Carlos III de Madrid, Departamento de Estadística
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2. UNIVERSITY EDUCATION

Bachelor in Mathematics (Licenciada) in Statistics and Operations Research, University Complutense of Madrid UCM, June 2001.

Master in Bioinformatics, University Complutense of Madrid UCM, July 2002.

M.Sc. in Computer Sciences and Mathematical Modelling, University Rey Juan Carlos URJC, June 2003.

European Ph.D. in Computer Sciences and Mathematical Modelling, University Rey Juan Carlos URJC, December 19th 2005 ('*apto cum laude* on unanimity'). The Examining Commission was chaired by Professor Marc M. Van Hulle.

3. RESEARCH INTERESTS

Bioinformatics, Neural Networks, Data Mining.

4. ACADEMIC EXPERIENCE

4.1. Positions

2006 onwards	Teaching Assistant Doctor, Department of Statistics, University Carlos III, Madrid
2001 – 2006	Teaching Assistant, Department of Statistics and Operations Research, University Rey Juan Carlos, Madrid

4.2. Lecturing Posts at University

4.2.1. University Carlos III

2006 onwards Statistics I, Statistics II

4.2.2. University Rey Juan Carlos, School of Experimental Sciences and Technology

2005 – 2006 Informatics Systems, Statistics Methods

2004 – 2005 Informatics Systems

2003 – 2004 Informatics Systems, Informatics Business, Statistics Methods

2002 – 2003 Informatics Systems, Informatics Business, Statistics Methods

2001 – 2002 Informatics Systems, Informatics Business, Operation Research Methods, Statistics Methods

5. PUBLICATIONS

5.1. Journal Articles

Vegas-Azcárate, S. and Muruzábal, J. (2005) Cluster Analysis Via Neuron Proximity in Monitored Self-Organizing Maps, Biosignal Processing and Classification, Vol. 1, pp. 50-59, Insticc Press, ISBN-972-8865-35-X.

Muruzábal, J. and Vegas-Azcárate, S. (2005) Equiprobabilistic maps and plausible density estimation, Proceedings of the Workshop on Self-Organizing Maps WSOM'05, Vol. 5, pp. 155-162.

Vegas-Azcárate, S. and Muruzábal, J. (2003) On the use of the GTM algorithm for mode detection, Lecture Notes in Computer Science, Vol. 2810, pp. 497-508, Springer-Verlag, ISSN-0302-9743.

5.2. Technical Reports

Vegas-Azcárate, S. and Muruzábal, J. in memoriam (2006) SOM+: a monitored SOM and its applications to Bioinformatics, Technical Reports on Statistics and Decision Sciences URJC, Vol. 3, ISSN-1699-6895-TR06/15.

Vegas-Azcárate, S. (2006) Topology preservation in nonvectorial SOM, Technical Reports on Statistics and Decision Sciences URJC, Vol. 3, ISSN-1699-6895-TR06/5.

Vegas-Azcárate, S. and Muruzábal, J. (2006) Mode detection via neuron proximity in monitored self-organizing maps, Technical Reports on Statistics and Decision Sciences URJC, Vol. 3, ISSN-1699-6895-TR06/4.

Vegas-Azcárate, S. and Muruzábal, J. (2006) Density estimation with equiprobabilistic maps, Technical Reports on Statistics and Decision Sciences URJC, Vol. 3, ISSN-1699-6895-TR06/3.

Vegas-Azcárate, S. and Muruzábal, J. (2006) Mode estimation with topographic maps, Technical Reports on Statistics and Decision Sciences URJC, Vol. 3, ISSN-1699-6895-TR06/2.

Vegas-Azcárate, S. and Muruzábal, J. (2006) Drawbacks in classic methods for multivariate mode detection problems, Technical Reports on Statistics and Decision Sciences URJC, Vol. 3, ISSN-1699-6895-TR06/1.

Vegas-Azcárate, S., Gautama, T. and van Hulle, M. (2005) Nonvectorial kMER and topology preservation, Technical Reports on Statistics and Decision Sciences URJC, Vol. 2, ISSN-1699-6895-TR05/16.

Vegas-Azcárate, S., Dopazo, J. and Muruzábal, J. (2005) A nonvectorial SOTA, Technical Reports on Statistics and Decision Sciences URJC, Vol. 2, ISSN-1699-6895-TR05/15.

Vegas-Azcárate, S., Gautama, T. and van Hulle, M. (2005) Topology preservation in topographic maps, Technical Reports on Statistics and Decision Sciences URJC, Vol. 2, ISSN-1699-6895-TR05/14.

Vegas-Azcárate, S., Gautama, T. and van Hulle, M. (2005) Monitoring Topographic Maps, Technical Reports on Statistics and Decision Sciences URJC, Vol. 2, ISSN-1699-6895-TR05/13.

6. PAPERS PRESENTED IN SCIENTIFIC MEETINGS

Vegas-Azcárate, S. and Muruzábal, J. (2005) Cluster Analysis Via Neuron Proximity in Monitored Self-Organizing Maps, The 1st Workshop on Biosignal Processing and Classification BPC'05 in the 20th International Conference on Informatics in Control, Automation and Robotics ICINCO'05 (Barcelona).

Muruzábal, J. and Vegas-Azcárate, S. (2005) Equiprobabilistic maps and plausible density estimation, The 5th Workshop on Self-Organizing Maps WSOM'05 (Paris).

Vegas-Azcárate, S. and Muruzábal, J. (2003) On the use of the GTM algorithm for mode detection, The 5th International Symposium on Intelligent Data Analysis IDA'03 (Berlin).

7. DEVELOPED TOOLS

SOM+

8. PARTICIPATION IN RESEARCH PROJECTS

'E-democracia, apoyo a la toma de decisiones complejas basadas en Internet' (eDemocracy: Internet-Aided Complex Decision-Making), MEC-TSI-2004-06801-C04-04, September 2004 - September 2007, Spanish Ministry of Education and Science (120.280,00 €).

'Modelos Gráficos Probabilísticos' (Probabilistic Graphical Models), July 2005 - July 2006, Spanish Ministry of Education and Science (9.000,00 €).

'Towards Electronic Democracy: Internet Based Complex Decision Support', March 2003 - March 2006, European Science Foundation (320.000,00 €).

'Modelos de evolución espacio-temporal de las empresas de la Comunidad de Madrid' (Space-time evolution models of Madrid Autonomous Community), October 2002 - October 2004, Statistics Institute of Madrid (65.100,00 €).

'PROENBIS: A European Network for Industrial and Business Statistics', January 2002 - January 2004, European Union (10.800,00 €).

'Laboratorio de Investigación en Ingeniería de la Decisión' (Decision Engineering Research Laboratory), September 2002 - September 2003, DMR Consulting Foundation (60.000,00 €).

'Herramientas para la predicción de la estructura secundaria de las proteínas basada en técnicas de Data Mining' (Protein Secondary Structure Prediction Using Data Mining Methods), URJC-PIPR-02-05, September 2002 - September 2003, Universidad Rey Juan Carlos (3.000,00 €).

'Un sistema de ayuda a la toma de decisiones en problemas de rutas de vehículos y localización de servicios' (A Decision Support System of Routes for Vehicles and Location-based Services), MCYT-TIC-2000-1750-C06-04, September 2000 - September 2003, Spanish Ministry of Science and Technology (72.000,00 €).

'Modelos jerárquicos bayesianos aplicados al tratamiento de imágenes de resonancia magnética funcional' (Hierarchical Bayesian Model for Functional Magnetic Resonance Imaging), URJC-PPR-2004-46, September 2004 - September 2005, Universidad Rey Juan Carlos (4.500,00 €).

9. STAYS AS A VISITING RESEARCHER

Visiting Researcher at the Príncipe Felipe Research Center of Valencia between April and June 2006 (Bioinformatics Department). Research Topic: 'A Variant of the Self-Organizing Tree Algorithm Suitable for Nonvectorial Data' (funded by the E-democracy Project).

Visiting Researcher at the Catholic University of Leuven between September and December 2004 (Computational Neuroscience Research Group of the Neurophysiology Laboratory). Research Topic: 'A Novel Generic Method to Obtain Topology-Preserving Maps from all Topographic Map Formation Algorithms' (funded by the European Science Foundation).

Visiting Researcher at the University of Granada between February and April 2003 (GeNeura Team of the Department of Architecture and Computer Technology). Research Topic: 'The Potential of Self-Organizing Maps as an Approach to Multivariate Mode Detection' (funded by the University Rey Juan Carlos).

10. GRANTS AND AWARDS

European Science Foundation Exchange Grant 2004 to stay as a visiting researcher at the Catholic University of Leuven.

URJC Research Scholarship 2003 to stay as a visiting researcher at the University of Granada.

Free University of Berlin Research Scholarship to participate in the '5th International Symposium on Intelligent Data Analysis 2003' held in Berlin, Germany.

CNR-IMATI Research Scholarship (Institute for Applied Mathematics and Computer Sciences Technologies of Milan) to participate in 'Summer School on Towards Electronic Democracy 2003: Internet-based Decision Support' held in Varenna, Italy.

DMR Consulting Foundation Decision Engineering Lab to participate in 'Towards Electronic Democracy 2003: Internet-based Multi-criteria decision support' held in Madrid, Spain.

URJC Research Scholarship to participate in 'Bioinformatics and Computational Biology 2002' held in Madrid, Spain.

URJC Research Scholarship to participate in 'The Gulbenkian Training Programme in Bioinformatics 2002: Biological Sequence Analysis' held in Oeiras, Portugal.

MECD-UCM Research Scholarship 2000/2001 (Beca-Colaboración MECD) at the Faculty of Mathematics, University Complutense of Madrid.

UCM Foundation Student Scholarship to participate in 'UCM Summer School 2002: Introductory Course on Bioinformatics: Approaches on Proteomics' held in Madrid, Spain.

UCM Foundation Student Scholarship to participate in 'UCM Summer School 2001: Mathematical Icons of the End of XX Century' held in Madrid, Spain.

UCM Foundation Student Scholarship to participate in 'UCM Summer School 2000: A Mathematical Mosaic in the World Mathematical Year' held in Madrid, Spain.

11. OTHER MERITS

Participation as lecturer in postgraduate master courses, highlighting the 'Master in Decision Engineering' from 2003 onwards at the School of Experimental Sciences and Technology, University Rey Juan Carlos.

Coordinator of the Statistics and Decision Sciences Group Library, 2003 - 2006.

Member of the Local Committee in the '6th International Symposium on Intelligent Data Analysis 2005' held in Madrid, Spain.

Representative of Spain in the 21st Session of the European Youth Parliament 1996 held in Munich, Germany.

Representative of Spain in the 19th Session of the European Youth Parliament 1995 held in Dublin, Ireland.

Representative of Spain in the 17th Session of the European Youth Parliament 1994 held in Holstebro, Denmark.

Languages: Spanish (mother tongue). Fluent in English.

12. REFERENCES

Name: Prof. Dr. **Dopazo Blázquez, Joaquín**

Position: Head of the Bioinformatics Department at Príncipe Felipe Research Center, Valencia, Spain

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Name: Prof. Dr. **Kaski, Samuel**

Position: Head of the Statistical Machine Learning and Bioinformatics Group
Helsinki University of Technology, Finland

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email: samuel.kaski@hut.fi
<http://www.cis.hut.fi/sami>

Name: Prof. Dr. **Ríos Insua, David**

Position: Head of the Statistics and Decision Science Group at University Rey Juan Carlos, Madrid, Spain

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Name: Prof. Dr. **Van Hulle, Marc M.**

Position: Head of the Computational Neuroscience Research Group
Catholic University of Leuven, Belgium

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