

Europass Curriculum Vitae



Personal information

Surname(s) / First name(s)	Ralli, Jarno
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Web site(s)	http://www.jarnoralli.fi
Nationality(-ies)	Finnish
Date of birth	1973
Gender	Male

Work experience

<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p>	<p>2014 -</p> <p>Computer Vision Researcher</p> <p>I currently work as technical lead for algorithm development related to photometry based 3D scanners. I work together with a group of scientists and our tasks consist of improving and developing algorithms related to obtaining 3D information based on images received from normal cameras. Some of the used techniques are 3D-reconstruction based on stereo-images (photometric stereo), shape from shading (SFS), image registration and segmentation, and so on. After we have developed a working version of an algorithm in Matlab, we convert it into C++. Since some of the algorithms are computationally very complex, we use parallel computing (TBB, OpenMPI, SSE/SSE2/SSE3) techniques in order to minimize the time taken by the algorithms.</p>
<p>Name and address of employer</p> <p>Type of business or sector</p>	<p>Fuel-3D, Seymour Business Park, Chinnor, Oxfordshire, United Kingdom.</p> <p>IT industry</p>
<p>Dates</p> <p>Occupation or position held</p> <p>Main activities and responsibilities</p>	<p>2013 - 2014</p> <p>Project Manager</p> <p>At Valueframe I worked as a project manager responsible for development of a cloud based professional services platform consisting of such features as CRM, project and resource management and related. My tasks consisted of writing system specifications, and then managing the actual implementation of the actual system. I participated in daily stand-ups with the developers in order to oversee how the projects were progressing. Apart from pure project management, I wrote a PHP-library for predicting number of accumulated hours per sub-project that was incorporated in the ValueFrame platform. The library also consisted of a monotonic interpolation method for generating the graphs.</p>
<p>Name and address of employer</p>	<p>Valueframe Oy, Lautatarhankatu 6, 00580 Helsinki, Finland.</p>

Type of business or sector	IT industry
Dates	2011 - 2013
Occupation or position held	Post Doctoral Researcher
Main activities and responsibilities	After I obtained the degree of PhD in December 2011, I worked as a post doctoral researcher in the area of computer vision. During 2012 I acted as visiting scholar at the University of Chile, Chile, at the faculty of medicine. I worked at the Scientific Image Analysis group, collaborating with various members of the group. Apart from giving lectures, I participated in research related to using optical-flow in cellular biology to track cellular migration, formation of cellular protrusions and structural reorganization. Results of the study were published at the Chilean Society for Cell Biology Annual Meeting.
Name and address of employer	Department of Computer Architecture and Technology (ATC), University of Granada, C/Periodista Daniel Saucedo s/n, E18071 Granada, Spain
Type of business or sector	Research
Dates	2006 - 2011
Occupation or position held	Researcher/PhD student in the area of computer vision
Main activities and responsibilities	From 2006 until 2011 I worked at the University of Granada, Spain, as academy researcher in the area of computer vision. My research concentrated on obtaining 3D information from stereo images, optical-flow (image registration), extraction of low- and middle-level features using directional filters, image segmentation and related techniques. I initially started working in a European Commission funded project called DRIVSCO that aimed at improving safety of vehicles using computer vision based techniques. In short, the idea was to develop an advanced driver assistance system (ADAS) that would provide the driver key information regarding possible hazardous situations. The system used both normal and infrared cameras. In the following is a list of the research projects I participated while working on my PhD thesis: DINAM VISION <i>Description:</i> Real-time Dynamic Vision and Applications in Robotics <i>Funded by:</i> Spanish Ministry of Science and Education (DPI2007-61683) GRASP <i>Description:</i> Emergence of Cognitive Grasping Through Introspection, Emulation and Surprise <i>Funded by:</i> European Community (IST-FP7-IP-215821). <i>Website:</i> http://www.csc.kth.se/grasp/ DRIVSCO <i>Description:</i> Learning to Emulate Perception-Action Cycles in a Driving School Scenario <i>Funded by:</i> European Community (FP6-IST-FET, contract 016276-2) <i>Website:</i> http://www.pspc.dibe.unige.it/~drivSCO/ RECVIS <i>Description:</i> Reconfigurable HW/SW Platform to Aid Persons Suffering from Problems in Low-level Vision. <i>Funded by:</i> Spanish Ministry of Science and Education (TIN2008-06893-C03-02/TIN)
Name and address of employer	Department of Computer Architecture and Technology (ATC), University of Granada, C/Periodista Daniel Saucedo s/n, E18071 Granada, Spain
Type of business or sector	Research
Dates	2003 onwards
Occupation or position held	Technical Adviser and Partner
Main activities and responsibilities	While working on other projects, from time to time I have worked as a technical adviser related to industrial automation projects. Scale of the projects have varied from implementing small changes in existing systems to complete turn-key based control systems for evaporators and industrial driers. One example of such project was refurbishing a control system of a cleaning-in-place (CIP) system at a dairy plant in Al Beyda, Libya, in 2004. The project involved quoting and designing the control system, managing the project and participating in the start-up.
Name and address of employer	Ralli Oy, Jokiniementie 16A, 00650 Helsinki, Finland
Type of business or sector	Food Processing Industry

Dates	2001 - 2003
Occupation or position held	Automation Engineer
Main activities and responsibilities	From 2001 to 2003 I worked at the Larox Chilean office in Santiago de Chile. My responsibilities varied from start-ups and modernizations to customer support. During this period I mostly worked in South America, but I also participated in a modernization project at the Millennium Inorganic Chemicals, Grimsby, U.K. I also actively took part in working closely together with the R&D department situated in Finland regarding solving problems in hydraulic control of the pressure filters.
Name and address of employer	Larox Chile S.A, Ricardo Lyon 222, Office No. 1702, 17th floor, 'Edificio Paris', Providencia, Santiago de Chile, Chile
Type of business or sector	Manufacturing Industry

Dates	1998 - 2000
Occupation or position held	Automation Engineer
Main activities and responsibilities	After I obtained my B.Sc degree I joined a Finnish company called Larox. Larox manufactures pressure filters used for separating solids from liquids, mostly used in the mining industry. Biggest units weight around 100 metric tons. I worked as an automation engineer, participating in start-ups of new units, modernizations of existing installations, customer support and related activities. I worked with PLCs such as Omron, Allen-Bradley, Siemens and Modicon, and SCADAS such as Intouch by Wonderware. I also gained experience working with electronically controlled hydraulics, pneumatics and so on. Later Larox was purchased by Outotec.
Name and address of employer	Larox Oyj, Tukkipatu 1, 53101 Lappeenranta, Finland
Type of business or sector	Manufacturing Industry

Education and training

Dates	2006 - 2011
Title of qualification awarded	Philosophiae Doctor (Ph.D) with summa cum laude
Principal subjects/Occupational skills covered	Computer Sciences, Computer Vision
Name and type of organization providing education and training	University of Granada, Granada, Spain

Dates	2002 - 2006
Title of qualification awarded	Master of Science (MsC)
Principal subjects/Occupational skills covered	Computer Science
Name and type of organization providing education and training	Lappeenranta University of Technology, Lappeenranta, Finland

Dates	1994 - 2000
Title of qualification awarded	Bachelor of Science (BsC)
Principal subjects/Occupational skills covered	Mechanical Engineering, Industrial Automation
Name and type of organization providing education and training	Jyväskylä Institute of Technology, Jyväskylä, Finland

Personal skills and competences

Mother tongue(s)

Other language(s)

*Self-assessment
European level^(*)*

English
Spanish (Castellano)
Swedish

Finnish

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	
C2	C2	C2	C2	C2
C2	C2	C2	C2	C2
A2	A2	A2	A2	A2

^(*) Common European Framework of Reference (CEF) level

Technical skills and competences	<p>Programmable Logic Controllers (PLCs)</p> <ul style="list-style-type: none"> -Siemens S5 and S7 -Allen Bradley -Modicon (Concept and Taylor software) -Omron -Communication protocols: Profibus DP, Modbus, Modbus+, DH, DH+, Ethernet, TCP/IP, I2C <p>SCADA</p> <ul style="list-style-type: none"> -Intouch -Protool and WinCC
Computer skills and competences	<p>Programming: C/C++, Qt, Java, assembler (GAS syntax), OpenCV, PHP, JavaScript</p> <p>Embedded systems: programming in C/C++ and assembler (i.e. Atmel, Microchip PIC), Linux kernel 2.6 compilation for PowerPC residing in Xilinx Virtex-II FPGA, Linux kernel 2.6 compilation for Freescale IMX283</p> <p>Parallel processing: MMX, SSE, Parallel Virtual Machine (PVM), OpenMP, Pthreads</p>
Other skills and competences	<p>Project Management:</p> <ul style="list-style-type: none"> -Project management for IT- and automation projects. -Agile-based software development. <p>Mathematics:</p> <ul style="list-style-type: none"> -Energy minimization schemes in machine vision for correspondence (optical-flow and stereo disparity) problems, segmentation (e.g. level sets) and image denoising. -Efficient linear and non-linear solvers for parabolic/elliptic/hyperbolic partial differential equations using multi-grid approach: Gauss-Seidel, Block Gauss-Seidel. -Library implemented in C/assembler using SSE for improved efficiency. <p>Soft computing: neural networks, genetic algorithms (e.g for multi-objective function minimization), fuzzy logic.</p>
Driving license(s)	A B Be C (Motorbike, Car, Lorry)
Additional information	
Contact persons	<p>Prof. Eduardo Ros, University of Granada, Spain, eros@ugr.es</p> <p>Prof. Danica Kragic, Kungliga Tekniska Högskolan, Sweden, dani@kth.se</p> <p>Prof. Ville Kyrki, Lappeenranta University of Technology, Finland, ville.kyrki@aalto.fi</p> <p>Dr. Javier Díaz, University of Granada, Spain, jda@ugr.es</p> <p>Mr. Jarkko Hakkarainen, Outotech, Finland, jarkko.hakkarainen@outotec.com</p>
Publications	<p>For more information, see http://www.jarnoralli.fi/</p> <p>J. Ralli, J. Díaz, and E. Ros. A method for sparse disparity densification using voting mask propagation. <i>Journal of Visual Communication and Image Representation</i>, 21, 2010</p> <p>J. Ralli, J. Díaz, and E. Ros. Disparity disambiguation by fusion of signal- and symbolic-level information. <i>Machine Vision and Applications</i>, 2010</p> <p>J. Ralli, J. Díaz, E. Ros, and P. Guzmán. Experimental study of image representation spaces in variational disparity calculation. <i>EURASIP Journal on Advances in Signal Processing</i>, 2012</p> <p>J. Ralli, J. Díaz, and E. Ros. Spatial and temporal constraints in variational correspondence methods. <i>Machine Vision and Applications</i>, 2011</p> <p>J. Ralli, J. Díaz, E. Ros, J. Ilonen, and V. Kyrki. External constraints in variational disparity calculation: Hypothesis-forming-validation-loops and segmentation. <i>submitted for publication</i>, 2011</p>

P. Guzmán, J. Díaz, J. Ralli, R. Agís, and E. Ros.
Low-cost sensor to detect overtaking based on optical-flow.
Machine Vision and Applications, 2011

N.R. Luque, J.A. Garrido, J. Ralli, J.J Laredo, and E. Ros.
From sensors to spikes: Evolving receptive fields to enhance sensori-motor information in a robot-arm.
International Journal of Neural Systems, 2012