Resume **Lambert Spaanenburg** : April 2011

Private
van Ketwich Verschuurlaan 68, NL-9721 ST Groningen, The Netherlands : home 1
+31 - 50 - 534 1377 : telephone
Steglitsvägen 3A, SE-22732 Lund, Sweden : home 2
+46 – 46 – 127 149 : telephone
Professional
Lund University, Department of Electrical & Information Technology
P.O. Box 118, SE-22100 Lund, Sweden : office
+46 – 46 – 222 4931 : telephone
+46 – 46 – 222 4714 : fax
lspaanenburg@ieee.org : email
http://www.eit.lth.se/users/lambert : homepage
Personal information
August 18, 1948 at Deventer, The Netherlands : born
Married, 3 children : marital status
Dutch : nationality

Research topics

- Net-centric organizations
- Systems architecture
- Embedded systems, especially in Web-based automation
- Hardware/Software Co-Design
- Intelligent mining

Experience

- Provided initiatives and executed regional, national & European programs for the introduction, development & exploitation of hi-tech innovation, at avrg. 700 kFl/y.
- Managed research and product development teams of upto 25 people in Microelectronic Design Automation, License Plate Recognition, Document Handling and Real-Time Image Processing.
- Responsible for teaching and practice in the areas of Telematics, Embedded Systems, Intelligent Networks and Computational Intelligence. Personally involved in 5 - 7 courses yearly.
- Designed 24 full-custom and standard-cell digital MOS IC designs ranging from 1k to 50k gates complexity including digital filters, microprocessors, communication circuits and neural networks. Developed FPGA-, µP- and PC-based systems for imaging, control, animation and commerce.
- Developed geometrical, functional and behavioral level CAD tools.
- (Co)-authored over 250 papers / books (chapters) and holds 5 patents.
- Coaches start-ups and SMEs in technology and business development. Supports academic technology transfer.

Academic career

2009-Present	Guest Researcher LTH; chief scientist RaviteQ. BASE founder.
2002-2009	Full-Professor Silicon Systems Lund University, Dept. of Information Technology, Lund (Sweden)
2000-2001	Sabbatical leave at KPN Research Laboratories, Groningen (The Netherlands)
1993-2002	Full-Professor Technical Informatics, Rijksuniversiteit Groningen, Dept. of Computing Science, Groningen (The Netherlands)
1988-1993	Manager Digital Signal-processing Department, Institute for Microelectronics, Stuttgart (West-Germany).
1987	Ph.D. in Electrical Engineering, Twente University, Enschede (The Netherlands). Thesis: "Structured Design of VLSI Systems with Distributed Control".
1986	Sabbatical leave at Siemens Central Research Labs, München-Perlach (Germany).
1985	Temporary CTO, ICD, Enschede (The Netherlands)
1974-1988	Staff member of Twente University, last position held: associate professor.
1972-1974	Dutch navy officer stationed at Physics Laboratory, The Hague (The Netherlands). Research in: Logic gate simulation, interactive graphics I/O for electronic schematics, automatic high-velocity measurement.
1972	M.Sc. in electrical engineering (with honors), Delft University, Delft (The Netherlands). Thesis: "Design Automation of Asynchronous Sequential Machines".

Recent Memberships

Program Committee

International Conference on Advances in Multimedia Mmedia (yearly)
International Conference on Neural Information Processing ICONIP (2009)
International Conference on Ubiquitous Intelligence and Computing UIC (2008)
European Conference on Digital Libraries ECDL (2008)
International Conference on Natural Computation ICNC (yearly)
International Conference on Advances on Mobile Computing & Multimedia MoMM (yearly)
Stichting Post-Academisch Technisch Onderwijs (PATO); section Information and Communication Technology

Editorial Board

International Journal of Handheld Computing Research (IGI Global Press)
Journal on Mobile Information Systems (IOS Press)
Journal of Intelligent & Fuzzy Systems (IOS Press)
VLSI Design Journal (Gordon & Breach)
Cognitive Neurodynamics (Springer)
(founder) Integration (Elsevier)

Professional Society

IEEE (Senior Member; TC on CNN; Regional Chapter Chair Computational Intelligence Society)
VDI (Fachgruppe ITG 8.4.9 “Mikroelektronik fuer kuenstliche neuronale Netze”)
KIvI (Electrical Engineering; Information Technology)
SAIS
Eurosip
SPIE

Reviewer

Conference

IEEE Design Automation Conference DAC
European Conference on Circuit Theory and Design ECCTD
IEEE Conference on Cellular Neural Networks and their Applications CNNA
IEEE International Symposium on Circuits and Systems ISCAS
Workshop of the Swedish Artificial Intelligence Society SAIS
Euromicro Workshop on Real-Time Systems

Journal

IEEE Transactions on Circuits and Systems I
IEEE Transactions on Circuits and Systems II
IEEE Transactions on Systems, Man and Cybernetics
IEEE Transactions on Neural Networks
IEEE Industrial Electronics Society (diverse)
Euromicro Journal of Systems Architecture
Engineering Applications of Artificial Intelligence (Elsevier)
Eurosip Journal on Advances in Signal Processing
International Journal of Circuit Theory and Applications (Wiley)

(Special) Session chair / Organizer

European Conference on Circuit Theory and Design ECCTD
IEEE International Joint Conference on Neural Network IJCNN
IEEE Conference on Cellular Neural Networks and their Applications CNNA
IEEE International Symposium on Circuits and Systems ISCAS

Projects

VENI (NWO. The Netherlands)
STW
ITEA (EEC)
FIT-IT (FFF, Austria)

Awards and Prizes

Award, 1st Round, VentureCup 2008/09 (S. Malki) Biometric Authentication System,
Nomination, Research Round LTH / VentureCup 2007 (S. Malki) on Biometric Authentiation System.

Best Student Paper (S. Malki) IEEE International Conference on Computational Intelligence for Measurement Systems and Applications, La Coruna, 2006.
Member of Ministerial Advisory Boards SWAP2000 and Embedded Systems RoadMap 2002.
Nomination, New Venture 2000 (together with M.H. ter Brugge, J.H. Stevens and J.A.G. Nijhuis) on *Document Scanning*.
Best Presentation in Session Award (together with M. van Veelen and J.A.G. Nijhuis) IEEE International Joint Conference on Neural Networks (Washington, USA, 1999).
1st place, NGI-Noord 1999 Award (together with M.A.H. Offenberg) on *ICT Impact and Organizational Change*.
1st place, ASI Golden Bit Award 1997 (together with R. Buist, J. de Graaf, and W. Wichers) on *ITS MAGIC: Design and Implementation of an Intelligent Interactive Tele-Shopping Application for the Electronic Highway*.
Nomination, TI Student DSP Design competition 1996 (together with H. Dullink) on *Automated Signature Identification and Verification*.

Doctor Student Supervision

Personally Supervised Theses

Promotor / Supervisor of Malki, S., Ph.D. thesis: *On the Hardware Implementation of Discrete-Time Cellular Neural Networks* (Lund University, 17 October 2008) ISSN 1654-790X, 185 pages.
Promotor / Supervisor of vanVeelen, M., Ph.D. thesis: *Considerations on Modeling for Early Detection of Abnormalities in Locally Autonomous Distributed Systems* (Rijksuniversiteit Groningen, 2 March 2007) ISBN 90-367-2929-7, 277 pages
Supervisor of Malki, S., Lic. Thesis: *Discrete-Time Cellular Neural Networks Implemented on Field-Programmable Gate-Arrays to Build a Virtual Sensor System* (Lund University, 2006) ISBN 91-7167-040-8, 98 pages.
Promotor / Supervisor of terBrugge, M.H., Ph.D. thesis: *Morphological Design of Discrete-Time Cellular Neural Networks* (Rijksuniversiteit Groningen, 21 October 2005) ISBN 90-367-2394-9, 170 pages.
Supervisor of vanderZwaag, B.-J., Ph.D. Thesis: *Using Domain-Specific Basic Functions for the Analysis of Supervised Artificial Neural Networks* (Twente University, 17 December 2003) ISBN 90-365-2008-8, 116 pages.
Promotor of Mallon, W.C., Ph.D. Thesis: *Theory and tools for the design of delay-insensitive communicating processes* (Rijksuniversiteit Groningen, 21 January 2000) ISBN 90-367-1180-0, 236 pages.
Promotor / Supervisor of Venema, R.S., Ph.D. thesis: *Aspects of an integrated neural prediction system* (Rijksuniversiteit Groningen, 2 July 1999) ISBN 90-367-1082-0, 309 pages.
Promotor / Supervisor of Barakova, E.I., Ph.D. Thesis: *Learning reliability: a study on indecisiveness in sample selection* (Rijksuniversiteit Groningen, 23 April 1999) ISBN 90-367-0987-3, 195 pages.
Promotor / Supervisor of DeWaard, W.P., Ph. D. Thesis: *Feedforward network architectures for hand-written word recognition* (Rijksuniversiteit Groningen, 9 October 1998) ISBN 90-721-2563-0, 174 pages.
Supervisor of Leenstra, J., Ph.D. Thesis: *Hierarchical Test Development and Design-For-Testability for (A)synchronous Semi-Custom ASICs* (Eindhoven University, 20 April 1993) ISBN 90-9005928-9, 199 pages.
Supervisor of Nijhuis, J.A.G., Ph.D. Thesis: *An Engineering Approach to Neural System Design* (Catholic University of Nijmegen, 18 January 1993) ISBN 90-9005499-5, 202 pages.
Supervisor of Jayasinghe, J.A.K.S., Ph.D. Thesis: *An Array Processor Design Methodology for Hard Real-Time Systems* (Twente University, 1991) ISBN 90-9004031-5.
Supervisor of Beune, F.A., Ph.D. Thesis: *Generalizing VLSI Layout Design - A rule-based symbolic layout approach* (Twente University, 1990) ISBN 90-90033460-9, 160 pages.

Examined external Ph.D. Theses

Magnusson, A.K., Evolutionary Optimisation of a Morphological Image Processor for Embedded Systems (Chalmers University, March 2008).
Petterson, O., Model-free execution monitoring in behaviour-based mobile robotics (Örebro University, October 2004).
Geske, G., Umsetzung und Analyse der analogen Komponenten eines neuronalen Klassifikator (Universitaet Rostock, 2003).
Bazen, A.M., Fingerprint Identification (Twente University, September 2002)
Alba Pinto, C.A., Storage Constraint Satisfaction for embedded processor compilers (Eindhoven University, June 2002).
Rutten, J.W.J.M., Synthesis of Asynchronous Burst-mode Finite-state Machines (Eindhoven University, April 2000).
Hafner, S., Einsatz von kuenstlichen neuronalen Netzen zur Signalverarbeitung im Kraftfahrzeug am Beispiel spezifischer Motorsteuerungsprobleme (Universitaet Stuttgart, January 1998) ISBN 31-833-4912-4, 158 pages.
Kruiskamp, W., Analog Design Automation using genetic algorithms and polytopes (Eindhoven University, September 1996).
Meijer, P.B.L., Neural Network Applications in Device and Subcircuit modeling for circuit simulation (Eindhoven University, May 1996).
Wiegerinck, W., Stochastic Dynamics of On-line Learning in Neural Networks (Catholic University of Nijmegen, January 1996).

Annema, A.J., Analysis, Modeling and Implementation of Analog Integrated Neural Networks (Twente University, February 1994).

Mostly appreciated personal publications

* (Spaanenburg, L., Duin, P.B., Woudsma, R., and vanderPoel, A.A.) Very large scale integrated circuit subdivided into isochronous regions, method for the machine-aided design of such a circuit, and method for the machine-aided testing of such a circuit, US Patent 4656592, issued 7 April 1987. (*Google Scholar: 24 citations; USPTO: 96 citations*)
* (Nijhuis, J.A.G., terBrugge, M.H., Helmholt, K.A., Pluim, J.P.W., Spaanenburg, L., Venema, R.S., and Westenberg, M.A.) Car License Plate Recognition with Neural Networks and Fuzzy Logic, Proceedings ICNN'95, Vol. V (Perth, Western Australia, November 1995) pp. 2232-2236. (*Google Scholar: 79 citations*)
* (terBrugge, M.H., Stevens, J.H., Nijhuis, J.A.G., and Spaanenburg, L.) Efficient DTCNN Implementations for Large-neighborhood Functions, Proceedings CNNA'98 (London, April 1998) pp. 88-93. (*Google Scholar: 36 citations*)
* (Nijhuis, J.A.G., Höfflinger, B., vanSchaik, F.A. and Spaanenburg, L.) Limits to the fault-tolerance of a feedforward neural network with learning, Digest FTCS'90 (Newcastle, England, June 1990) pp.228-235. (*Google Scholar: 30 citations*)
* (Neußer, S., Nijhuis, J.A.G., Spaanenburg, L., Höfflinger, B., Franke, U., and Fritz, H.) Neurocontrol for lateral vehicle guidance, IEEE Micro 13, No.1 (February 1993) pp. 57 - 66. (*Google Scholar: 16 citations*)
* (Malki, S., and Spaanenburg, L.) CNN Image Processing on a Xilinx Virtex-II 6000, Proceedings ECCTD'03 (Krakow, Poland, 1-4 September 2003) pp. 261-264. (*Google Scholar: 15 citations*)
* (Spaanenburg, L.) Early detection of abnormal emergent behaviour, Proceedings Eusipco (Poznan, Poland, September 2007) pp. 1741 - 1745. (*ranking with 103 downloads in the December 2008 top-5 of the Open Library*)
* (Nijhuis, J.A.G., Neußer, S., Spaanenburg, L., Heller, J., and Spönnemann, J.) Evaluation of Fuzzy and Neural Vehicle Control, reprint from: Proceedings CompEuro'92 (The Hague, The Netherlands, May 1992) pp. 447 - 452, in: R.J. Marks (Ed.), Fuzzy Logic Technology and Applications, IEEE Technology Update Series (IEEE Press, Piscataway), 1994

Patents

- (Grunditz, C.-H., Spaanenburg, L., and Walder, M.) Inspektion av kartografiska bilder genom multilager neuralhybrid klassificering, patent PCT/SE2005/000183, 16 March 2003. Also: Method, Device, Computer Program Product and Integrated Circuit for Surface Inspection using a Multi-Tier Neural Network, Patent WO/2005/078652, 25 August 2005.
- (Spaanenburg, L., Stevens, J.H., deBakker, C.L.M., and Nijhuis, J.A.G.) Acquisition of information about a physical structure, patent WO 000 4500, 27 January 2000.
- (Spaanenburg, L., Stevens, J.H., deBakker, C.L.M., and Nijhuis, J.A.G.) Determining the shape of an internal structure within a physical structure, patent WO 000 4499, 27 January 2000.
- (Spaanenburg, L., Jansen, W.J. and Nijhuis, J.A.G.) Method for modelling and/or controlling a production process using a neural network and controller for a production process, patent EP 090 1053, 10 March 1999.
- (Spaanenburg, L., Duin, P.B., Woudsma, R., and vanderPoel, A.A.) Very large scale integrated circuit subdivided into isochronous regions, method for the machine-aided design of such a circuit, and method for the machine-.aided testing of such a circuit, US Patent 4656592, issued 7 April 1987.
- (Schimmelpennink, L. and Spaanenburg, L.) Adresseerbare schakellijn, patent US 452 4288. 18 June 1985.

Current Courses

- *Introduction to ASIC Design*. This course teaches the basics of VHDL programming by a series of design tasks 'in the Lab'. Final design is a cursor controller. (Course notes)
- *Project VLSI System Design*. The basics of Network-on-Chip architectures are presented. It focuses on Cellular Neural Networks and challenges for a specific NoC application, designed using VHDL on FPGA. (Course Notes)
- *Computer Architecture*. This is an almost classical course using the Hennessey and Patterson book, extended with some later VLIW, tiled and streaming prototypes. (Course Notes)
- *Computer Arithmetic*. Overviews fixed- and floating-point structures before focusing on the special arithmetic needs of and solutions for Computer Graphics, Cryptology and Non-Linear Signal Processing. (Course Notes)
- *Project Computer System Engineering*. Introduces concepts from Ubiquitous Computing and then trains the gradual scenario-based development of the system from initial requirements to software/hardware implementation. (Course Notes not fully available)
- *Web Intelligence*. Teaches searching techniques on the Internet, followed by classical and computational classification techniques.

Also taught in the past: Digital Design, Neural Networks, Fuzzy Logic, Technology Mapping, System Modeling, VLSI Design Techniques, Telematics, Embedded Systems.

Undergraduate Student Supervision

1. Carl-Henrik Grunditz and Martin Walder. Surface Inspection using 3-tier Neural Classification. February 13, 2004
2. Andreas Lundgren. Design of a Co-Processor that Implements Several Specific Smart Imaging Algorithms. April 2, 2004
3. Anders Rångevall. Congestion Control for Packet-Switched Networks-on-Chip. April 2, 2004
4. Daniel Andersson and Åke Kullenberg. Soft Compilation of a Floating-Point Library. June 25, 2004
5. Wen Hai Fang. A Hardware Implementation for Stream Encryption SNOW 2.0. January 21, 2005
6. Lin Zhang and Jing Xu. On the design of an IP core: Tipping the scale of digital arithmetic structures. February 25, 2005
7. Peter Sundström. Stereo Vision with Uncalibrated Cameras. March 18, 2005
8. Alberto Tentori. Concerted Information Management in a Virtual Library. March 31, 2005
9. Harry Duque and Björn Nilsson. Implementation of Networks-on-Chip for Flexible Video-Processing Applications. May 20, 2005
10. Andreas Hansson. A Unified Approach to Mapping and Routing in a Combined Guaranteed Service and Best-Effort Network-on-Chip Architecture. May 20, 2005
11. Benny Åkesson. An analytical model for a memory controller offering hard-real-time guarantees. May 20, 2005
12. Samir Jasarevic and Goran Jerin. Automated Soft Error Analysis and Protection in Combinatorial Logic Circuits. May 23, 2005
13. Dongdong Chen and Bintian Zhou. Digital Emulation of Analogue CNN Systems. November 18, 2005
14. Saurin Kumar Choksi. Low-Power Architecture for High-End Television SOCs. December 6, 2005
15. Lars Lundqvist. Model Trading with Neural Networks. February 10, 2006
16. Nabil Abbas Hassoun and Shkelqim Lahi. Flexible Hardware for MPEG-4. March 24, 2006
17. Chen Chao and Jia Yitao. Power-Aware Implementation of the SNOW IP-Core. June 8, 2006
18. Erik Ljung and Erik Simmons. Architectural Development of Personal Healthcare Applications. June 19, 2006
19. Markus Ringhofer. Design and Implementation of a Memory Controller for Real-Time Applications. June 21, 2006
20. Vincent Mohanna. Application Parallelization for a Heterogeneous Multiprocessor . June 30, 2006
21. Deepak Gajanana. Development of Rail-Based ESD Protection Techniques for DC/DC Converters. August 9, 2006
22. Xinfeng Dong. Exploration of Efficient Interface Elements for Multiple Power Domain SoCs . August 24, 2006
23. Marco Trincavelli. An OCR-based solution for license-plate recognition . October 6, 2006
24. LD Kishore Vankayala. Design Space Exploration of Floating-Point Arithmetic Structures. November 13, 2006
25. Cheng Wang and Xiao Yang. H.264 Encoding in Parallel. June 20, 2007
26. Eugenia Planas. CNN Template Optimisation. June 21, 2007
27. Barbara Olmedo. Meet the I-Cat. June 21, 2007
28. Erik Dahlbäck. CORDIC for Mitrion. June 21, 2007
29. Isael Diaz. A Highly Efficient and Low-Power System for Detection of Potentially Dangerous Objects. July 25, 2007
30. Robert Spaanenburg and Krittanon Chalermsuk. Design of a generic FFT core. December 7, 2007.
31. Sajjed Haider and Joe Evans. E-Facts. February 1, 2008
32. Dalong Zhang and Miao Chen. Global motion extraction and compensation. April 18, 2008.
33. Martin Fröjd. Design at LightSpeed and beyond. April 23, 2008.
34. Erik Adlers and Christopher Sturk. Channel estimation on multi-core architectures. June 13, 2008.
35. Olle Jacobsson and Shankar Gautam. Use of CSW in AUTOSAR. August 22, 2008.
36. Lijing Zhang. Modeling of an Intelligent Visual Measurement System. September 15, 2008.
37. Vivek Sabbieni. Architectural Exploration of ADRES processor for massive parallel application. December 22, 2008.
38. Mona Akbarniai Tehrani. Multi Camera Vision. December 23, 2008.
39. Han Liu and Sayed Nafiz Haider. Feasibility study of bus topologies in a complex SoC. April 20, 2009.
40. Philips Carnstam. Reusable Programming Components: A case of need. June 18, 2009.
41. Chao Wang. A Energy-Aware Wireless Sensor Platform for Infant Care. August 4, 2009.
42. Kleves Lamaj and Ravi Narayanan. FlexTile: Mutability in Mask-Programmable Logic. August 4, 2009.
43. Rajender Baddam. Communication Assist. August 4, 2009.

List of Publications (2003- Now)

Books

- (Spaanenburg, L. and Spaanenburg, H.A.E.) Cloud Connectivity and Embedded Sensory Systems, (Kluwer, Boston) 2010.

Refereed Journal Articles

- (Spaanenburg, L., Zhang, D., Chen, M., and Rossholm, A.) "Commanding the Cloud by Moving a Camera Phone," International Journal of Handheld Computing Research (IJHCR), Vol. 1, No. 3, pp. 72 – 86, 2010.

- (Malki, S. and Spaanenburg, L.) A CNN-Specific Integrated Processor, EUROSIP Journal on Advances in Signal Processing, Article ID 854241, 14 pages, 2009.
- (vanVeelen, M. and Spaanenburg, L.) Early detection of abnormal network behaviour, Journal of Intelligent and Fuzzy Systems, Vol. 15, No. 1, pp. 47 – 59, 2004.
- (Grunditz, C. and Spaanenburg, L.) A parametrisable system for physically plausible surface inspection, Journal of Intelligent and Fuzzy Systems, Vol. 15, No. 1, pp. 29 – 39, 2004.
- (Larsson, J.E., Ahnlund, J., Bergquist, T., Dahlstrand, F., Öhman, B., and Spaanenburg, L.) Improving expressional power and validation for multilevel flow models, Journal of Intelligent and Fuzzy Systems, Vol. 15, No. 1, pp. 61 – 73, 2004.
- (Ahnlund, J., Bergquist, T., and Spaanenburg, L.) Rule-based reduction of alarm signals in industrial control, Journal of Intelligent and Fuzzy Systems, Vol. 14, Nr. 2, pp. 73-84, 2003.
- (Oudshoff, A.M., Bosloper, I.E., Klos, T.B. and Spaanenburg, L.) Knowledge discovery in virtual community texts: clustering virtual communities, Journal of Intelligent and Fuzzy Systems, Vol. 14, Nr. 1, pp. 13-24, 2003.
- (tenBerg, A.J.W.M., and Spaanenburg, L.) Modular and Hierarchical Specialization in Neural Networks, IU Journal of Electrical & Electronics Engineering, Vol. 3, Nr. 1 (2003) pp. 719-726. ISSN 1303-0914.

Book Contributions

- (Spaanenburg, L.) Large-Scale Systems and Society, to appear in: (Chao, L.) Cloud Computing for Teaching and Learning: Strategies for Design and Implementation, IGI Global Publishing, 2012.
- (Spaanenburg, L. and Malki, S.) Aspects of Algorithm-Specific Vision Processors, to appear in: (Höfflinger, B.) CHIPS 2020 – A Guide to Our Nanoelectronics Future, Kluwer, 2011.
- (Spaanenburg, L. and Malki, S.) Mobile Vision on Movement, pp. 357 – 374, in: (Hu, Wen-Chen and Zuo, Yanjun) Hand-held Computing for Mobile Commerce, IGI Global Press, 2010. ISBN 978-1-61520-761-9.
- (Spaanenburg, L., Tehrani, M.A., Kleihorst, R. and Meijer, P.B.L.) Behavior Modeling by Neural Networks, pp. 439 – 448, in: (Alippi, C., et al.) Proceedings ICANN, Lecture Notes in Computer Science, Vol. 5768 (Springer Verlag, Berlin), 2009.
- (vanVeelen, M., terBrugge, M.H., Nijhuis, J.A.G., and Spaanenburg, L.) Speech-driven dialing, pp. 138-149, in: (van Noort, G. and Spaanenburg, L.) V-Annals 2 (Shaker Publ., Maastricht), 2004.
- (Spaanenburg, L. and Stevens, J.H.) Embedded intelligence to understand images, pp. 165- 179, in: (van Noort, G. and Spaanenburg, L.) V-Annals 2 (Shaker Publ., Maastricht), 2004.
- (Barakova, E.I., and Spaanenburg, L.) Learning and reproducing, pp. 6-20, in: (van Noort, G. and Spaanenburg, L.) V-Annals 2 (Shaker Publ., Maastricht), 2004.
- (terBrugge, M.H., Spaanenburg, L., Nijhuis, J.A.G., and Stevens, J.H.) Intelligent Quality Monitoring in Low-Cost Vision Systems, pp. 180-194, in: (van Noort, G. and Spaanenburg, L.) V-Annals 2 (Shaker Publ., Maastricht), 2004.
- (Jansen, W.J., terBrugge, M.H., Nijhuis, J.A.G., Spaanenburg, L., and Viersen, P.) The Design of Neural Embedded Software, pp. 38-49, in: (van Noort, G. and Spaanenburg, L.) V-Annals 2 (Shaker Publ., Maastricht), 2004.
- (Wichers, W., deGraaf, J., and Spaanenburg, L.) Animated Marketing and Sales: a case of hidden intelligence: (van Noort, G. and Spaanenburg, L.) V-Annals 2 (Shaker Publ., Maastricht), 2004.
- (vanderZwaag, B.J., Slump, C.H., and Spaanenburg, L.) Extracting Knowledge from Neural Networks in Image Processing, pp. 107-127 in: (Jain, R.K. et al.) Innovations in Knowledge Engineering, chapter 5 (World Scientific, 2003).

Refereed Conference Articles

- (Spaanenburg, L. and Malki, S.) 3D-design exploration of CNN algorithms, Proceedings SPIE Microtechnologies for the New Millennium (Prague, April 2011).
- (Spaanenburg, L., Jansen, W.J., Kleihorst, R., and Malki, S.) Intelligent Inspection through Smart Sensors, Proceedings ISIS (Düsseldorf, March 2011).
- (Spaanenburg, L.) Ensuring safety in distributed networks, 49th IEEE Conference on Decision and Control (Atlanta, December 2010) pp. 6815 – 6820.
- (Jansen, W.J., Malki, S., Spaanenburg, L., and Kleihorst, R.) Smart collaboration in camera networks, Proceedings MoMM (Paris, November 2010) pp. 329 - 336.
- (Spaanenburg, L. and Malki, S.) Clustering CNN devices for smart networks, invited for Int. Symposium on Nonlinear Theory and its Applications (Krakow, Poland, September 2010).
- (Spaanenburg, L. and Malki, S.) State-flow and state-scan CNN Architectures, Proceedings 12th Int. Workshop on Cellular Nanoscale Networks and their Applications, (Berkeley, 2010) pp. 18 – 23. ISBN 978-1-4244-6678-8.
- (Malki, S, and Spaanenburg, L.) CBAS: A CNN-based biometrics authentication system, Proceedings 12th Int. Workshop on Cellular Nanoscale Networks and their Applications, (Berkeley, 2010) pp. 350 – 355. ISBN 978-1-4244-6678-8.

- (Tehrani, M.A., Kleihorst, R., Meijer, P.B.L., and Spaanenburg, L.) Abnormal Motion Detection in a Real-Time Smart Camera System, Proceedings ICDSC (Como, September 2009).
- (Spaanenburg, L., Tehrani, M.A., Kleihorst, R. and Meijer, P.B.L.) Behavior Modeling by Neural Networks, Proceedings ICANN (Limassol, 14-17 September 2009).
- (Zhang, L., Malki, S., and Spaanenburg, L.) Intelligent Camera Cloud Computing, Proceedings ISCAS (Taiwan, May 2009) pp. 1209-1212.
- (Spaanenburg, L., and Malki, S.) Tiled Architecture of a CNN-mostly IP system, Proceedings SPIE Microtechnologies for the New Millennium (Dresden, May 2009) pp. 736313 1-10. ISBN 9780819476371.
- (Spaanenburg, L., and Malki, S.) Optimization of Input-Constrained Systems, Proceedings SPIE Microtechnologies for the New Millennium (Dresden, May 2009) pp. 736314 1-10. ISBN 9780819476371.
- (Spaanenburg, H.A.E., Spaanenburg, L., and Ranefors, Johan) Polytopol Computing for Multi-Core and Distributed Systems, Proceedings SPIE Microtechnologies for the New Millennium (Dresden, May 2009) pp. 736307 1-12. ISBN 9780819476371.
- (Malki, S. and Spaanenburg, L.) Soft DT-CNN core implementations, Proceedings ICECS (Malta, August 2008) pp. 1183 - 1186. ISBN 978-1-4244-2182-4.
- (Chalermsuk, K., Spaanenburg, R.H., Spaanenburg, L., Seuter, M., and Stoorvogel, H.) Flexible-Length Fast Fourier Transform for COFDM, Proceedings ICECS (Malta, August 2008) pp. 534 – 537. ISBN 978-1-424-2182-4.
- (Spaanenburg, H.A.E. and Spaanenburg, L.) Polytopol Computing: The "cloud computing" model for ambient intelligence, Proceedings WSS (Copenhagen, 2008).
- (Malki, S. and Spaanenburg, L.) A DT-CNN Data-flow implementation, Proceedings CNNA (Santiago de Compostela, Spain, July 2008) pp. 17 – 22. ISBN 978-1-4244-2090-2.
- (Malki, S. and Spaanenburg, L.) Design Space Exploration for a DT-CNN, Proceedings CNNA (Santiago de Compostela, Spain, July 2008) pp. 69 - 74. ISBN 978-1-4244-2090-2.
- (Malki, S., and Spaanenburg, L.) Design Space Exploration for the integrated digital CNN camera, Proceedings 1st Int. Conference on Information Technology IT2008 (Gdansk, Poland, 18-21 May 2008) pp. 107-110.
- (Zhang, D, Chen, M, Spaanenburg, L., Nilsson, F. and Rossholm, A.) Remote Gaming by Deliberate Cellphone Movement, Proceedings 1st Int. Conference on Information Technology IT2008 (Gdansk, Poland, 18-21 May 2008) pp. 57 - 60.
- (Malki, S., and Spaanenburg, L.) Serial Broadcasting in Cellular Neural Networks, Swedish System-on-Chip Conference, 5-6 May 2008.
- (Spaanenburg, L., Malki, Suleyman, and Jonker, Kees) Heterogeneous Networks for Dynamic Surface Inspection, Proceedings ISIS2008 (Amsterdam, The Netherlands, February 2008).
- (Spaanenburg, L.) Early detection of abnormal emergent behaviour, Proceedings Eusipco (Poznan, Poland, September 2007) pp. 1741 - 1745.
- (Malki, S. and Spaanenburg, L.) Digital Arithmetic Needs of Cellular Neural Networks (CNN), Proceedings Euromicro DSD (Work in Progress), Luebeck, August 2007.
- (Wang, C, Yang X., Spaanenburg, L. and R. Peset Llopis) Impact of shared data in H.264/AVC parallelization, Proceedings Euromicro DSD (Work in Progress), Luebeck, August 2007.
- (Malki, S., and Spaanenburg, L.) Efficiency considerations for DT-CNN hardware, Proceedings NEWCAS (Montreal, Canada, August 2007) pp. 1038 - 1041.
- (Malki, S., and Spaanenburg, L.) Bit-Serial Approach Moves DT-CNN into Real-Time, Proceedings SSoCC2007 (Fiskebäckskil, May 2007).
- (Malki, S., and Spaanenburg, L.) Hand Veins Feature Extraction using DT-CNNs, Proceedings SPIE 3rd Int. Symposium on Microtechnologies for the New Millennium (Maspalomas, May 2007) 6590-0N.
- (Fang, W., and Spaanenburg, L.) Power-driven FPGA to ASIC conversion, Proceedings SPIE 3rd Int. Symposium on Microtechnologies for the New Millennium (Maspalomas, May 2007) 6590-05.
- (Spaanenburg, L., Åkesson, B., Hansson, A., and Goossens, K.) Design method for Unconventional Computing, Proceedings 10th IEEE Workshop on CNNA and their Applications (Istanbul, August 2006) pp. 334 – 339.
- (Fang, W., Wang, C, and Spaanenburg, L.) In Search for a Robust Digital CNN System, Proceedings 10th IEEE Workshop on CNNA and their Applications (Istanbul, August 2006) pp. 328 – 333.
- (Malki, S., Fuqiang, Y. and Spaanenburg, L.) Vein Feature Extraction using DTCNNs, Proceedings 10th IEEE Workshop on CNNA and their Applications (Istanbul, August 2006) pp. 307 – 312.
- (Malki, S., Fang, W., and Spaanenburg, L.) General introduction to ASIC design: a basic training in VHDL with emphasis on FPGA implementation, Proceedings EWME (Stockholm, Sweden, 8-9 June 2006) pp. 15-18.
- (Malki, S., Deepak, G., Mohanna, V., Ringhofer, M., and Spaanenburg, L.) Velocity measurement by a vision sensor, Proceedings CIMSA'06 (La Coruna, Spain, July 2006) pp. 135-140. Also in short version: A CNN hardware-only approach to speed measurement, Proceedings SSoCC 2006 (Kolmården, Sweden, 4-5 May 2006).
- (Spaanenburg, H., Thompson, J., Abraham, V., Spaanenburg, L., and Fang, W.) The need for large local FPGA-accessible memories, Proceedings ISCAS (Kos, May 2006) pp. 1957-1960. ISBN 0-7803-9390-2.

- (Malki, S, Fuqiang, Y. and Spaanenburg, L.) Hand veins feature extraction using DT-CNNs, Proceedings SSoCC 2006 (Kolmården, Sweden, 4-5 May 2006).
- (Fang, W.H., Johansson, T., and Spaanenburg, L.) Snow 2.0 IP Core for Trusted Hardware, Proceedings FPL 2005 (Tampere, Finland, August 2005) pp. 281 – 286.
- (Spaanenburg, L. and Malki, S.) Artificial Life goes 'in Silico', Proceedings CIMSA (Taormina, Italy, July 2005) 267 - 272
- (Fang, W.H., Johansson, T., and Spaanenburg, L.) Balancing BlockRAM and distributed RAM: a case study in FPGA-based ASIC design, Proceedings SSoCC 2005 (Tammsvik, Sweden, April 2005).
- (Spaanenburg, L. and Möhl, S.) Self-similar module for FP/LNS arithmetic in high-performance FPGA systems, Proceedings SPIE 2nd Int. Symposium on Microtechnologies for the New Millennium, Vol. 5837 (Sevilla, May 2005) pp. 880 - 887.
- (Malki, S, Hansson, A, Spaanenburg, L., and Åkesson, B.) ISO/OSI compliant Network-on-Chip implementation for CNN applications, Proceedings SPIE 2nd Int. Symposium on Microtechnologies for the New Millennium (Sevilla, May 2005).
- (Spaanenburg, L. and Malki, S.) Artificial Life goes 'in Silico', AILS-05 Workshop (Västeras, April 2005) pp. 154-165.
- (Åkesson, B., Hansson, A., Malki, S., and Spaanenburg, L.) Sleipner, Proceedings ProRISC (Veldhoven, The Netherlands, November 2004) pp. 201-208.
- (Malki, S. and Spaanenburg, L.) On the packet-switched implementation of a discrete-time CNN, Euromicro Symposium on Digital System Design (Rennes, France, August 2004) pp. 234 - 241.
- (Malki, S., Spaanenburg, L. and Ray, N.) Neural vision sensors for surface defect detection, Proceedings IJCNN, vol IV (Budapest, July 2004) pp. 3155 - 3160. Appeared also as abstract (Malki, S., Spaanenburg, L., and Ray, N.) Image stream processing on a packet-switched discrete-time CNN, Proceedings BNAIC 2004 (Groningen, The Netherlands), pp. 333-334.
- (Grunditz, C., Walder, M., and Spaanenburg, L.) Constructing a neural system for surface inspection, Proceedings IJCNN, vol. III (Budapest, July 2004) pp. 1881 - 1886.
- (terBrugge, M.H., Nijhuis, J.A.G., and Spaanenburg, L.) Optimal decomposition of large-neighborhood CNN templates, Proceedings 8th CNNA (Budapest, July 2004) pp. 160 - 165.
- (vanVeelen, M. and Spaanenburg, L.) Early detection of abnormal network behavior, Proceedings AILS-04 Workshop (Lund, April 2004) pp. 54-59. ISSN 1650-1276.
- (Grunditz, C., Walder, M., and Spaanenburg, L.) Constructing a neural system for surface inspection, Proceedings AILS-04 Workshop (Lund, April 2004) pp. 68-73. ISSN 1650-1276.
- (Bergquist, T., Ahnlund, J., Larsson, J.E., and Spaanenburg, L.) Using correlation in MFM model design and validation, Proceedings AILS-04 Workshop (Lund, April 2004) pp. 61-67. ISSN 1650-1276.
- (Malki, S., and Spaanenburg, L.) An exploration of digital CNN implementations, Proceedings SSOCC (Baestad, April 2004).
- (vanderZwaag, B.J., Spaanenburg, L., and Slump, C.) Translating feed-forward nets to SOM-like maps, Proceedings ProRisc'03 (Veldhoven, November 2003) pp. 447 – 452. ISBN 90-73461-39-1.
- (Malki, S., Spaanenburg, L., vanderZwaag, B.J.) It takes a winner to take his share, Proceedings ProRisc'03 (Veldhoven, November 2003) pp. 517 - 522. ISBN 90-73461-39-1
- (Spaanenburg, L., Lundgren, A., Malki, S. and Slump, C.H.) Embedded sensory systems based on topographic maps, Proceedings Progress'03 (Utrecht, 2003) pp. 232-237. ISBN 90.73461-27.5
- (Bergquist, T., Ahnlund, J., Larsson, J.E., and Spaanenburg, L.) Intelligent reduction of nuisance alarms in process control, Proceedings ECCTD'03 (Krakow, Poland, 1-4 September 2003) pp. 369-372.
- (Malki, S., and Spaanenburg, L.) CNN Image Processing on a Xilinx Virtex-II 6000, Proceedings ECCTD'03 (Krakow, Poland, 1-4 September 2003) pp. 261-264.
- (vanderZwaag, B.J., Slump, K., and Spaanenburg, L.) On the analysis of neural networks for image processing, pp. 950-957 in: (Palade, V. et al.) Proceedings KES'03, Lecture Notes in AI, Vol. 2774 (Springer Verlag, Berlin, 2003).
- (Spaanenburg, L., Alberts, R., Slump, C.H. and vanderZwaag, B.J.) Natural learning of neural networks by reconfiguration, *SPIE Proceedings on Bioengineered and Bioinspired Systems*, A. Rodriguez-Vazquez, D. Abbott and R. Carmona, Vol. 5119 (Maspalomas, May 2003) pp. 273 - 284.
- (Ahnlund, J., Bergquist, T., Larsson, J.E., and Spaanenburg, L.) Intelligent reduction of nuisance alarms in process control, Notes SAIS/SSLS Joint Workshop (Örebro, Sweden, April 2003)