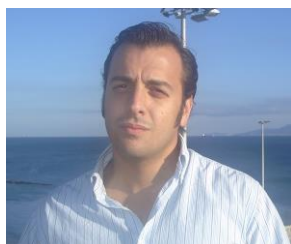


PERSONAL INFORMATION



Niceto Rafael Luque Sola

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Sex Male | Date of birth 14/08/1981 | Nationality Spanish

EDUCATION

Dates (from 2008 – 2013)

Ph.D. in Automatics and Electronics

Title of qualification awarded: "Bio-Inspired Robotic Control Schemes Using Biologically Plausible Neural Structures" University of Granada, Granada. SPAIN score: summa cum laude, international mention

Dates (from 2006 – 2007)

M. Sc. in Computer Architecture and Networks

Title of qualification awarded: Official Master in Computer Architecture and Networks (it received a quality award from the Spanish Ministry of Education) Master from the University of Granada, SPAIN Average score: 2.935 over 4

Principal subjects/occupational skills covered: Computer Architecture and Networks with specialisation in Neuromorphic Engineering, Robotics and Neural Networks.

Dates (from 2004 – 2006)

M. Sc. in Automatic Engineering and Industrial Electronics

Title of qualification awarded: Degree in Automatic Engineering and Industrial Electronics from the University of Córdoba, SPAIN Average score: 8.7 over 10

Principal subjects/occupational skills covered: Control Engineering, Industrial robotics, Modelling dynamical systems and Automatisation.

Dates (from 2000 – 2004)

B. Sc. in Electronics

Title of qualification awarded: Bachelor's Degree in Industrial Electronics from the University of Córdoba, Córdoba. SPAIN Average score: 2.56 over 4

Principal subjects/occupational skills covered: Electronic Engineering, power electronics, industrial programming, analogue PCB hardware modelling

PRE & POST DOCTORAL TRAINING

Dates (from 2015 – on going)

Post Doc. Marie Curie fellow

Occupation or position held Postdoctoral Researcher under MSCA IF Project Spike Control (658479) at the University Pierre et Marie Curie (Paris, France).

Main activities and responsibilities: Fundamental Research in cerebellar modelling and learning plasticity

Dates (from 2014 – 2015)

Post Doc. HBP EU Project

Occupation or position held Postdoctoral Researcher associated to the European Project FET Human Brain Project (HBP) at the University of Granada (Granada, SPAIN)

Main activities and responsibilities: Fundamental Research in developing tools to generate high-fidelity digital reconstructions and simulations of the human brain, particularly, the cerebellum

Dates (from 2013 – 2014)

Post Doc. Realnet EU Project

Occupation or position held Postdoctoral Researcher associated to an European project REALNET (IST-270434) at the University of Granada (Granada, SPAIN)

Main activities and responsibilities: Fundamental Research in cerebellar control architectures and biological control systems.

Dates (from 2007– 2013)

Pre Doc. Sensopac EU Project

Occupation or position held Predoctoral Researcher associated to an European project SENSOPAC (IST-028056) at the University of Granada (Granada, SPAIN)

Main activities and responsibilities: Fundamental Research in cerebellum-based control system to solve complex haptic/touch problems using active sensing.

PERSONAL SKILLS

Mother tongue(s)

Spanish

Other language(s)

English

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C1	C1	C1	C1	C1

ADDITIONAL INFORMATION

FELLOWSHIPS AND AWARDS IN PUBLIC CALLS

- Date 06/2017 **Juan de la Cierva-incorporación fellowship** from the Spanish Ministry of Economy, Industry and Competitiveness (Training Program for incorporating Young Researchers from overseas). This is a very competitive program in which only 7 grants were awarded that year in ICT field in Spain
- Date 12/2016 **Outstanding Thesis Award** given by the University of Granada to the best thesis in ICT
- Date 06/2015 **Juan de la Cierva-formación fellowship** from the Spanish Ministry of Economy, Industry and Competitiveness (Training Program for Young Researchers). This is a very competitive program in which only 8 grants were awarded that year in ICT field in Spain
- Date 03/2015 **MARIE SKŁODOWSKA-CURIE ACTIONS Individual Fellowships (IF)**. Most prestigious grant awarded in EU for young researchers
- Date 12/2014 **Teaching Staff Accreditation** obtained as (TL: Temporary Lecturer; AD: Assistant Lecturer; PU: Private University)
- Date 01/2013 **Project for Young Researchers** PYR-2012-15 CEI BioTIC GENIL (CEB09-0010) Spanish Science and Innovation. In this project, the candidate participates as Principal Investigator (IP).
- Date 10/2013 **NVIDIA award** for research support (equipment donation \$2000)
- Date 05/2007 **FPU fellowship** from the Spanish Ministry of Education (Training Program for University Teachers). This is a very competitive program in which only 14 were awarded in electronics that year in Spain
- Date 2006 **Prize** awarded by the University of Córdoba (Spain) for the **best average score** in my Bachelor's Degree in Industrial Electronics
- Date 2006 **Prize** awarded by the University of Córdoba and the regional Andalusian government "Junta de Andalucía" for the best **Master Thesis Project** presented during the course of 2006. "Premios de innovación para proyectos fin de carrera"
- Date 2004/2005 **National Spanish Grant** for scientific initiation 2004/2005.
- Date 2004/2005 **Collaborating student** for the Department of Systems and Automation Engineering U. Córdoba

SUPERVISION DOCTORAL FELLOWS

Date (from 01/2014 – 05/2017)

Ph.D. supervisor of Dr Francisco Naveros. Department of Computer Architecture and Technology, University of Granada, Spain

TEACHING ACTIVITIES

Course (from 2010 – 2011)

Lecturer. Laboratory Sessions of Introduction to Computer Science, University of Granada, Spain 30hours

INSTITUTIONAL

RESPONSIBILITIES

Dates (from 2011 – 2013)

Member of the R&D committee at the Research Centre for Information and Communications Technologies of the University of Granada (CITIC) Spain

PARTICIPATION IN RESEARCH PROJECTS

Dates (from 01/2015 – 12/2017)

NEUROPAC Computational neuroscience in perception-actions closed loops (TIN2013-47069-P)) Spanish Ministry of Economy, Industry and Competitiveness

Dates (from 10/2013 – 09/2015)

HUMAN BRAIN PROJECT (HBP FP7 Flagship Project 604102). European Project

Dates from (01/2011 – 01/2014)

REALNET (IST-270434). European Project.

Dates from (01/2013 – 01/2014)

PYR-2012-15 CEI BioTIC GENIL (CEB09-0010) Spanish Ministry of Science and Innovation

Dates from (01/2009 – 12/2011)

MultiVision: Multicamera vision systems in real time for scene interpretation (TIC-3873). Andalusian Autonomous Government.

Dates from (10/2007 – 09/2010)

DINAM-VISION: Dynamic vision system in real time and its application in robotics, vehicles and medicine (DPI2007-61683). Andalusian Autonomous Government.

Dates from (01/2006 – 12/2009)

SensoPAC: Sensory motor structuring of perception and action for emerging cognition (IST-028056).European Project.

R&D MANAGEMENT EXPERIENCE

Dates (from 09/2015 – 09/2017)

Principal Investigator of project SPIKECONTROL: Cerebellar Spiking Model For Real-time Closed-loop Sensorimotor Control (H2020-MSCA-IF-2014_ST). Standard EF. European Project

Dates (from 01/2014 – 01/2015)

Principal Investigator of project Embodied System Neuroscience Simulations PYR-2014-16 CEI BioTIC GENIL (CEB09-0010) Spanish Ministry of Science and Innovation.

MAJOR COLLABORATIONS

Prof. D'Angelo

Cerebellar neurophysiology. Dept. of Brain and Behavioural Sciences. University of Pavia. Italy

Dr. Arleo & Dr. Carrillo

Cerebellar computational neurobiology .Aging in Vision and Action Group. Vision Institute. University Pierre& Marie Curie. Paris, France

Dr. Passot

Mechanistic Cerebellar models. Project Manager at Brain corporation Inc. San Diego, USA.

Dr. Tolu

Robotics. Dtu Electrical Engineering. Department of Electrical Engineering. Technical University of Denmark

Dr. Pedrocchi & Dr. Casellato

Bioengineering Department of Electronics Informatics and Bioengineering of the Politecnico di Milano, Italy

Dr. Garrido, Dr. Naveros & Prof. Ros

Plasticity,Spiking Computational models. Department of Computer Architecture and Technology, University of Granada, Spain

Dr. Ralli

Clustering techniques. Co-Founder | Head Of Engineering point vision. Helsinki, Finland.

Journal Publications

(IF: Impact Factor, JR: Journal Rank, Hindex: 11, Total Cites: 351)

*Equally contributed

1. F. Naveros, J. A. Garrido, R. R. Carrillo, E. Ros, **N. R. Luque**, Event-and Time-Driven Techniques Using Parallel CPU-GPU Co-processing for Spiking Neural Networks. Frontiers in neuroinformatics. vol. 11, (2017) IF 3.871 6/57 **Q1** in Mathematics and Computational Biology
2. **N. R. Luque**, J. A. Garrido, F. Naveros, R. R. Carrillo, E. D'Angelo and E. Ros. Distributed Cerebellar Motor Learning; a Spike-Timing-Dependent Plasticity Model. Frontiers in computational neuroscience vol. 10, (2016) IF 1.821 20/57 **Q2** in Mathematics and Computational Biology
3. J. A. Garrido, **N. R. Luque**, S. Tolu, and E. D'Angelo. Oscillation-driven Spike-timing Dependent Plasticity Allows Multiple Overlapping Pattern Recognition in Inhibitory Interneuron vol.26, num. 05. (2016). IF 6.333 7/133 **Q1** in Computer Science, Artificial Intelligence
4. E. D'Angelo, A. Antonietti, S. Casali, C. Casellato, J. A. Garrido, **N. R. Luque**, L. Mapelli, S. Masoli, A. Pedrocchi, F. Prestori, M. F. Rizza, E. Ros. Modeling the Cerebellar Microcircuit: New Strategies for a Long-Standing Issue. Frontiers in Cellular Neuroscience vol. 10 (2016). IF 4.555 55/258 **Q1** in Neurosciences
5. E. D'Angelo, L. Mapelli, C. Casellato, J. A. Garrido, **N. R. Luque**, J. Monaco, F. Prestori, A. Pedrocchi, E. Ros. Distributed circuit plasticity: new clues for the cerebellar mechanisms of learning. The Cerebellum vol. 15, num. 2. (2016) IF 3.234 106/258 **Q2** in Neurosciences.
6. A. Antonietti; C. Casellato; J. A. Garrido; **N. R. Luque**; F. Naveros; E. Ros; E. D'Angelo; A. Pedrocchi. Spiking Neural Network With Distributed Plasticity Reproduces Cerebellar Learning in Eye Blink Conditioning Paradigms. Transactions on Biomedical Engineering, IEEE. Vol 63 num 1, pp. 210 -219. (2016) IF 3.577 7/194 **Q1** in Biomedical Engineering.
7. F. Naveros, **N. R. Luque**, J. A. Garrido, R. R. Carrillo, M. Anguita, & E. Ros. A spiking neural simulator integrating event-driven and time-driven computation schemes using parallel CPU-GPU co-processing. A case study, IEEE Trans. Neural Networks and Learning Systems vol 26 num. 7, pp. 1567 - 1574.(2015) IF: 4.854 (**Q1** Comp. Sci., Artificial Intelligence. JR: 7/130) (**Q1** Comp. Sci., Hardware & Architecture. JR: 1/51) (**Q1** Comp. Sci., Theory & Methods. JR: 3/105) (**Q1** Engineering, Electrical & Electronic. JR: 10/257).
8. C. Cassellato, A. Antonietti, J. A. Garrido, **N. R. Luque**, R. R. Carrillo, E. Ros, A. Pedrocchi & E. D'Angelo . Adaptive Robotic Control Driven by a Versatile Spiking Cerebellar Network. PLOS ONE. Vol. 9 num. 11,(2014) IF: 3.234 (**Q1** Multidisciplinary

- Sciences JR: 9/57).
9. **N.R. Luque***, J.A. Garrido*, R.R. Carrillo, E. D'Angelo, & E. Ros. Fast convergence of learning requires plasticity between inferior olive and deep cerebellar nuclei in a manipulation task: a closed-loop robotic simulation, *Front. Comp. Neurosci.* Vol 8 (2014). IF **2.201** (Q2 Mathematical & Computational Biology JR: 15/57) (Q3 Neuroscience JR: 168/252).
 10. **N.R. Luque***, R.R. Carrillo*, F. Naveros, J.A. Garrido, & M.J. Sáez-Lara. Integrated neural and robotic simulations. Simulation of cerebellar neurobiological substrate for an object-oriented dynamic model abstraction process, *Robotics & Autom. Syst.* Vol.62 num. 12, pp. 1702 - 1716. (2014) IF **1.256** (Q2 Robotics JR: 11/23) (Q3 Autom & Cont. Syst JR: 31/58) (Q3 Comp. Sci., Artificial Intelligence. JR: 68/123)
 11. J.A. Garrido*, **N.R. Luque***, E. D'Angelo, & E. Ros (2013). Distributed cerebellar plasticity implements adaptable gain control in a manipulation task: a closed-loop robotic simulation, *Frontiers in Neural Circuits* Vol. 7 num.159. (2013) IF **2.950** (Q2 Neuroscience JR: 124/251)
 12. J-B.Passot, **N.R. Luque** & A. Arleo. Coupling internal cerebellar models enhances online adaptation and supports online consolidation in sensorimotor tasks, *Frontiers in Computational Neuroscience*; vol. 7 num. 95. 2013. IF **2.233** (Q1 Mathematical & Computational Biology JR: 12/52) (Q3 Neuroscience JR: 168/251).
 13. S. Tolu, M. Vanegas, J.A. Garrido, **N.R. Luque**, & E. Ros. Adaptive and Predictive Control of a Simulated Robot Arm, *Int. Journal of Neural Systems*, vol. 23 num.2, pp. 0-15. 2013 IF **6.056** (Q1 Comp. Sci., Artificial intelligence, JR: 3/121).
 14. **N. R. Luque**, J.A. Garrido, J. Ralli, J.J. Laredo, & E. Ros. From Sensors to Spikes: Evolving Receptive Fields to Enhance Sensori-Motor Information in a Robot-Arm, *Int. Journal of Neural Systems*, vol. 22 num.4. pp. 1-20. (2012): IF **5.054** (Q1 Comp. Sci., Artificial intelligence, JR: 2/114).
 15. S. Tolu, M. Vanegas, **N.R. Luque**, J.A. Garrido, & E. Ros. Bio-inspired Adaptive Feedback Error Learning Architecture for Motor Control, *Biological Cybernetics*, vol.106 num.8-9, pp. 507-522. (2012) IF **2.067** (Q1 Comp. Sci., Cybernetics. JR:5/21) (Q3 Neuroscience 171/251)
 16. **N.R. Luque**, J. A. Garrido, R.R. Carrillo, O.J. -M.D. Coenen, & E. Ros. Cerebellar-like Corrective Model Inference Engine for Manipulation Tasks, *Systems, Man, and Cybernetics, Part B: Cybernetics, IEEE Transactions on*, vol.41 num.5, pp. 1299-1312. (2011): IF **3.080** (Q1 Automation & Control Systems. JR: 2/58) (Q1 Comp. Sci., Artificial Intelligence. JR: 10/111) (Q1 Comp. Sci., Cybernetics. JR:1/20)
 17. **N. R. Luque**, J. A. Garrido, R.R. Carrillo, O.J. -M.D. Coenen, & E. Ros (2011). Cerebellar Input Configuration Towards Object Model Abstraction in Manipulation Tasks, *IEEE Transactions on Neural Networks*, vol.22 num.8, pp. 1321-1328. (2011) IF **2.952**; (Q1 Comp. Sci., Artificial Intelligence. JR: 12/111) (Q1 Comp. Sci., Hardware & Architecture. JR: 1/50) (Q1 Comp. Sci., Theory & Methods. JR: 4/99) (Q1 Engineering, Electrical & Electronic JR: 19/245)
 18. **N. R. Luque**, J.A. Garrido, R.R. Carrillo, S. Tolu, & E. Ros (2011). Adaptive Cerebellar spiking model embedded in the control loop: context switching, *International Journal of Neural Systems*, num 21 vol .5, pp. 385-401 (2011) IF: **4.284** ; (Q1 Comp. Sci., Artificial intelligence, JR: 4/111).

CONFERENCE PROCEEDINGS (REFEREED)

19. C. Casellato, A. Pedrocchi, J.A. Garrido, **N. R. Luque**, G. Ferrigno, E. D'Angelo, & E. Ros. A unified motor control loop of a human-like robotic arm: feedforward, feedback and cerebellum-based learning, In *Biomedical Robotics and Biomechatronics (BioRob)*, 2012 4th IEEE RAS & EMBS International Conference on pp. 562-567 (2012).
20. **N. R. Luque**, J. A. Garrido, R. R. Carrillo, & E. Ros. Context Separability Mediated by the Granular Layer in a Spiking Cerebellum Model for Robot Control, 2011, pp. 537-546.
21. J. A. Garrido, R. R. Carrillo, **N.R. Luque**, & E. Ros. Event and Time Driven Hybrid Simulation of Spiking Neural Networks, pp. 554-561 (2011).
22. **N. R. Luque**, J.A. Garrido, R.R. Carrillo, & E. Ros. Cerebellar spiking engine: Towards object model abstraction in manipulation, *The 2010 International Joint Conference on Neural Networks (IJCNN)*, pp. 1-8 (7/2010).
23. J-B. Passot, **N.R. Luque**, & A. Arleo. Internal models in the cerebellum: a coupling scheme for online and offline learning in procedural tasks. In Doncieux, S. et al., editors, *LNAI - Simulation of Adaptive Behavior*, 6226, pp 435-446, Springer-Verlag, (2010).

MEETING ABSTRACTS

24. **N. R. Luque**, F. Naveros, R.R. Carrillo, E. Ros, A. Arleo. Silent and bursting states of Purkinje cell activity modulate VOR adaptation. *BMC Neuroscience* 2017, 18(Suppl 1):P6(2017).
25. F. Naveros, J. A. Garrido, R. R. Carrillo, E. Ros, **N. R. Luque**. EDLUT: a real-time spiking neural network simulator for embodiment experiments *BMC Neuroscience* 2017, 18(Suppl 1):P154(2017).
26. J. A. Garrido, **N. R. Luque**, E. Ros, & E. D'Angelo. Role of .istributed Cerebellar Plasticity in a Manipulation Task. *FENS* (2014).
27. **N.R. Luque***, J.A. Garrido*, R.R. Carrillo, & E. Ros. Connection control implications in a distributed plasticity cerebellar model *BMC Neuroscience* 14 (Suppl 1), P329(2013).
28. F. Naveros, **N.R. Luque**, J.A. Garrido, R.R. Carrillo, & E. Ros. CPU-GPU hybrid platform for efficient spiking neural-network simulation *BMC Neuroscience* 14 (Suppl 1), P328(2013).
29. J. A. Garrido*, **N. R. Luque***, E. Ros, & E. D'Angelo. Enhancing Learning Precision At Parallel Fiber - Purkinje Cell Connections Through Deep Cerebellar Nuclei LTD And LTP *FENS* 6 pp. 153.04, (2012).