Davi Alberto Sala

Curriculum Vitae

Education

2015–2017 **Masters of Electrical Engineering**, *Universidade Federal do Rio Grande do Sul*, Brazil.
Area: Control and Automation

2009-2015 **Bachelor of Computer Engineering**, *Universidade Estadual do Rio Grande do Sul*, Brazil.

Master's Thesis

Title *Positioning Control on a Collaborative Robot by Sensor Fusion with Liquid State Machines*

Supervisor Professor Valner João Brusamarello

Description This thesis explored the application of Spiking Neural Networks on robot control, using the paradigm of sensor fusion. A Liquid State Machine controller learned the behaviour of a classic PID controller, and was used to control force and distance applied by a robotic arm.

Research Experience

2017 **International Research Exchange**, University of Plymouth - Centre for Robotics and Neural Systems, United Knigdom.
International collaboration to conduct experiments, related to Master's degree project, using the BAXTER collaborative robot and Spiking Neural Networks. A controller based on Liquid State Machines, trained with data from a PID, was used to control the Z axis distance of a moving robot arm.

2013-2014 **Face Recognition Project**, FARPEGS Scholarship at UERGS, Undergraduate Scientific Initiation.
Development of a face recognition software using image processing and mathematical tools. Comparison of two mathematical algorithms using component transforms, LDA and PCA. Applying concepts of image processing and machine learning.

2013-2014 **SYSID - Real time video analisys**, FARPEGS Scholarship at UERGS, Undergraduate Scientific Initiation.
Project developed in C/C++ using image processing techniques for real time video tracking of movement patterns. Concepts of video and image processing were used, where motion of objects on scene was analysed through optical flow data.

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Publications

2017 **SALA, D. A.**; BRUSAMARELLO, V. J.; AZAMBUJA, R.;CANGELOSI, A. *Control on a Collaborative Robot by Sensor Fusion with Liquid State Machines*. In: IEEE International Instrumentation and Measurement Technology Conference, Torino, Italy. 2017.

2013 **SALA, D. A.**; PARRAGA, A. ; GUIMARAES, L. V. . *Sistema De Análise De Vídeo Em Tempo Real Na Detecção De Padrões De Movimento*. In: Conferência Iadis Ibero-americana De Computação Aplicadada, 2013, São Leopoldo. p. 228-232.

Employment history

2017-current **Professor**, Universidade SATC, Criciúma, Brazil.
Undergraduate Courses taught: Artificial Intelligence, Embedded Systems

2017-current **Machine Learning Developer**, PixForce, Porto Alegre, Brazil.
Working mostly with deep learning, using the TensorFlow framework, on object detection and segmentation on forestry from aerial imagery.

Event Participation

2017 IEEE International Instrumentation and Measurement Technology Conference. *Control on a Collaborative Robot by Sensor Fusion with Liquid State Machines*. On: Politecnico di Torino, Italy, 2017.

2014 XXVI Scientific Initiation Meeting - UFRGS *Video facial recognition: a comparison between eigenfaces and fisherfaces methods*. On: UFRGS, Porto Alegre, Brazil, 2014. (Undergraduate Research)

2013 Conferência Iadis Ibero-americana De Computação Aplicadada *Real-time Video Analysis System In Detection Of Motion Patterns*. On: Unisinos, São Leopoldo, Brazil, 2013. (Conference)

Computer skills

Basic	java, vhdl
Intermediate	R, MatLAB, LaTeX, Linux, Assembly
Advanced	Python, C/C++
Miscellaneous	*3D Printing*(Prusa i3), OpenCV, LabView, Qt framework, Tensorflow

Languages

Portuguese	Mothertongue	
English	Advanced	*Conversationally fluent - 7.5 Score on* IELTS *Academic*
Spanish	Basic	*Basic words and phrases only*

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