**Valeriu Beiu**  **Publications**

 **1. ISI Journal articles (numbering is inverse chronological) .**

J39 S.R. Cowell, S. Hoara, and V. Beiu

Approximating Hammocks’ Reliability with Beta Distributions

Intl. J. Computers Communication & Control (IF ~ 2.093, SJR ~ 0.401) *Accepted*

J38 V. Beiu: Brain Inspired Nano Architectures ***Invited***

Intl. J. Computers Communication & Control (IF ~ 2.093, SJR ~ 0.401) *Accepted*

J35 V. Dragoi, and V. Beiu

Studying the Binary Erasure Polarization Subchannels Using Network Reliability

IEEE Comm. Lett., vol. 24, no. 1, Jan. 2020 (IF ~ 3.419, SJR ~ 1.261) 62–66

<https://doi.org/10.1109/LCOMM.2019.2947910> WOS:000508630200014

J34 V. Dragoi, S.R. Cowell, V. Beiu, S. Hoara, and P. Gaşpar

How Reliable Are Compositions of Series and Parallel Networks

Compared with Hammocks?

Intl. J. Comp. Comm. & Ctrl., vol. 13, no. 5, Oct. 2018 (IF = 1.585, SJR ~ 0.368) 772–791

<https://doi.org/10.15837/ijccc.2018.5.3354> WOS:000445916200002

J33 M. Tache, W. Ibrahim, F. Kharbash, and V. Beiu

Reliability and Performance of Optimised Schmitt Trigger Gates

IET Journal of Engineering, vol. 2018, no. 8, Aug. 2018 735–744

<https://doi.org/10.1049/joe.2018.0091> WOS:000444338700004

J31 S.R. Cowell, V. Beiu, L. Dauş, and P. Poulin

On the Exact Reliability Enhancements of Small Hammock Networks

IEEE Access, vol. 6, no. 1, Apr. 2018 (IF = 4.098, SJR = 0.609) 25411–25426

<https://doi.org/10.1109/ACCESS.2018.2828036> WOS:000433619800001

J30 R.-M. Beiu, V. Beiu and V.-F. Duma

Fiber Optic Mechanical Deformation Sensors Employing Perpendicular Photonic Crystals

Optics Express, vol. 25, no. 19, 18 Sept. 2017 (IF = 3.561, SJR = 1.473) 23388–23398

<https://doi.org/10.1364/OE.25.023388> WOS:000411584600108

J28 V. Beiu, and L. Dauş

Reliability Bounds for Two Dimensional Consecutive Systems ***Invited***

Nano Communication Networks, vol. 6, no. 3, Sept. 2015 (SJR = 0.469)

Special Issue on Biological Information and Communication Technology 145–152

<https://doi.org/10.1016/j.nancom.2015.04.003> WOS:000374412900008

J27 L. Dauş, and V. Beiu

Lower and Upper Reliability Bounds for Consecutive-*k*-out-of-*n*:*F* Systems

IEEE Transactions on Reliability, vol. 64, no. 3, Sept. 2015 (IF = 2.287, SJR = 1.930) 1128–1135

<https://doi.org/10.1109/TR.2015.2417527> WOS:000360794600026

J26 M. Tache, V. Beiu, W. Ibrahim, F. Kharbash, and M. Alioto

Enhancing the Static Noise Margins by Sizing Length for ***Invited***

Ultra-Low Voltage/Power/Energy Gates

Journal of Low Power Electronics, vol. 10, no. 1, Mar. 2014 (SJR = 0.186) 137–148

<https://doi.org/10.1166/jolpe.2014.1305> ISI ESCI

J25 G. Wendin, D. Vuillaume, M. Calame, S. Yitzchaik, C. Gamrat, G. Cuniberti, and V. Beiu

SYMONE Project: SYnaptic MOlecular NEtworks for Bio-inspired Information Processing

Journal of Unconventional Computing, vol. 8, no. 4, Nov. 2012 (IF = 0.431, SJR = 0.205) 325–332

<http://www.oldcitypublishing.com/journals/ijuc-home/ijuc-issue-contents/ijuc-volume-8-number-4-2012/ijuc-8-4-p-325-332/> WOS:000312177000008

J24 W. Ibrahim, V. Beiu, and A. Beg

Optimum Reliability Sizing for Complementary Metal Oxide Semiconductor Gates

IEEE Transactions on Reliability, vol. 61, no. 3, Sept. 2012 (IF = 2.293, SJR = 1.516) 675–686

<https://doi.org/10.1109/TR.2012.2206249> WOS:000308424000006

J23 W. Ibrahim, V. Beiu, and A. Beg

GREDA: A Fast and More Accurate CMOS Gates Reliability EDA Tool

IEEE Transactions on Computer-Aided Design of Integrated Circuits & Systems

vol. 31, no. 4, Apr. 2012 (IF = 1.093, SJR = 0.790) 509–521

<https://doi.org/10.1109/TCAD.2011.2176123> WOS:000302177200005

J22 W. Ibrahim, and V. Beiu

Using Bayesian Networks to Accurately Calculate the Reliability of CMOS Gates

IEEE Transactions on Reliability, vol. 60, no. 3, Sept. 2011 (IF = 1.285, SJR = 1.337) 538–549

<https://doi.org/10.1109/TR.2011.2161032> WOS:000294543800003

J21 V. Beiu, and W. Ibrahim

Devices and Input Vectors Are Shaping von Neumann Multiplexing

IEEE Transactions on Nanotechnology, vol. 10, no. 3, May 2011 (IF = 2.292, SJR = 1.271) 606–616

<https://doi.org/10.1109/TNANO.2010.2059036> WOS:000292963500036

J19 W. Ibrahim, and V. Beiu: Threshold Voltage Variations Make Full Adders Reliabilities Similar

IEEE Transactions on Nanotechnology, vol. 9, no. 6, Nov. 2010 (IF = 1.864, SJR = 1.203) 664–667

<https://doi.org/10.1109/TNANO.2010.2066573> WOS:000284091300002

J18 W. Ibrahim, V. Beiu, and M.H. Sulieman: On the Reliability of Majority Gates Full Adders

IEEE Transactions on Nanotechnology, vol. 7, no. 1, Jan. 2008 (IF = 2.154, SJR = 1.387) 56–67

<https://doi.org/10.1109/TNANO.2007.915203> WOS:000252518300010

J17 V. Beiu, S. Aunet, J. Nyathi, R.R. Rydberg III, and W. Ibrahim

Serial Addition: Locally Connected Architectures

IEEE Transactions on Circuits & Systems I, vol. 54, no. 11, Nov. 2007 (IF = 1.204, SJR = 1.438)

Special Issue on Circuits and Computing Architectures for Nanotechnology 2564–2579

<https://doi.org/10.1109/TCSI.2007.907885> WOS:000250992900023

J16 M.H. Sulieman, and V. Beiu: On Single Electron Technology Full Adders

IEEE Transactions on Nanotechnology, vol. 4, no. 6, Nov. 2005 (IF = 2.112, SJR = 2.455) 669–680

<https://doi.org/10.1109/TNANO.2005.858609> WOS:000233341100004

J15 S. Roy, and V. Beiu

Majority Multiplexing — Economical Redundant Fault-Tolerant Design for Nano Architectures

IEEE Transactions on Nanotechnology, vol. 4, no. 4, Jul. 2005 (IF = 2.112, SJR = 2.455) 441–451

<https://doi.org/10.1109/TNANO.2005.851251> WOS:000230421100009

J14 V. Beiu, J.M. Quintana, and M.J. Avedillo

VLSI Implementations of Threshold Gates — A Comprehensive Survey

IEEE Transactions on Neural Networks, vol. 14, no. 5, May 2003 (IF = 1.666, SJR = 1.727)

Special Issue on Hardware Implementations of Neural Networks 1217–1243

<https://doi.org/10.1109/TNN.2003.816365> WOS:000186478900022

J11 V. Beiu, S. Draghici, and T. De Pauw

A Constructive Approach to Calculating Lower Entropy Bounds

Neural Processing Letters, vol. 9, no. 1, Feb. 1999 (IF = 0.405, SJR = 1.162) 1–12

[https://doi.org/10.1023/A:1018659009494](https://doi.org/10.1023/A%3A1018659009494) WOS:000078809200001

J10 V. Beiu, and H.E. Makaruk: Deeper Sparsely Nets Can Be Optimal

Neural Processing Letters, vol. 8, no. 3, Dec. 1998 (IF = 0.286, SJR later) 201–210

[https://doi.org/10.1023/A:1009665432594](https://doi.org/10.1023/A%3A1009665432594) WOS:000077408700001

J9 V. Beiu: On the Circuit and VLSI Complexity of Threshold Gate COMPARISON

Neurocomputing, vol. 19, no. 1, Apr. 1998 (IF = 0.453, SJR later) 77–98

[https://doi.org/10.1016/S0925-2312(97)00099-4](https://doi.org/10.1016/S0925-2312%2897%2900099-4) WOS:000073365000008

J7 V. Beiu, and J.G. Taylor

On the Circuit Complexity of Sigmoid Feedforward Neural Networks

Neural Networks, vol. 9, no. 7, Oct. 1996 (IF = 1.325, SJR later) 1155–1171

[https://doi.org/10.1016/0893-6080(96)00130-X](https://doi.org/10.1016/0893-6080%2896%2900130-X) WOS:A1996VQ82800006

**Remark: The following 5 patents are indexed in ISI WoS (under Derwent Innovations Index)**

P11 V. Beiu: Low-Power Differential Conductance-Based Logic Gate and Method of Operation Thereof

US 6,580,296, June 17, 2003 1–18

<https://patents.google.com/patent/US6580296/> DIIDW:2003656312

P10 V. Beiu: Microprocessor and a Digital Signal Processor Including Adder and Multiplier Circuits

Employing Logic Gates Having Discrete and Weighted Inputs

US 6,516,331, February 4, 2003 1–14

<https://patents.google.com/patent/US6516331/> DIIDW:2000349800

P8 V. Beiu: Adder Having Reduced Number of Internal Layers and Method of Operation Thereof

US 6,438,572, August 20, 2002 [Also as WO/2001/023992 and AU40251/01] 1–11

<https://patents.google.com/patent/US6438572/> DIIDW:2001316145

P7 V. Beiu: Noise Tolerant Conductance-Based Logic Gate and Methods of Operation and

Manufacturing Thereof

US 6,430,585, August 6, 2002 [Also as WO/2001/024367 and AU76009/00] 1–16

<https://patents.google.com/patent/US6430585/> DIIDW:2001281699

P3 V. Beiu: Logic Gate Having Reduced Power Dissipation and Method of Operation Thereof

US 6,259,275, July 10, 2001 1–19

<https://patents.google.com/patent/US6259275/> DIIDW:2001595137

 **2. ISI Proceedings articles (numbering is inverse chronological) .**

C212 M. Nagy, V. Dragoi, and V. Beiu

Employing Sorting Nets for Designing Reliable Computing Nets

IEEE International Conference on Nanotechnology IEEE-NANO 2020

Virtual conference [Montreal, QC, Canada], July 29-31, 2020 370–375

<https://doi.org/10.1109/NANO47656.2020.9183395> WOS:Pending

C211 S.R. Cowell, S. Hoara, and V. Beiu

Experimenting with Beta Distributions for Approximating Hammocks’ Reliability ***Best***

International Conference on Computers Communications and Control ICCCC2020 ***Paper***

Virtual conference [Oradea, Romania], May 11-15, 2020 ***Award*8**

In I. Dzitac et al. (Eds.): ICCCC 2020, SpringerNature, AISC 1243, 2021 70–81

<https://doi.org/10.1007/978-3-030-53651-0_6> WOS:Pending

C210 S. Hoara, R.-M. Beiu, and V. Beiu

Investigating Hammock Networks on IBM Q

International Conference on Computers Communications and Control ICCCC2020

Virtual conference [Oradea, Romania], May 11-15, 2020

In I. Dzitac et al. (Eds.): ICCCC 2020, SpringerNature, AISC 1243, 2021 57–69

<https://doi.org/10.1007/978-3-030-53651-0_5> WOS:Pending

C209 S.R. Cowell, M. Nagy, and V. Beiu

Reliability of Two-Terminal Networks Equivalent to Small Optimal Sorting Nets

International Conference on Computers Communications and Control ICCCC2020

Virtual conference [Oradea, Romania], May 11-15, 2020

In I. Dzitac et al. (Eds.): ICCCC 2020, SpringerNature, AISC 1243, 2021 45–56

<https://doi.org/10.1007/978-3-030-53651-0_4> WOS:Pending

C208 V. Dragoi, S.R. Cowell, and V. Beiu

Tight Bounds on the Coefficients of Consecutive *k*-out-of-*n*:*F* Systems

International Conference on Computers Communications and Control ICCCC2020

Virtual conference [Oradea, Romania], May 11-15, 2020

In I. Dzitac et al. (Eds.): ICCCC 2020, SpringerNature, AISC 1243, 2021 35–44

<https://doi.org/10.1007/978-3-030-53651-0_3> WOS:Pending

C206 V. Beiu, S.R. Cowell, and V. Dragoi

The Posets for Reliability: How Fine Can They Be?

International Workshop on Soft Computing Applications SOFA’18

Arad, Romania, September 13-15, 2018

In V.E. Balas et al. (Eds.): SOFA 2018, SpringerNature, AISC 1221, 2021 115–129

<https://doi.org/10.1007/978-3-030-51992-6_10> WOS:Pending

C205 V. Dragoi, S.R. Cowell, and V. Beiu

Ordering Series and Parallel Compositions

IEEE International Conference on Nanotechnology IEEE-NANO’18

Cork, Ireland, July 23-26, 2018 8626408(1–4)

<https://doi.org/10.1109/NANO.2018.8626408> WOS:000458785600186

C204 S.R. Cowell, V. Dragoi, N.-C. Rohatinovici, and V. Beiu

Effective Conductances of Moore-Shannon Hammocks

IEEE International Conference on Nanotechnology IEEE-NANO’18

Cork, Ireland, July 23-26, 2018 8626295(1–4)

<https://doi.org/10.1109/NANO.2018.8626295> WOS:000458785600076

C202 R.-M. Beiu, V.-F. Duma, and V. Beiu

The Latest on the Axon Initial Segment

IEEE International Conference on Computers Communications and Control ICCCC’18

Baile Felix/Oradea, Romania, May 08-12, 2018 136–141

<https://doi.org/10.1109/ICCCC.2018.8390450> WOS:000437157500021

C201 N.-C. Rohatinovici, S.R. Cowell, L. Dauş, P. Poulin, V. Dragoi, V.E. Balaş, and V. Beiu

On Algorithms for Evaluating the Reliability of Large Hammock Networks

IEEE International Conference on Computers Communications and Control ICCCC’18

Baile Felix/Oradea, Romania, May 08-12, 2018 131–135

<https://doi.org/10.1109/ICCCC.2018.8390449> WOS:000437157500020

C200 V. Dragoi, S.R. Cowell, S. Hoara, P. Gaşpar, and V. Beiu

Can Series and Parallel Compositions Improve on Hammocks? ***Best***

IEEE International Conference on Computers Communications and Control ICCCC’18 ***Paper***

Baile Felix/Oradea, Romania, May 08-12, 2018 ***Award*7** 124–130

<https://doi.org/10.1109/ICCCC.2018.8390448> WOS:000437157500019

C199 V. Beiu, S.R. Cowell, V. Dragoi, S. Hoara, and P. Gaşpar

Hammocks versus Hammock

IEEE International Conference on Computers Communications and Control ICCCC’18

Baile Felix/Oradea, Romania, May 08-12, 2018 119–123

<https://doi.org/10.1109/ICCCC.2018.8390447> WOS:000437157500018

C198 M. Nagy, S.R. Cowell, and V. Beiu

Are 3D Fibonacci Spirals for Real ? — From Science to Arts and Back to Science

IEEE International Conference on Computers Communications and Control ICCCC’18

Baile Felix/Oradea, Romania, May 08-12, 2018 91–96

<https://doi.org/10.1109/ICCCC.2018.8390443> WOS:000437157500014

C197 R.-M. Beiu, V. Beiu, and V.-F. Duma: Ultra-small Mechanical Deformation Sensor

Using a Hybrid Fiber Optic-based Triangular Photonic Crystal Structure

SPIE Photonics Europe 2018 (SPIE Vol. 10678)

Strasbourg, France, April 22-26, 2018 106780Z(1–6)

<https://doi.org/10.1117/12.2307017> WOS:000453085900025

C196 S.R. Cowell, V. Beiu, L. Dauş, and P. Poulin

On Cylindrical Hammock Networks

IEEE International Conference on Nanotechnology IEEE-NANO’17

Pittsburgh, USA, July 25-28, 2017 185–188

<https://doi.org/10.1109/NANO.2017.8117498> WOS:000434647500042

C195 R.-M. Beiu, V.-F. Duma, and V. Beiu

Transverse 2D Photonic Crystal Inside a Fiber Optic for Picometer-scale Measurements

IEEE International Conference on Numerical Simulation of Optoelectronic Devices NOSUD’17

Copenhagen, Denmark, July 24-28, 2017 53–54

<https://doi.org/10.1109/NUSOD.2017.8009987> WOS:000426853800027

C194 V. Beiu: Photonic Techniques for Brain Imaging ***Invited*27**

SPIE-SRLS International Conference for Lasers in Medicine ICLM’17

Timisoara, Romania, July 13-15, 2017 108310I(1–4)

<https://doi.org/10.1117/12.2282763> WOS:000453614200013

C193 R.-M. Beiu, V. Beiu, and V.-F. Duma

Fundamentals and biomedical applications of photonic crystals: An overview

SPIE-SRLS International Conference for Lasers in Medicine ICLM’17

Timisoara, Romania, July 13-15, 2017 108310R(1–5)

<https://doi.org/10.1117/12.2282019> WOS:000453614200022

C192 V. Beiu, L. Dauş, N.C. Rohatinovici, and V.E. Balaş

Transport Reliability on Axonal Cytoskeleton

IEEE International Conference on Engineering of Modern Electric Systems EMES’17

Oradea, Romania, June 1-2, 2017 160–163

<https://doi.org/10.1109/EMES.2017.7980404> WOS:000427085200037

C191 S.R. Cowell, V. Beiu, L. Dauş, and P. Poulin

On Hammock Networks – Sixty Years After

IEEE International Conference on Design & Technology of Integrated Systems in

Nanoscale Era DTIS’17, Palma de Mallorca, Spain, April 4-6, 2017 7929871(1–6)

<https://doi.org/10.1109/DTIS.2017.7929871> WOS:000403402000002

C190 R. Toderean (Aldea), O. Geman, I. Chiuchisan, V.E. Balaş, and V. Beiu

Novel Method for Neurodegenerative Disorders Screening Patients using

Hurst Coefficients on EEG Delta Rhythm

IEEE International Workshop on Soft Computing Applications SOFA’16

Arad, Romania, August 24-26, 2016

In V.E. Balaş, L.C. Jain, and M.M. Balaş (eds.), Soft Computing Applications, Springer, 2018 349–358

<https://doi.org/10.1007/978-3-319-62521-8_29> WOS:000433138300029

C189 V. Beiu, and M. Tache: Revisiting Delay Variations Statistically Through an Example

IEEE International Semiconductor Conference CAS’15

Sinaia, Romania, October 12-14, 2015 179–182

<https://doi.org/10.1109/SMICND.2015.7355200> WOS:000380566400034

C188 V. Beiu, and M. Tache: On Using Schmitt Trigger for Digital Logic

IEEE International Semiconductor Conference CAS’15

Sinaia, Romania, October 12-14, 2015 197–200

<https://doi.org/10.1109/SMICND.2015.7355206> WOS:000380566400038

C187 V. Beiu, and L. Dauş: Reliability Schemes for Nano-Communications

IEEE European Conference on Circuit Theory and Design ECCTD’15

Trondheim, Norway, August 24-26, 2015 7300038(1–4)

<https://doi.org/10.1109/ECCTD.2015.7300038> WOS:000380498200020

C186 V. Beiu, and M. Tache: Statistical Analysis of Static Noise Margins

IEEE European Conference on Circuit Theory and Design ECCTD’15

Trondheim, Norway, August 24-26, 2015 7300090(1–4)

<https://doi.org/10.1109/ECCTD.2015.7300090> WOS:000380498200072

C185 V. Beiu, and L. Dauş: On 2-Dimensional Consecutive Systems Once Again

IEEE International Conference on Nanotechnology IEEE-NANO’15

Rome, Italy, July 27-30, 2015 464–467

<https://doi.org/10.1109/NANO.2015.7388638> WOS:000380515200018

C184 V. Beiu, W. Ibrahim, M. Tache and F. Kharbash: When One Should Consider Schmitt Trigger Gates

IEEE International Conference on Nanotechnology IEEE-NANO’15

Rome, Italy, July 27-30, 2015 682–685

<https://doi.org/10.1109/NANO.2015.7388698> WOS:000380515200078

C183 M. Tache, V. Beiu, and T.-J. King Liu: Why Hybridize NEMS with CMOS?

IEEE International Conference on Electronics Circuits and Systems ICECS’14

Marseille, France, December 7-10, 2014 646–649

<https://doi.org/10.1109/ICECS.2014.7050068> WOS:000380548000163

C181 V. Beiu, and L. Dauş: Why Should We Care About Bounds – Consecutive Systems Revisited

IEEE International Conference on Innovations in Information Technology IIT’14

Al Ain, UAE, November 9-11, 2014 65–70

<https://doi.org/10.1109/INNOVATIONS.2014.6987563> WOS:000412231400012

C180 M. Tache, F. Kharbash, and V. Beiu: On SRAM Bit-Cells Once Again

IEEE International Conference on Innovations in Information Technology IIT’14

Al Ain, UAE, November 9-11, 2014 80–83

<https://doi.org/10.1109/INNOVATIONS.2014.6987566> WOS:000412231400015

C179 M. Tache, V. Beiu, and T.-J. King Liu: A Dual-Voltage Hybrid NEMS-CMOS Low Power Scheme

IEEE International Semiconductor Conference CAS’14

Sinaia, Romania, October 13-15, 2014 211–214

<https://doi.org/10.1109/SMICND.2014.6966438> WOS:000380488300042

C178 V. Beiu, M. Tache, and F. Kharbash: Reliability Enhanced SRAM Bit-Cells

IEEE International Semiconductor Conference CAS’14

Sinaia, Romania, October 13-15, 2014 229–232

<https://doi.org/10.1109/SMICND.2014.6966444> WOS:000380488300046

C177 V. Beiu, W. Ibrahim, M. Tache, and T.-J. King Liu: On Ultra-Low Power Hybrid NEMS-CMOS

IEEE International Conference on Nanotechnology IEEE-NANO’14

Toronto, ON, Canada, August 18-21, 2014 201–206

<https://doi.org/10.1109/NANO.2014.6968045> WOS:000365620600046

C176 V. Beiu, and L. Dauş: Review of Reliability Bounds for Consecutive-$k$-out-of-$n$ Systems

IEEE International Conference on Nanotechnology IEEE-NANO’14

Toronto, ON, Canada, August 18-21, 2014 302–307

<https://doi.org/10.1109/NANO.2014.6968048> WOS:000365620600066

C175 M. Al Kaabi, A. Al Ali, H. Al Janahi, M. Al Kendi, M. Tache, and V. Beiu

Ultra-low Power SRAM Cells with Unconventional Sizing

IEEE International Conference on Nanotechnology IEEE-NANO’14

Toronto, ON, Canada, August 18-21, 2014 308–313

<https://doi.org/10.1109/NANO.2014.6968117> WOS:000365620600067

C174 F. Kharbash, V. Beiu, M. Tache, and W. Ibrahim

Using Body Bias when Upsizing Length for Maximizing the SNMs of CMOS Gates

IEEE International Conference on Electronics, Circuits, and Systems ICECS’13

Abu Dhabi, UAE, December 8-11, 2013 409–412

<https://doi.org/10.1109/ICECS.2013.6815441> WOS:000339725900111

C173 W. Ibrahim, V. Beiu, M. Tache, and F. Kharbash: On Schmitt Trigger and Other Inverters

IEEE International Conference on Electronics, Circuits, and Systems ICECS’13

Abu Dhabi, UAE, December 8-11, 2013 29–32

<https://doi.org/10.1109/ICECS.2013.6815337> WOS:000339725900008

C172 D. Arotaritei, V. Beiu, M. Turnea, and M. Rotariu

Probabilistic Gate Matrix for Axon-inspired Communication

IEEE International Conference on E-Health and Bioengineering EHB’13

Iasi, Romania, November 21-23, 2013 6707255(1–4)

<https://doi.org/10.1109/EHB.2013.6707255> WOS:000346672900023

C171 N.V. Acharya, J.L. Raju, A. Kumar, M. Tache, and V. Beiu: Monte Carlo Analysis of the

Static Noise Margins for CMOS Gates in Predictive Technology Models

IEEE GCC Conference and Exhibition, Doha, Qatar, November 17-20, 2013 5–10

<https://doi.org/10.1109/IEEEGCC.2013.6705739> WOS:000343832200002

C170 V. Beiu, M. Tache, W. Ibrahim, F. Kharbash, and M. Alioto

On Upsizing Length and Noise Margins

IEEE International Semiconductor Conference CAS’13

Sinaia, Romania, October 13-16, 2013 219–222

<https://doi.org/10.1109/SMICND.2013.6688659> WOS:000330180800043

C169 V. Beiu, A. Beg, W. Ibrahim, F. Kharbash, and M. Alioto

Enabling Sizing for Enhancing the Static Noise Margins

IEEE International Symposium on Quality in Electronic Design ISQED’13

Santa Clara, CA, USA, March 4-6, 2013 278–285

<https://doi.org/10.1109/ISQED.2013.6523623> WOS:000324653700042

C168 P. Santagati, and V Beiu: Will Thermal Noise Affect Nano-Communications?

IEEE International Conference on Communications, Signal Processing,

and their Applications ICCSPA’13, Sharjah, UAE, February 12-14, 2013 6487322(1–4)

<https://doi.org/10.1109/ICCSPA.2013.6487322> WOS:000318427600097

C166 V. Beiu, L. Iordaconiu, A. Beg, W. Ibrahim, and F. Kharbash

Low Power and Highly Reliable Gates Using Arrays of Optimally Sized Transistors

IEEE International Semiconductor Conference CAS’12

Sinaia, Romania, October 15-17, 2012 433–436

<https://doi.org/10.1109/SMICND.2012.6400738> WOS:000314223700089

C165 A. Beg, V. Beiu, and W. Ibrahim

Unconventional Transistor Sizing for Reducing Power Alleviates Threshold Voltage Variations

IEEE International Semiconductor Conference CAS’12

Sinaia, Romania, October 15-17, 2012 429–432

<https://doi.org/10.1109/SMICND.2012.6400739> WOS:000314223700088

C164 V. Beiu, M. Calame, G. Cuniberti, C. Gamrat, Z. Konkoli, D. Vuillaume, G. Wendin, and S. Yitzchaik

Aspects of Computing with Locally Connected Networks

AIP International Conference on Numerical Analysis and Applied Mathematics ICNAAM’12

Kos, Greece, September 19-25, 2012 1875–1879

<https://doi.org/10.1063/1.4756547> WOS:000310698100443

C163 V. Beiu, A. Beg, W. Ibrahim, and F. Kharbash

Towards Ultra-Low Voltage/Power Using Unconventionally Sized Arrays of Transistors

IEEE International Conference on Nanotechnology IEEE-NANO’12

Birmingham, UK, August 20-23, 2012 6322071(1–5)

<https://doi.org/10.1109/NANO.2012.6322071> WOS:000309933900186

C162 V. Beiu, W. Ibrahim, A. Beg, and M. Tache: On Axon-inspired Communications

IEEE European Conference on Circuit Theory and Design ECCTD’11

Linköping, Sweden, August 29-31, 2011 ECCTD’15 … 789–792

<https://doi.org/10.1109/ECCTD.2011.6043841>

C161 V. Beiu, A. Beg, and W. Ibrahim: Atto-Joule Gates for the Whole Voltage Range ***Invited*25**

IEEE International Conference on Nanotechnology IEEE-NANO’11

Portland, OR, USA, August 15-18, 2011 IEEE-NANO’09, ’12 1424–1429

<https://doi.org/10.1109/NANO.2011.6144399>

C160 A. Beg, and V. Beiu: Ultra Low Power/Energy SET-based Axon-inspired Communication

IEEE International Conference on Nanotechnology IEEE-NANO’11

Portland, OR, USA, August 15-18, 2011 IEEE-NANO’09, ’12 1183–1186

<https://doi.org/10.1109/NANO.2011.6144563>

C159 W. Ibrahim, A. Beg, and V. Beiu: Highly Reliable and Low-Power Full Adder Cell

IEEE International Conference on Nanotechnology IEEE-NANO’11

Portland, OR, USA, August 15-18, 2011 IEEE-NANO’09, ‘12 500–503

<https://doi.org/10.1109/NANO.2011.6144434>

C158 V. Beiu, L. Zhang, W. Ibrahim, and M. Tache

Minimizing Communication Power Using Near-neighbor Axon-inspired Lattices

IEEE International Conference on Nanotechnology IEEE-NANO’11

Portland, OR, USA, August 15-18, 2011 IEEE-NANO’09, ‘12 426–430

<https://doi.org/10.1109/NANO.2011.6144502>

C157 J.J. Wade, L.J. McDaid, J. Harkin, V. Crunelli, J.A.S. Kelso, and V. Beiu

Exploring Retrograde Signaling via Astrocytes as a Mechanism for Self Repair

IEEE International Joint Conference on Neural Networks IJCNN’11

San Jose, CA, USA, July 31 - August 5, 2011 3149–3155

<https://doi.org/10.1109/IJCNN.2011.6033638> WOS:000297541203042

C156 A. Beg, V. Beiu, and W. Ibrahim

Atto Joule CMOS Gates Using Reversed Sizing and W/L Swapping

IEEE International New Circuits and Systems Conference NEWCAS’11

Bordeaux, France, June 26-29, 2011 NEWCAS’09 498–501

<https://doi.org/10.1109/NEWCAS.2011.5981328>

C155 W. Ibrahim, V. Beiu, and A. Beg: On NOR-2 von Neumann Multiplexing

IEEE International Design and Test Workshop IDT’10

Abu Dhabi, UAE, December 14-16, 2010 IDT’09 67–72

<https://doi.org/10.1109/IDT.2010.5724410>

C154 V. Beiu, and W. Ibrahim: From Transistor Variations to NAND-2 Multiplexing

IEEE International Conference on Nanotechnology IEEE-NANO’10

Seoul, Korea, August 17-20, 2010 IEEE-NANO’09, ‘12 1076–1081

<https://doi.org/10.1109/NANO.2010.5697864>

C153 W. Ibrahim, and V. Beiu: Device-Level Reliability of Several Full Adder Cells

IEEE International Conference on Nanotechnology IEEE-NANO’10

Seoul, Korea, August 17-20, 2010 IEEE-NANO’09,’12  1082–1087

<https://doi.org/10.1109/NANO.2010.5697865>

C152 M.H. Sulieman, V. Beiu, and W. Ibrahim

Low-Power and Highly Reliable Logic Gates: Transistor-level Optimizations

IEEE International Conference on Nanotechnology IEEE-NANO’10

Seoul, Korea, August 17-20, 2010 IEEE-NANO’09, ‘12 254–257

<https://doi.org/10.1109/NANO.2010.5697892>

C150 W. Ibrahim, and V. Beiu: Reliability of NAND-2 CMOS Gates from Threshold Voltage Variations

IEEE International Conference Innovations in Information Technology IIT’09

Al Ain, UAE, December 15-17, 2009 135–139

<https://doi.org/10.1109/IIT.2009.5413631> WOS:000283476800064

C149 V. Beiu, B.A.M. Madappuram, P.M. Kelly, and L.J. McDaid

On Two-layer Hierarchical Networks: How Does the Brain Do This? ***Invited*24**

International ICST Conference on Nano-Networks Nano-Net’09

Luzern, Switzerland, October 18-20, 2009 231–241

<https://doi.org/10.1007/978-3-642-04850-0_31> WOS:000301970000031

C148 P.M. Kelly, F. Tuffy, V. Beiu, and L.J. McDaid: Reduced Interconnects in Neural

Networks Using a Time Multiplexed Architecture Based on Quantum Devices ***Invited*23**

International ICST Conference on Nano-Networks Nano-Net’09

Luzern, Switzerland, October 18-20, 2009 242–250

<https://doi.org/10.1007/978-3-642-04850-0_32> WOS:000301970000032

C147 V. Beiu, W. Ibrahim, and R.Z. Makki: On Wires Holding a Handful of Electrons ***Invited*22**

International ICST Conference on Nano-Networks Nano-Net’09

Luzern, Switzerland, October 18-20, 2009 259–269

<https://doi.org/10.1007/978-3-642-04850-0_34> WOS:000301970000034

C146 W. Ibrahim, and V. Beiu: A Bayesian-based EDA Tool for Nano-Circuits Reliability Calculations ***Invited*21**

International ICST Conference on Nano-Networks Nano-Net’09

Luzern, Switzerland, October 18-20, 2009 276–284

<https://doi.org/10.1007/978-3-642-04850-0_36> WOS:000301970000036

C145 V. Beiu, B.A.M. Madappuram, P.M. Kelly, and L.J. McDaid

On Brain-inspired Hierarchical Network Topologies

IEEE International Conference on Nanotechnology IEEE-NANO’09

Genoa, Italy, July 26-30, 2009 202–205

<https://ieeexplore.ieee.org/document/5394594/> WOS:000302997400057

C144 W. Ibrahim, V. Beiu, and H. Amer

How Much Input Vectors Affect Nano-Circuit’s Reliability Estimates

IEEE International Conference on Nanotechnology IEEE-NANO’09

Genoa, Italy, July 26-30, 2009 699–702

<https://ieeexplore.ieee.org/document/5394482/> WOS:000302997400193

C143 V. Beiu, W. Ibrahim, and R.Z. Makki: On Wires at Low Electron Densities

IEEE International Conference on Nanotechnology IEEE-NANO’09

Genoa, Italy, July 26-30, 2009 703–706

<https://ieeexplore.ieee.org/document/5394862/> WOS:000302997400194

C141 W. Ibrahim, V. Beiu, and H. Amer: Why Should We Care About Input Vectors?

IEEE International Northeast Workshop on Circuit and Systems NEWCAS’09

Toulouse, France, June 28 - July 1, 2009 5290448(1–4)

<https://doi.org/10.1109/NEWCAS.2009.5290448> WOS:000275234500055

C140 V. Beiu, W. Ibrahim, and R.Z. Makki: On Wires Driven by a Few Electrons

IEEE International Northeast Workshop on Circuit and Systems NEWCAS’09

Toulouse, France, June 28 - July 1, 2009 5290455(1–4)

<https://doi.org/10.1109/NEWCAS.2009.5290455> WOS:000275234500092

C139 R.M. Beiu, and V. Beiu: Pico Sensors for All Seasons — When Light Performs Its Marvels

IEEE International Conference on Innovations in Information Technology IIT’08

Al Ain, UAE, December 16-18, 2008 116–120

<https://doi.org/10.1109/INNOVATIONS.2008.4781727> WOS:000274017600100

C138 R.M. Beiu, and V. Beiu

Fiber Optic Mechanical Sensor Based on a Triangular-lattice Photonic Crystal

IEEE International Photonics Global Conference IPGC’08

Singapore, December 8-11, 2008 4781347(1–4)

<https://doi.org/10.1109/IPGC.2008.4781347> WOS:000267591100050

C137 V. Beiu, B.A.M. Madappuram, and M. McGinnity

On Brain-inspired Hybrid Topologies for Nano-architectures — A Rent’s Rule Approach

IEEE International Conference on Embedded Computer Systems IC-SAMOS’08

Samos, Greece, July 21-24, 2008 33–40

<https://doi.org/10.1109/ICSAMOS.2008.4664844> WOS:000262964400005

C134 B.A.M. Madappuram, V. Beiu, P.M. Kelly, and L.J. McDaid

On Brain-inspired Connectivity and Hybrid Network Topologies

IEEE/ACM International Symposium on Nanoscale Architectures NANOARCH’08

Anaheim, CA, USA, June 8-13, 2008 54–61

<https://doi.org/10.1109/NANOARCH.2008.4585792> WOS:000259442100008

C133 V. Beiu, and W. Ibrahim: Does the Brain Really Outperform Rent’s Rule?

IEEE International Symposium on Circuits and Systems ISCAS’08

Seattle, WA, USA, May 18-21, 2008 640–643

<https://doi.org/10.1109/ISCAS.2008.4541499> WOS:000258532100163

C132 W. Ibrahim, V. Beiu, and S. Lazarova-Molnar: Accurate Nano-Circuits Reliability Evaluations

Based on Combining Numerical Simulations with Monte Carlo Ones

IEEE International Design and Test Workshop IDT’07

Cairo, Egypt, December 16-18, 2007 139–144

<https://doi.org/10.1109/IDT.2007.4437447> WOS:000252739600027

C131 S. Lazarova-Molnar, V. Beiu, and W. Ibrahim

Proxels for Reliability Assessment of Future Nano-Architectures

IEEE International Design and Test Workshop IDT’07

Cairo, Egypt, December 16-18, 2007 88–89

<https://doi.org/10.1109/IDT.2007.4437435> WOS:000252739600018

C130 S. Lazarova-Molnar, V. Beiu, and W. Ibrahim

Reliability – The Fourth Optimization Pillar of Nanoelectronics

IEEE International Conference on Signal Processing and Communications ICSPC’07

Dubai, UAE, November 24-27, 2007 73–76

<https://doi.org/10.1109/ICSPC.2007.4728258> WOS:000266406700019

C129 W. Ibrahim, and V. Beiu: Why Nano-DSP Will Be Fan-in Constrained

IEEE International Conference on Signal Processing and Communications ICSPC’07

Dubai, UAE, November 24-27, 2007  317–320

<https://doi.org/10.1109/ICSPC.2007.4728319> WOS:000266406700080

C127 W. Ibrahim, V. Beiu, and Y.A. Alkhawwar: On the Reliability of Four Full Adder Cells

IEEE International Conference Innovations in Information Technology IIT’07

Dubai, UAE, November 18-20, 2007 720–724

<https://doi.org/10.1109/IIT.2007.4430508> WOS:000255983000146

C126 R.M. Beiu, C.D. Stanescu, and V. Beiu

A Novel Microstructured Fiber Optic Sensor for Very Small Deformations

SPIE International Symposium on Optomechatronic Technologies ISOT’07, SPIE vol. 6716

Lausanne, Switzerland, October 8-10, 2007 67160D(1–8)

<https://doi.org/10.1117/12.754190> WOS:000250821500012

C125 R.M. Beiu, C.D. Stanescu, and V. Beiu: Unique In-Fiber Photonic Crystal Sensor

IEEE International Midwest Symposium on Circuit and Systems MWSCAS’07

Montreal, Canada, August 5-8, 2007 116–119

<https://doi.org/10.1109/MWSCAS.2007.4488550> WOS:000257110900023

C124 R.M. Beiu, C.D. Stanescu, and V. Beiu: Highly Sensitive Nano-Photonic Embedded Sensors

IEEE International Conference on Nanotechnology IEEE-NANO’07

Hong Kong, China, August 2-5, 2007 737–741

<https://doi.org/10.1109/NANO.2007.4601293> WOS:000261434900166

C123 V. Beiu, W. Ibrahim, and S. Lazarova-Molnar

A Fresh Look at Majority Multiplexing – When Devices Get Into the Picture

IEEE International Conference on Nanotechnology IEEE-NANO’07

Hong Kong, China, August 2-5, 2007 883–888

<https://doi.org/10.1109/NANO.2007.4601325> WOS:000261434900198

C122 S. Lazarova-Molnar, V. Beiu, and W. Ibrahim

A Strategy for Reliability Assessment of Future Nano-Circuits

WSEAS International Conference on Circuits, Systems, Communications, Computers CSCC’07

Agios Nikolaos, Crete, Greece, July 23-28, 2007 60–65

<https://catalogue.nlg.gr/Record/b.523684/TOC> WOS:000249783300013

C121 W. Ibrahim, and V. Beiu: Long Live Small Fan-in Majority Gates – Their Reign Looks Like Coming!

IEEE International Conference on Application-specific Systems

Architectures and Processors ASAP’07, Montreal, Canada, July 8-11, 2007 278–283

<https://doi.org/10.1109/ASAP.2007.4429993> WOS:000255432100043

C120 V. Beiu, W. Ibrahim, and S. Lazarova-Molnar

What von Neumann Did Not Say About Multiplexing: Beyond Gates Failures – The Gory Details

International Work-Conference on Artificial Neural Networks IWANN’07

San Sebastián, Spain, June 19-22, 2007, Springer LNCS 4507 487–496

<https://doi.org/10.1007/978-3-540-73007-1_60> WOS:000247839300060

C117 V. Beiu, W. Ibrahim, Y.A. Alkhawwar, and M.H. Sulieman

Gate Failures Effectively Shape Multiplexing

IEEE International Symposium on Defect and Fault Tolerance in VLSI Systems DFT’06

Washington, DC, USA, October 2-6, 2006 29–37

<https://doi.org/10.1109/DFT.2006.33> WOS:000242580800004

C116 V. Beiu, and M.H. Sulieman: On Practical Multiplexing Issues

IEEE International Conference on Nanotechnology IEEE-NANO’06

Cincinnati, OH, USA, July 16-20, 2006 IEEE-NANO’04, ’07 310–313

<https://doi.org/10.1109/NANO.2006.247637>

C115 M.H. Sulieman, and V. Beiu: Multiplexing Schemes for Single Electron Technologies

IEEE International Conference on Computer Systems and Applications AICCSA’06

Sharjah, UAE, March 8-11, 2006 424–428

<https://doi.org/10.1109/AICCSA.2006.205125> WOS:000243337100066

C114 V. Beiu, J. Nyathi, S. Aunet, and M.H. Sulieman: Femto Joule Switching for Nano Electronics

IEEE International Conference on Computer Systems and Applications AICCSA’06

Sharjah, UAE, March 8-11, 2006 415–423

<https://doi.org/10.1109/AICCSA.2006.205124> WOS:000243337100065

C111 V. Beiu, and A. Zawadzki

On Kolmogorov’s Superpositions: Novel Gates and Circuits for Nanoelectronics?

IEEE International Joint Conference on Neural Networks IJCNN’05

Montreal, Canada, July 31 - August 4, 2005 651–656

<https://doi.org/10.1109/IJCNN.2005.1555908> WOS:000235178000100

C110 S. Aunet, and V. Beiu: Ultra Low Power Fault Tolerant Neural Inspired CMOS Logic

IEEE International Joint Conference on Neural Networks IJCNN’05

Montreal, Canada, July 31 - August 4, 2005 2843–2848

<https://doi.org/10.1109/IJCNN.2005.1556376> WOS:000235178004032

C109 V. Beiu, S. Aunet, J. Nyathi, R. Rydberg III, and A. Djupdal

On the Advantages of Serial Architectures for Low-Power Reliable Computations

IEEE International Conference on Application-specific Systems,

Architectures and Processors ASAP’05, Samos, Greece, July 23-25, 2005 276–281

<https://doi.org/10.1109/ASAP.2005.48> WOS:000231660100040

C108 V. Beiu, A. Djupdal, and S. Aunet

Ultra Low-Power Neural Inspired Addition – When Serial Might Outperform Parallel Architectures

International Work-Conference on Artificial Neural Networks IWANN’05

Barcelona, Spain, June 8-10, 2005, Springer LNCS 3512 486–493

<https://doi.org/10.1007/11494669_60> WOS:000230384000060

C107 V. Beiu, A. Zawadzki, R. Andonie, and S. Aunet

Using Kolmogorov Inspired Gates for Low Power Nanoelectronics

International Work-Conference on Artificial Neural Networks IWANN’05

Barcelona, Spain, June 8-10, 2005, Springer LNCS 3512 438–445

<https://doi.org/10.1007/11494669_54> WOS:000230384000054

C106 V. Beiu: A Novel Highly Reliable Low-Power Nano Architecture

When von Neumann Augments Kolmogorov ***Invited*16**

IEEE International Conference on Application-specific Systems

Architectures and Processors ASAP’04, Galveston, TX, USA, September 27-29, 2004 167–177

<https://doi.org/10.1109/ASAP.2004.1342467> WOS:000224568700014

C105 V. Beiu, U. Rückert, S. Roy, and J. Nyathi

On Nanoelectronic Architectural Challenges and Solutions

IEEE International Conference on Nanotechnology IEEE-NANO’04

Munich, Germany, August 17-19, 2004 628–631

<https://doi.org/10.1109/NANO.2004.1392441> WOS:000226085100209

C104 M.H. Sulieman, and V. Beiu: On Single Electron Technology Full Adders

IEEE International Conference on Nanotechnology IEEE-NANO’04

Munich, Germany, August 17-19, 2004 317–320

<https://doi.org/10.1109/NANO.2004.1392337> WOS:000226085100106

C103 S. Roy, and V. Beiu: Multiplexing Schemes for Cost-Effective Fault-Tolerance

IEEE International Conference on Nanotechnology IEEE-NANO’04

Munich, Germany, August 17-19, 2004 589–592

<https://doi.org/10.1109/NANO.2004.1392429> WOS:000226085100197

C102 M.H. Sulieman, and V. Beiu

Design and Analysis of SET Circuits – Using MATLAB Modules and Simon

IEEE International Conference on Nanotechnology IEEE-NANO’04

Munich, Germany, August 17-19, 2004 618–621

<https://doi.org/10.1109/NANO.2004.1392438> WOS:000226085100206

C101 J. Nyathi, V. Beiu, S. Tatapudi, and D.J. Betwoski

A Charge Recycling Differential Noise-Immune Perceptron

IEEE International Joint Conference on Neural Networks IJCNN’04

Budapest, Hungary, July 25-29, 2004 1995–2000

<http://doi.org/10.1109/IJCNN.2004.1380921> WOS:000224941900345

C100 D.J. Betowski, D. Dwyer, and V. Beiu

A Novel Segmented Parabolic Sine Approximation for Direct Digital Frequency Synthesizers

International Multi-conference VLSI’04, Las Vegas, NV, USA, June 21-25, 2004 523–529

<https://dblp.uni-trier.de/db/conf/csreaESA/csreaESA2004.html> WOS:000225884700077

C99 V. Beiu, and M.H. Sulieman

Optimal Practical Perceptron Addition – Application to Single Electron Technology

International Multi-conference VLSI’04, Las Vegas, NV, USA, June 21-25, 2004 541–547

<https://dblp.uni-trier.de/db/conf/csreaESA/csreaESA2004.html> WOS:000225884700080

C98 M.H. Sulieman, and V. Beiu

Characterization of a 16-bit Threshold Logic Single Electron Technology Adder

IEEE International Symposium on Circuits and Systems ISCAS’04

Vancouver, Canada, May 23-26, 2004 681–684

<https://doi.org/10.1109/ISCAS.2004.1328838> WOS:000223102200171

C97 M.H. Sulieman, and V. Beiu: On the Design of Multibit SET Adders

NSTI Nanotechnology NanoTech’04, Boston, MA, USA, March 7-11, 2004, vol. 3 169–172

<https://www.nsti.org/Nanotech2004/showabstract.html?absno=226> WOS:000223078200046

C96 V. Beiu: Threshold Logic Implementations – The Early Days

IEEE International Midwest Symposium on Circuit and Systems MWSCAS’03

Cairo, Egypt, December 27-30, 2003 1379–1383

<https://doi.org/10.1109/MWSCAS.2003.1562552> WOS:000234964300337

C95 V. Beiu, D.J. Betowski, and P.-S. Wu

Over 100 dBc ROM-less Piecewise Non-linear Direct Digital Frequency Synthesizers

IEEE International Midwest Symposium on Circuit and Systems MWSCAS’03

Cairo, Egypt, December 27-30, 2003 760–763

<https://doi.org/10.1109/MWSCAS.2003.1562397> WOS:000234964300188

C94 V. Beiu, J.M. Quintana, M.J. Avedillo, and M.H. Sulieman

Threshold Logic – From Vacuum Tubes to Nanoelectronics ***Invited*15**

IEEE International Midwest Symposium on Circuit and Systems MWSCAS’03

Cairo, Egypt, December 27-30, 2003 930–935

<https://doi.org/10.1109/MWSCAS.2003.1562439> WOS:000234964300230

C93 M.H. Sulieman, and V. Beiu

Review of Recent Full Adders Implemented in Single Electron Technology ***Invited*14**

IEEE International Midwest Symposium on Circuit and Systems MWSCAS’03

Cairo, Egypt, December 27-30, 2003 872–875

<https://doi.org/10.1109/MWSCAS.2003.1562425> WOS:000234964300216

C92 P.-S. Wu, and V. Beiu

On Accurate Piecewise Linear ROM-less Direct Digital Frequency Synthesizers

IEEE International Conference on Neural Networks and Signal Processing ICNNSP’03

Nanjing, China, December 14-17, 2003 1595–1599

<https://doi.org/10.1109/ICNNSP.2003.1281185> WOS:000189460400387

C91 M.H. Sulieman, and V. Beiu: Optimal Practical Adders Using Perceptrons

IEEE International Conference on Neural Networks and Signal Processing ICNNSP’03

Nanjing, China, December 14-17, 2003 345–348

<https://doi.org/10.1109/ICNNSP.2003.1279280> WOS:000189460400082

C90 D.J. Betowski, and V. Beiu

Considerations for Phase Accumulator Design for Direct Digital Frequency Synthesizers

IEEE International Conference on Neural Networks and Signal Processing ICNNSP’03

Nanjing, China, December 14-17, 2003 176–179

<http://doi.org/10.1109/ICNNSP.2003.1279240> WOS:000189460400042

C89 R. Andonie, L. Sasu, and V. Beiu: Fuzzy ARTMAP with Relevance Factor

IEEE International Joint Conference on Neural Networks IJCNN’03

Portland, OR, USA, July 20-24, 2003 1975–1980

<https://doi.org/10.1109/IJCNN.2003.1223710> WOS:000184903300357

C88 V. Beiu: A Survey of Perceptron Circuit Complexity Results

IEEE International Joint Conference on Neural Networks IJCNN’03

Portland, OR, USA, July 20-24, 2003 989–994

<http://doi.org/10.1109/IJCNN.2003.1223825> WOS:000184903300179

C87 V. Beiu, J.M. Quintana, M.J. Avedillo, and R. Andonie

Differential Implementations of Threshold Logic Gates

IEEE International Symposium on Signal, Circuits and Systems SCS’03

Iaşi, Romania, July 10-11, 2003 489–492

<https://doi.org/10.1109/SCS.2003.1227096> WOS:000186628100124

C85 V. Beiu: Constructive Threshold Logic Addition – A Synopsis of the Last Decade

International Conference on Artificial Neural Networks ICANN’03

Istanbul, Turkey, June 26-29, 2003, Springer LNCS 2714 745–752

<https://doi.org/10.1007/3-540-44989-2_89> WOS:000185378100089

C84 V. Beiu, J.M. Quintana, and M.J. Avedillo: Review of Capacitive Threshold Gate Implementations

International Conference on Artificial Neural Networks ICANN’03

Istanbul, Turkey, June 26-29, 2003, Springer LNCS 2714 737–744

<https://doi.org/10.1007/3-540-44989-2_88> WOS:000185378100088

C83 S. Tatapudi, and V. Beiu: Split-Precharge Differential Noise-Immune Threshold Logic Gate

International Work-Conference on Artificial Neural Networks IWANN’03

Menorca, Spain, June 3-6, 2003, Springer LNCS 2687 49–56

<https://doi.org/10.1007/3-540-44869-1_7> WOS:000185042300007

C79 V. Beiu: On the Node Complexity of Threshold Gate Circuits with Sub-Linear Fan-Ins

International Conference on Neural Networks and Soft Computing ICNNSC’02

Zakopane, Poland, June 11-15, 2002, Springer, Advances in Soft Computing vol. 19 143–148

<https://doi.org/10.1007/978-3-7908-1902-1_18> WOS:000182433900018

C77 V. Beiu: On Higher Order Noise Immune Perceptrons

IEEE International Joint Conference on Neural Networks IJCNN’01

Washington, DC, USA, July 14-19, 2001, vol. 1 246–251

<https://doi.org/10.1109/IJCNN.2001.939025> WOS:000172784800045

C75 V. Beiu: High-Speed Noise Robust Threshold Gates ***Best***

IEEE International Semiconductor Conference CAS’00 ***Paper***

Sinaia, Romania, October 10-14, 2000, vol. 1 ***Award*6** 79–82

<https://doi.org/10.1109/SMICND.2000.890191> WOS:000168560900009

C74 V. Beiu: Ultra-Fast Noise Immune CMOS Threshold Gates

IEEE Midwest Symposium on Circuits and Systems MWSCAS’00

Lansing, MI, USA, August 8-11, 2000, vol. 3 1310–1313

<https://doi.org/10.1109/MWSCAS.2000.951456> WOS:000172099300305

C73 V. Beiu: Neural Addition and Fibonacci Numbers

International Work-Conference on Artificial Neural Networks IWANN’99

Alicante, Spain, June 2-4, 1999, Springer LNCS 1607 198–207

<https://doi.org/10.1007/BFb0100486> WOS:000086108300021

C72 V. Beiu: On Kolmogorov’s Superposition and Boolean Functions

IEEE Brazilian Symposium on Neural Networks SBRN’98

Belo Horizonte, Brazil, December 9-11, 1998 55–60

<http://doi.org/10.1109/SBRN.1998.730994> WOS:000077901600010

C68 V. Beiu, and K.R. Moore: On Analog Implementation of Discrete Neural Networks

International Workshop on Fuzzy Logic and Intelligent Technologies FLINS’98

Antwerp, Belgium, September 14-16, 1998, World Scientific (ISBN: 981-02-3532-1) 258–265

WOS:000078326600029

C65 V. Beiu, and H.E. Makaruk: Small Fan-In Is Beautiful

IEEE International Joint Conference on Neural Networks IJCNN’98

Anchorage, AK, USA, May 4-9, 1998, vol. 2 1321–1326

<https://doi.org/10.1109/IJCNN.1998.685966> WOS:000074493400242

C62 V. Beiu, S. Draghici, and H.E. Makaruk: On Limited Fan-in Optimal Neural Networks

IEEE Brazilian Symposium on Neural Networks IV SBRN

Goiania, Brazil, December 3-5, 1997 19–30

<https://doi.org/10.1109/SBRN.1997.645844> WOS:000071092500004

C56 V. Beiu: Enhanced Lower Entropy Bounds with Application to Constructive Learning

IEEE EuroMicro-Workshop on Computational Intelligence EuroMicro’97

Budapest, Hungary, September 1-4, 1997 541–548

<https://doi.org/10.1109/EURMIC.1997.617371> WOS:A1997BJ48T00068

C54 V. Beiu, and T. De Pauw: Tight Bounds on the Size of Neural Networks for Classification Problems

International Work-Conference on Artificial Neural Networks IWANN’97

Lanzarote, Canary Islands, Spain, June 4-6, 1997, Springer LNCS 1240 743–752

<https://doi.org/10.1007/BFb0032533> WOS:000073947300076

C50 V. Beiu: VLSI Complexity of Threshold Gate COMPARISON ***Invited*9**

International Symposium on Neuro-Fuzzy Systems AT’96

Lausanne, Switzerland, August 29-31, 1996, Aati 161–170

<https://doi.org/10.1109/ISNFS.1996.603834> WOS:A1996BH75U00021

C47 V. Beiu, and J.G. Taylor: Optimal Mapping of Neural Networks onto FPGAs

International Workshop on Artificial Neural Networks IWANN’95

Málaga, Spain, June 7-9, 1995, Springer LNCS 930 822–829

<https://doi.org/10.1007/3-540-59497-3_256> WOS:A1995BF02K00108

C45 V. Beiu, and J.G. Taylor: VLSI Optimal Learning Algorithm

International Conference on Artificial Neural Networks and Genetic

Algorithms ICANNGA’95, Alès, France, April 19-21, 1995, Springer 61–64

<https://doi.org/10.1007/978-3-7091-7535-4_18> WOS:A1995BE73Z00017

C44 V. Beiu: Optimal VLSI Implementations of Neural Networks, VLSI-Friendly Learning Algorithms ***Invited*7**

Applied Decision Technologies Conference ADT’95, London, UK, April 3-5, 1995 193–207

WOS:A1996BH07W00018

C42 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins

Placing Feedforward Neural Networks Among Several Circuit Complexity Classes

World Conference on Neural Networks WCNN’94

San Diego, CA, USA, June 4-9, 1994, Lawrence Erlbaum & INNS (ISBN 0-8058-1745-X) 584–589

WOS:A1994BB69E00097

C29 V. Beiu, J.A. Peperstraete, and R. Lauwereins

Using Threshold Gates to Implement Sigmoid Nonlinearities

International Conference on Artificial Neural Networks ICANN’92

Brighton, UK, September 4-7, 1992, Elsevier 1447–1450

<https://doi.org/10.1016/B978-0-444-89488-5.50133-0> WOS:A1992BX31W00307

C28 V. Beiu, D.C. Ioan, and M.C. Dumbrava

Continuous Boltzmann Machines: Theoretical Aspects and Applications

IEEE European Computer Conference CompEuro’92, Hague, Netherlands, May 4-8, 1992 193–198

<https://doi.org.10.1109/CMPEUR.1992.218510> WOS:A1992BW32W00037

C25 V. Beiu: Neural Network for Digital Image Enhancement

International Conference on Artificial Neural Networks ICANN’91

Espoo, Finland, June 24-28, 1991, Elsevier, vol. 2 1071–1074

<https://doi.org/10.1016/B978-0-444-89178-5.50021-X> WOS:A1991BV08V00173

C19 V. Beiu, and S. Georgescu: Consideration of Vision Based on Associative Neural Networks

IEEE Annual European Computer Conference CompEuro’89

Hamburg, Germany, May 8-12, 1989, vol. 2 121–124

<https://doi.org/10.1109/CMPEUR.1989.93388> WOS:A1989BQ37F00064

C18 V. Beiu: VLSI Arrays Implementing Parallel Line-Drawing Algorithms

International Workshop on Parallel Processing by Cellular Automata PARCELLA’88

Berlin, Germany, October 17-21, 1988, Springer LNCS 342 239–247

<https://doi.org/10.1007/3-540-50647-0_114> WOS:A1989AB14600015

 **3. PhD thesis .**

∙∙∙ V. Beiu: Neural Networks Using Threshold Gates

A Complexity Analysis of Their Area- and Time-Efficient VLSI Implementations

***PhD dissertation*** (*summa cum laude*), Katholieke Universiteit Leuven, Leuven, Belgium

U.D.C. 621.3.04977: 681.3\*C13 (x-27-151779-3), May 1994 1–222

 **4. Books Romanian publishing houses .**

 **5. Chapters Romanian publishing houses (numbering is inverse chronological) .**

Ch4 V. Beiu: Entropy, Constructive Neural Learning, and VLSI Efficiency ***Invited***

In R. Andonie, and D. Grosu (Eds.): Neural Priorities in Data Transmission and EDA

Tempus SJEP 8180-94, “Transilvania” Univ. of Braşov, Braşov, Romania, 1998 38–74

 **6. Books Foreign publishing houses (numbering is inverse chronological) .**

B2 V. Beiu, and S. Harous (Eds.): Innovations

IEEE Press, November 2014 (ISBN 9781479972128) 1–132

<https://doi.org/10.1109/INNOVATIONS.2014.6985768>

B1 A. Schmid, S. Goel, W. Wang, V. Beiu, and S. Carrara (Eds.): Nano-Net

Springer, LNICS, October 2009 (ISBN 9783642024276) 1–286

<https://doi.org/10.1007/978-3-642-04850-0>

 **7. Chapters Foreign publishing houses (numbering is inverse chronological) .**

Ch8 V. Beiu, L. Zhang, A. Beg, W. Ibrahim, and M. Tache: Axon-Inspired Communication Systems ***Invited***

Chapter 15 in J.E. Morris and K. Iniewski (Eds.): Nanoelectronic Device Applications

Handbook, CRC / Taylor & Francis (UK / USA), 2013 (ISBN 9781466565234) 193–208

Ch7 A. Beg, M.H. Sulieman, V. Beiu, and W. Ibrahim: Low-Power Reliable Nano Adders ***Invited***

Chapter 6 in J.E. Morris and K. Iniewski (Eds.): Nanoelectronic Device Applications

Handbook, CRC / Taylor & Francis (UK / USA), 2013 (ISBN 9781466565234) 67–75

Ch6 V. Beiu, W. Ibrahim, and S. Lazarova-Molnar

On Device-level Majority von Neumann Multiplexing ***Invited***

Chapter 72 in J.R. Rabuñal et al. (Eds.): Encyclopedia of Artificial Intelligence

IGI Global, USA (Hershey, PA) and UK (London), 2009 (ISBN 9781599048499) 471–479

<https://doi.org/10.4018/978-1-59904-849-9.ch072>

Ch5 V. Beiu, and W. Ibrahim: On Computing Nano-Architectures Using Unreliable Nano-Devices ***Invited***

Chapter 12 in S.E. Lyshevski (Ed.): Nano- and Molecular-Electronics Handbook

Taylor & Francis (UK / USA), May 2007 (ISBN 9780849385285) 1–49

Ch3 V. Beiu: Constant Fan-in Discrete Neural Networks Are VLSI-Optimal

Chapter 12 in S.W. Ellacott, J.C. Mason, and I.J. Anderson (Eds.)

Mathematics of Neural Networks Models, Algorithms and Applications

Kluwer Academic, Boston, MA, USA, 1997 (ISBN 9781461377948) 89–94

<https://doi.org/10.1007/978-1-4615-6099-9_12>

Ch2 V. Beiu: Digital Integrated Circuit Implementations (of Neural Networks) ***Invited***

Chapter E1.4 in E. Fiesler, and R. Beale (Eds.): Handbook of Neural Computations

Institute of Physics, New York, NY, USA, 1996 (ISBN 9780750303125) E1.4.1–34

Ch1 V. Beiu: Optimal VLSI Implementations of Neural Networks ***Invited***

Chapter 18 in J.G. Taylor (Ed.): Neural Networks and Their Applications

John Wiley & Sons, Chichester, UK, 1996 (ISBN 9780471962823) 255–276

 **8. BDI articles (numbering is inverse chronological) .**

J37 M. Tache, M. Balas, and V. Beiu

When Non-Gaussian Distributions Have to Be Considered

Theory and Applications of Mathematics & Computer Science *Accepted*

J36 V. Dragoi, S.R. Cowell, M. Nagy, and V. Beiu

A Preliminary Investigation of Matchstick Minimal Networks

Theory and Applications of Mathematics & Computer Science *Accepted*

J32 S.R. Cowell, M. Nagy, and V. Beiu

A Proof of a Generic Fibonacci Identity from Wolfram’s MathWorld

Theory and Applications of Mathematics & Computer Science, vol. 8, no. 1, Apr. 2018 60–63

<http://www.uav.ro/applications/se/journal/index.php/TAMCS/article/view/175>

J29 V. Beiu, and M. Tache

On Threshold Voltage Variation-Tolerant Designs

Theory and Applications of Mathematics & Computer Science, vol. 7, no. 1, Apr. 2017 47–58

<http://www.uav.ro/stiinte_exacte/journal/index.php/TAMCS/article/view/159>

J20 V. Beiu, B.A.M. Madappuram, P.M. Kelly, and L.J. McDaid

On Two-layer Brain-inspired Hierarchical Topologies — A Rent’s Rule Approach

Transactions on High-Performance Embedded Architecture and Compilers (HiPEAC) IV

P. Stenström (Ed.), Springer LNCS 6769, Jan. 2011 311–333

<https://doi.org/10.1007/978-3-642-24568-8_16>

J13 V. Beiu: On VLSI-Optimal Neural Computations

Journal of Control Engineering & Applied Informatics, vol. 4, no. 2, Feb. 2002 (IF later) 5–20

<http://www.ceai.srait.ro/index.php?journal=ceai&page=article&op=view&path%5B%5D=89>

J12 V. Beiu: On Optimal Computations Using Perceptrons

Journal of Control Engineering & Applied Informatics, vol. 4, no. 1, Jan. 2002 (IF later) 33–43

<http://www.ceai.srait.ro/index.php?journal=ceai&page=article&op=view&path%5B%5D=84>

J8 V. Beiu: Reduced Complexity Constructive Learning Algorithm

Neural Network World, vol. 8, no. 1-3, Jan. 1998 (IF later, SJR later) 1–38

J6 V. Beiu: Entropy Bounds for Classification Algorithms

Neural Network World, vol. 6, no. 4, Jul. 1996 (IF later, SJR later) 497–505

J5 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins: Close Approximations of Sigmoid

Functions by Sum of Steps for VLSI Implementation of Neural Networks

Scientific Annals of “Al. I. Cuza” University of Iaşi, vol. 40, no. 3, 1994 (IF later) 5–34

J4 V. Beiu, D.C. Ioan, and M.C. Dumbrava

Continuous Boltzmann Machines: Theoretical Aspects and Applications

Neural Network World, vol. 2, no. 2, Mar. 1992 (IF later, SJR later) 201–226

J3 V. Beiu: From Systolic Arrays to Neural Networks

Scientific Annals of “Al. I. Cuza” University of Iaşi, vol. 35, no. 4, 1989 (IF later) 375–385

J2 V. Ivanov, and V. Beiu: Search Algorithm for an Inference Machine: Software and Hardware

UPB Scientific Bulletin, Control & Computers, vol. AC-50, 1988 (SJR later) 83–96

J1 E. Oltean, and V. Beiu: Numerical Aspects in the Implementation of Self-Tuning Algorithms

UPB Scientific Bulletin, Control & Computers, vol. AC-48, 1986 (SJR later) 79–92

**Remark: The following 4 reports are available on arXiv**

R4 V. Dragoi, S.R. Cowell, and V. Beiu

Tight Bounds on the Coefficients of Consecutive $k$-out-of-$n$ :$F$ Systems

Tech. Rep. arXiv, Discrete Mathematics (cs.DM), 27 Mar. 2020 1–10

<https://arxiv.org/abs/2003.12419>

R3 V. Dragoi, and V. Beiu

Fast Reliability Ranking of Matchstick Minimal Networks

Tech. Rep. arXiv, Discrete Mathematics (cs.DM), 4 Nov. 2019 1–16

<https://arxiv.org/abs/1911.01153>

R2 M. Nagy, S.R. Cowell, and V. Beiu

Survey of Cubic Fibonacci Identities – When Cuboids Carry Weights

Tech. Rep. arXiv, History and Overview (math.CO), 15 Feb. 2019 1–14

<https://arxiv.org/abs/1902.05944>

R1 L. Dauş, V. Beiu, S.R. Cowell, and P. Poulin

Brick-Wall Lattice Paths and Applications

Tech. Rep. arXiv, Combinatorics (math.CO), 14 Apr. 2018 1–16

<https://arxiv.org/abs/1804.05277>

 **9. BDI Conference articles (numbering is inverse chronological) .**

C207 V. Dragoi, V. Beiu, and D. Bucerzan

Vulnerabilities of the McEliece Variants Based on Polar Codes

International Conference on Security for Information Technology & Communications SecICT’18

Bucharest, Romania, November 08-09, 2018

In J.-L. Lanet and C. Toma (Eds.): SecITC 2018, Springer, LNCS 11359, 2019 376–390

<https://doi.org/10.1007/978-3-030-12942-2_29>

C203 V. Dragoi, S.R. Cowell, M. Nagy, and V. Beiu

Matchstick Minimal Circuits

International Symposium Research and Education in an Innovation Era ISREIE’18

Section Mathematics & Computer Science (ISSN 2065-2569)

Arad, Romania, May 17-20, 2018 112–121

<https://uav.ro/en/conferences/isreie-2018>

C182 V. Beiu, and L. Dauş

Deciphering the Reliability Scheme of the Neurons – One Ion Channel at a Time ***Invited*26**

International Conference on Bio-inspired Info & Communication Technology BICT’14

Boston, MA, USA, December 1-3, 2014 182–187

<https://doi.org/10.4108/icst.bict.2014.257905>

C167 P. Santagati, and V. Beiu: A Mathematical Model for the Analysis of the Johnson-Nyquist

Noise on the Reliability of Nano-Communications

International Conference on Bio-Inspired Models of Network, Information,

and Computing Systems BIONETICS’12, Lugano, Switzerland, December 10-12, 2012

In G.A. Di Caro, and G. Theraulaz (eds.), Springer, LNICST vol. 134, July 2014 49–62

<https://doi.org/10.1007/978-3-319-06944-9_4>

C151 L. Zhang, H. Elsayed, and V. Beiu

A Position-Based Broadcast Relay Approach in Mobile Vehicle-to-Vehicle Network

International Conference on Wireless Networks ICWN’10 (part of WorldComp’10)

Las Vegas, NV, USA, July 12-15, 2010 611–616

C142 V. Beiu, and W. Ibrahim: On CMOS Circuit Reliability from the MOSFETs and the Input Vectors

IEEE/IFIP International Conference on Dependable Systems and Networks DSN’09

Estoril, Lisbon, Portugal, June 29 - July 2, 2009

<http://www.laas.fr/WDSN09/WDSN09_files/Texts/WDSN09-2-2-Beiu.pdf>

C136 V. Beiu: Electrons Behaving Badly — Quo Vadis Nano-architecure? ***Invited*20**

International Symposium on Information Electronics Systems IES’08

Sendai, Japan, July 14-15, 2008 24–27

<http://www.ecei.tohoku.ac.jp/gcoe/en/sympo/sympo_2nd/invited.html>

C135 S. Lazarova-Molnar, and V. Beiu: Reliability Modeling of Circuits with Multi-State Aging Gates

Modeling & Simulation – Methodology, Tools, Software Applications M&S–MTSA’08

Edinburgh, UK, June 16-19, 2008 43–47

C128 V. Beiu, H. Amer, and M. McGinnity

On Global Communications for Nano-Architectures – Brain versus Rent’s Rule ***Invited*19**

International Conference on Design of Circuits and Integrated Systems DCIS’07

Seville, Spain, November 21-23, 2007 305–310

<http://www2.imse-cnm.csic.es/dcis07/>

C119 V. Beiu: Grand Challenges of Nanoelectronics and Possible Architectural Solutions ***Invited*18**

IEEE International Symposium on Multiple Valued Logic ISMVL’07

Oslo, Norway, May 14-16, 2007 a(1–7)

<https://doi.org/10.1109/ISMVL.2007.27>

C118 V. Beiu, and W. Ibrahim: Why Inverters and Small Fan-in Voters Are the Most Promising Gates

IEEE International Workshop on Post-Binary ULSI Systems ULSIWS’07

Oslo, Norway, May 13, 2007 3–10

<http://ismvl07.ifi.uio.no/docs/Program_ULSIWS07.pdf>

C113 V. Beiu: The Quest for Practical Redundant Computations ***Invited*17**

IEEE International Conference on Microelectronics ICM’05

Islamabad, Pakistan, December 13-15, 2005 xix

<https://doi.org/10.1109/ICM.2005.1590021>

C112 S. Aunet, Y. Berg, and V. Beiu: Ultra Low-Power Redundant Logic Based on Majority-3 Gates

IFIP International Conference on VLSI System-on-Chip VLSI-SoC’05

Perth, Australia, October 17-19, 2005 553–558

Springer, IFIP 240, ISBN: 978-0-387-73660-0

C86 Z. Zhou, D.J. Betwoski, X. Li, G. La Rue, and V. Beiu

High Performance Direct Digital Frequency Synthesizers

Biennial University/Government/Industry Microelectronics Symposium UGIM’03

Boise, ID, USA, June 30 - July 2, 2003 368–369

<https://doi.org/10.1109/UGIM.2003.1225770>

C82 R. Andonie, L.M. Sasu, and V. Beiu

A Modified Fuzzy ARTMAP Architecture for Incremental Learning Function Approximation

International Conference on Neural Networks and Computational Intelligence NCI’03

Cancun, Mexico, May 19-21, 2003, ACTA Press 124–129

<http://www.actapress.com/Abstract.aspx?paperId=13609>

C81 V. Beiu: On Existential and Constructive Neural Complexity Results

International Conference on Neural Networks and Computational Intelligence NCI’03

Cancun, Mexico, May 19-21, 2003, ACTA Press 63–72

<http://www.actapress.com/Abstract.aspx?paperId=13599>

C80 V. Beiu, J.M. Quintana, and M.J. Avedillo: Review of Differential Threshold Gate Implementations

International Conference on Neural Networks and Computational Intelligence NCI’03

Cancun, Mexico, May 19-21, 2003, ACTA Press 44–49

<http://www.actapress.com/Abstract.aspx?paperId=13596>

C78 V. Beiu: Depth-Size Tradeoffs for Threshold Gate Circuits

Italian Workshop on Neural Networks WIRN-Vietri’02

Vietri sul Mare, Italy, May 31 - June 1, 2002 88–91

C76 V. Beiu: On VLSI-Optimal Neural Computations

International Conference on Control Systems and Computer Science CSCS-13

Bucharest, Romania, May 31 - June 3, 2001 450–455

C71 V. Beiu: Larger Bases and Mixed Analog / Digital Neural Networks

International Conference on Artificial Neural Networks in Engineering ANNIE’98

St. Louis, MI, USA, November 1-4, 1998. In C.H. Dagli et al. (Eds.), ASME Press 63–70

C70 V. Beiu: 2D Neural Hardware vs 3D Biological Ones ***Invited*13**

ICSC/IFAC International Symposium on Neural Computations NC’98

Vienna, Austria, September 23-25, 1998, ICSC Academic Press 37–45

<http://www.icsc.ab.ca/publications/list_nc98.html>

C69 V. Beiu: On Automatic Synthesis of Analog / Digital Circuits

International Symposium on Nonlinear Theory and Its Applications NOLTA’98

Crans-Montana, Switzerland, September 14-17, 1998, vol. 2 799–802

C67 V. Beiu: Implementing Size-Optimal Discrete Neural Networks Requires Analog Circuitry

European Signal Processing Conference EuSiPCo’98

Rhodes, Greece, September 8-11, vol. 3, Typorama (ISBN: 978-960-7620-06-4) 1325–1328

C66 V. Beiu: Neural Inspired Parallel Computations Require Analog Processors ***Invited*12**

International Conference on Parallel Computing and Electrical Engineering PARELEC’98

Bialystok, Poland, September 2-5, 1998 39–53

C64 V. Beiu: How to Build VLSI-Efficient Neural Chips ***Invited*11**

ICSC International Symposium on Engineering of Intelligent Systems EIS’98

Tenerife, Canary Islands, Spain, February 9-13, 1998, ICSC Academic Press, vol. 2 66–75

<http://www.icsc.ab.ca/publications/list_eis98.html>

C63 V. Beiu, and H.E. Makaruk: Deeper and Sparser Nets Are Optimal ***Invited*10**

ICSC International Symposium on Engineering of Intelligent Systems EIS’98

Tenerife, Canary Islands, Spain, February 9-13, 1998, ICSC Academic Press, vol. 2 59–65

<http://www.icsc.ab.ca/publications/list_eis98.html>

C61 V. Beiu, and H.E. Makaruk: Computing Volumes of $n$-Dimensional Complexes

International Symposium on Nonlinear Theory and Its Applications NOLTA’97

Honolulu, HI, USA, November 29 - December 3, 1997, IEICE Press, vol. 1 417–420

C60 S. Draghici, V. Beiu, and I.K. Sethi: A VLSI Optimal Constructive Algorithm

International Conference on Artificial Neural Networks in Engineering ANNIE’97

St. Louis, MI, USA, November 9-12, 1997, ASME Press 145–151

C59 V. Beiu: When Reduced Connectivity Neural Networks Are Complexity Optimal?

International Workshop on Neural Networks HELNET’97

Montreux, Switzerland, October 4-6, 1997, VU University Press 109–116

C58 V. Beiu, and S. Draghici: On Sparsely Connected Optimal Neural Networks

International Conference on Microelectronics for Neural Networks MicroNeuro’97

Dresden, Germany, September 24-26, 1997, Sächsisches Druck- und Verlagshaus 56–63

C57 V. Beiu, and S. Draghici: Limited Weights Neural Networks – Very Tight Entropy Based Bounds

ICSC International Symposium on Soft Computing SOCO’97

Nîmes, France, September 17-19, 1997, ICSC Academic Press 111–118

<http://www.icsc.ab.ca/publications/list_soco97.html>

C55 V. Beiu: Optimization of Circuits Using a Constructive Neural Network Learning Algorithm

International Conference on Engineering Applications of Neural Networks EANN’97

Stockholm, Sweden, June 16-18, 1997, Åbo Akademis 291–194

C53 V. Beiu: When Constants Are Important

International Conference on Control System and Computer Science CSCS-11

Bucharest, Romania, May 28-31, 1997, vol. 2 106–111

C52 S. Draghici, and V. Beiu: Entropy Based Comparison of Neural Networks for Classification

Italian Workshop on Neural Nets WIRN-Vietri’97

Vietri sul Mare, Salerno, Italy, May 22-24, 1997, Springer 124–132

<https://doi.org/10.1007/978-1-4471-1520-5_6>

C51 V. Beiu: New VLSI Complexity Results for Threshold Gate COMPARISON

Brazilian Symposium on Neural Networks III SBRN

Recife, Brazil, November 12-14, 1996, UFPE-DI 251–258

C49 V. Beiu, and J.G. Taylor: Direct Synthesis of Neural Networks

International Conference on Microelectronics for Neural Networks MicroNeuro’96

Lausanne, Switzerland, February 12-14, 1996 257–264

<https://doi.org/10.1109/MNNFS.1996.493800>

C48 J.C. Lemm, V. Beiu, and J.G. Taylor

Density Estimation as a Preprocessing Step for Constructive Algorithms

Annual Symposium on Neural Network SNN’95

Nijmegen, The Netherlands, September 14-15, 1995, Springer 213–216

<https://doi.org/10.1007/978-1-4471-3087-1_41>

C46 V. Beiu, and J.G. Taylor: Area-Efficient Constructive Learning Algorithm ***Invited*8**

International Conference on Control System and Computer Science CSCS-10

Bucharest, Romania, May 24-26, 1995, vol. 3 293–310

C43 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins

Addition Using Constrained Threshold Gates ***Invited*6**

International Conference on Technical Informatics ConTI’94

Timişoara, Romania, November 16-19, 1994 166–177

C41 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins

On the Circuit Complexity of Feedforward Neural Networks

International Conference on Artificial Neural Networks ICANN’94

Sorrento, Italy, May 26-29, 1994, Springer 521–524

<https://doi.org/10.1007/978-1-4471-2097-1_121>

C40 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins

Area-Time Performances of Some Neural Computations

International Symposium on Signal Processing, Robotics, & Artificial Neural Networks

SPRANN’94, Lille, France, April 25-27, 1994, GERF EC (ISBN: 2950290833) 664–668

C39 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins

VLSI Complexity Reduction by Piece-Wise Approximation of the Sigmoid Function ***Invited*5**

European Symposium on Artificial Neural Networks ESANN’94

Brussels, Belgium, April 20-22, 1994, D facto 181–186

[https://www.elen.ucl.ac.be/esann/proceedings/papers.php?ann=1994#ES1994-529](https://www.elen.ucl.ac.be/esann/proceedings/papers.php?ann=1994" \l "ES1994-529)

C38 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins

Learning from Examples and VLSI Implementation of Neural Networks ***Invited*4**

European Meeting on Cybernetics and System Research EMCSR’94

Vienna, Austria, April 5-8, 1994, World Scientific (ISBN: 9789814534376) 1767–1774

C37 V. Beiu, J.A. Peperstraete, and R. Lauwereins

Enhanced Threshold Gate Fan-In Reduction Algorithms

International Conference for Young Computer Scientists ICYCS’93

Beijing, China, July 15-17, 1993, Tsinghua Press (ISBN: 7-302-00888) 3.39–3.42

C36 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins

Overview of Some Efficient Threshold Gate Decomposition Algorithms ***Invited*3**

International Conference on Control System and Computer Science CSCS-9

Bucharest, Romania, May 25-28, 1993, Joint Printing House, vol. 1 458–469

C35 D.O. Creteanu, V. Beiu, J.A. Peperstraete, and R. Lauwereins

Systolic Pattern Recognition Based on a Neural Network Algorithm

International Conference on Artificial Neural Networks and Genetic

Algorithms ICANNGA’93, Innsbruck, Austria, April 13-16, 1993, Springer 137–144

<https://doi.org/10.1007/978-3-7091-7533-0_22>

C34 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins

Efficient Decomposition of Comparison and Its Applications

European Symposium on Artificial Neural Networks ESANN’93

Brussels, Belgium, April 7-9, 1993, D facto 45–50

[https://www.elen.ucl.ac.be/esann/proceedings/papers.php?ann=1993#ES1993-507](https://www.elen.ucl.ac.be/esann/proceedings/papers.php?ann=1993" \l "ES1993-507)

C33 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins

COMPARISON and Threshold Gate Decomposition

International Conference on Microelectronics for Neural Networks MicroNeuro’93

Edinburgh, UK, April 6-8, 1993, Pub. UnivEd 83–90

C32 V. Beiu, J.A. Peperstraete, and R. Lauwereins

Enhanced Threshold Gate Fan-in Reduction Algorithm ***Invited*2**

Interdisciplinary Centrum for Neural Networks ICNN’92

Leuven, Belgium, November 19, 1992, KUL Press 65–70

C31 V. Beiu, J.A. Peperstraete, and R. Lauwereins: Simpler Neural Networks by Fan-in Reduction

IEEE International Joint Conference on Neural Networks IJCNN’92

Beijing, China, November 3-6, 1992, vol. 3 204–209

C30 V. Beiu, J.A. Peperstraete, and R. Lauwereins: Algorithms for Fan-in Reduction

International Conference on Neural Networks and Their Applications NeuroNimes’92

Nîmes, France, November 2-6, 1992, EC2 589–600

C27 V. Beiu, D.C. Ioan, M.C. Dumbrava, and O. Robciuc

Physical Fields Determination Using Continuous Boltzmann Machines

IASTED International Symposium APPLIED INFORMATICS’92

Innsbruck, Austria, February 10-12, 1992, Acta Press 284–287

C26 S. Georgescu, and V. Beiu: Optimal Reconstruction from Sampled Data with Parallel Structures

ISMM International Workshop on Parallel Computing ParComp’91

Trani, Italy, September 10-13, 1991, Anaheim: Acta Press (ISBN: 0889861471) 260–263

C24 V. Beiu: NeuroSim – A Neural Network Simulator

International Conference on Control System and Computer Science CSCS-8

Bucharest, Romania, May 22-25, 1991 28–36

C23 V. Beiu: Neural Network Priority Queue ***Invited*1**

International Workshop on Parallel Processing by Cellular Automata PARCELLA’90

Berlin, Germany, September 19-21, 1990, Akademie Verlag 130–136

C22 V. Beiu, A. Florea, and S. Georgescu: The Facilities of the NeuroSim Environment

International Symposium on Informatics INFO-IASI’89, Iaşi, Romania, October 19-21, 1989 196–202

C21 V. Beiu, and S. Georgescu: Recognition of Moving Objects Using NeuroSim

International Symposium on Informatics INFO-IASI’89, Iaşi, Romania, October 19-21, 1989 186–195

C20 A. Petrescu, and V. Beiu: The “Hello VLSI” CAD Environment

IEEE Annual Conference on Semiconductors CAS’89, Sinaia, Romania, October 11-14, 1989 78–82

C17 V. Beiu: A Smart-Memory for Set-Structure Processing

International Symposium on Informatics INFO-IASI’87

Iaşi, Romania, October 8-10, 1987,vol. 1 404–413

C16 V. Beiu: VLSI Arrays Implementing Parallel Line-Drawing Algorithms

International Symposium on Informatics INFO-IASI’87

Iaşi, Romania, October 8-10, 1987, vol. 1 395–403

C15 V. Beiu: Smart VLSI Memory Chips Implementing Elementary Operations on Lists

International Conference on Control System and Computer Science CSCS-7

Bucharest, Romania, May 27-30, 1987, vol. 3 16–22

C14 E. Oltean, and V. Beiu: Adaptive Kalman Filtering – Implementation of a Dedicated Structure

International Conference on Control System and Computer Science CSCS-7

Bucharest, Romania, May 27-30, 1987, vol. 2 21–26

C13 V. Beiu, and C. Constantinescu: Fault-Tolerant Systolic Arrays for Antialiasing

IEEE Annual European Computer Conference CompEuro’87

Hamburg, Germany, May 11-15, 1987 720–723

C12 V. Beiu: Self-Testable and Self-Repairable Antialiasing Unit

International MICROELECTRONICS’86 Conference

Plovdiv, Bulgaria, October 23–25, 1986, vol. 2 183–195

C11 V. Beiu, and A. Neagu: Algorithm for Adding Universal Represented Real (URR) Numbers

International Symposium on Informatics INFO-IASI’85

Iaşi, Romania, October 18-19, 1985, vol. 2 760–768

C10 V. Beiu: Dedicated Computing Unit for Antialiasing

International Symposium on Informatics INFO-IASI’85

Iaşi, Romania, October 18-19, 1985, vol. 2 590–599

C9 V. Beiu, and I. Roşu: VLSI Implementation of a Self-Testable Real Content Addressable Memory

International Conference on Control System and Computer Science CSCS-6

Bucharest, Romania, May 22-25, 1985, vol. 2 400–405

C8 V. Beiu, A. Petrescu, and I. Roşu

Design of Hierarchically Organized Memories for VLSI Implementation

International Conference on Control System and Computer Science CSCS-6

Bucharest, Romania, May 22-25, 1985, vol. 2 69–75

C7 I. Roşu, V. Beiu, and T. Kappel: An Algorithm for Priorities Evaluation in a Statistical Multiplexer

International Conference on Control System and Computer Science CSCS-5

Bucharest, Romania, June 8-11, 1983, vol. 2 368–372

C6 V. Beiu: High Speed Algorithm for Executing the MOD Instruction

National Conference on Electronics, Telecommunication, Control and Computers CNETAC’82

Bucharest, Romania, November 17-19, 1982 175–179

C5 A. Aurelian, V. Beiu, and R. Muntean: Programmable Binary Multipliers in the Range 22 : 210 ***Best***

Students Scientific Research Conference ***Paper***

Bucharest, Romania, May 17-18, 1980 ***Award*5** 721–725

C4 V. Beiu, R. Muntean, and A. Aurelian: Graphic Workstation – RAM/ROM Character Generator ***Best***

Students’ Scientific Research Conference ***Paper***

Bucharest, Romania, May 17-18, 1980 ***Award*4** 726–730

C3 R. Munteanu, A. Aurelian, and V. Beiu: Ultra High Speed TTL Unit for a Graphic Workstation ***Best***

Students Scientific Research Conference ***Paper***

Bucharest, Romania, May 17-18, 1980 ***Award*3** 731–735

C2 V. Beiu: Field Effect Optoelectronic Equipments ***Best***

Students’ Scientific Research Conference ***Paper***

Bucharest, Romania, May 13-14, 1977 ***Award*2** 476–480

C1 V. Beiu: Bistable Cholesteric Mixtures with Positive Dielectric Anisotropy ***Best***

Students Scientific Research Conference ***Paper***

Bucharest, Romania, May 13-14, 1977 ***Award*1** 471–475

**Remark: The following “other conferences” have presented**

O51 R.-M. Beiu, M. M. Balas, V. E. Balas, and V. Beiu

Seeing is Believing

International Summit on Optics, Photonics and Laser Technologies OPTICS&LASERS’19

San Francisco, CA, USA, June 03-05, 2019

O50 M. Nagy, S. R. Cowell, and V. Beiu

Optimal Cubic Fibonacci Identities for 3D Packing

International Symposium Research and Education in Innovation Era ISREIE’19

Arad, Romania, May 23-25, 2019

O49 M. Tache, S. R. Cowell, and V. Beiu

Turning Sizing on Its Head and More

International Symposium Research and Education in Innovation Era ISREIE’19

Arad, Romania, May 23-25, 2019

O48 R.-M. Beiu, and V. Beiu

Sidestepping the Bounds of Diffraction

International Symposium Research and Education in Innovation Era ISREIE’19

Arad, Romania, May 23-25, 2019

O47 G. Cristescu, V. Dragoi, and V. Beiu

Cubic Spline Approximation of the Reliability Polynomials of Two Dual Hammock Networks

International Symposium Research and Education in Innovation Era ISREIE’19

Arad, Romania, May 23-25, 2019

O46 L. Hamad, A. Fahad, A. Saeed, F. Kharbash, and V. Beiu

On Reliability-Enhanced Quantum Cellular Automata (QCA) Designs

UAEU Annual Research & Innovation Conference ARIC’15

Al Ain, UAE, November 24-25, 2015

O45 L. Dauş, and V. Beiu: A Survey of Consecutive-$k$-out-of-$n$ Systems Bounds

IEEE International Symposium on Multiple-Valued Logic ISMVL’14

International Workshop on Post-Binary ULSI Systems ULSIWS’14

Bremen, Germany, May 18-21, 2014

O44 M. Tache, V. Beiu, W. Ibrahim, F. Kharbash, and M. Alioto: Sizing for Static Noise Margins Revisited

European Workshop on CMOS Variability VARI’13/PATMOS’13

Karlsruhe, Germany, September 9-11, 2013

O43 V. Beiu, W. Ibrahim, A. Beg, and M. Tache: On Sizing Transistors for Threshold Voltage Variations

International Workshop on Design for Reliability DFR’12 (in conjunction with HiPEAC’12)

Paris, France, January 23-25, 2012

<http://www.cs.ucy.ac.cy/carch/DFR2012/presentations/S2_3.pdf>

O42 V. Beiu, and W. Ibrahim: NAND Multiplexing Down to Nuts and Bolts

International Conference on Ultimate Integration on Silicon ULIS’10

Glasgow, UK, March 17-19, 2010

O41 B.A.M. Madappuram, V. Beiu, and T.M. McGinnity

On Brain-inspired Hybrid Network Topologies for Future Nano-architectures ***Best Paper***

UAEU Annual Research Conference ARC-9, Al Ain, UAE, April 21-23, 2008 ***Award***

O40 S. Lazarova-Molnar, and V. Beiu

Mapping the Proxel-Based Method to Reliability Analysis of Nano-architectures

UAEU Annual Research Conference ARC-9, Al Ain, UAE, April 21-23, 2008

O39 R.M. Beiu, C.D. Stanescu, and V. Beiu

Nanostructured Fiber Optics as Highly Sensitive Mechanical Sensors ***Invited***

International Trends in NanoTechnology Conference TNT’07

San Sebastian, Spain, September 3-7, 2007

O38 W. Ibrahim, and V. Beiu

A Hybrid Monte-Carlo and Numerical Simulations Approach for Future Nano-circuits Reliability Calculation

International Trends in NanoTechnology Conference TNT’07

San Sebastian, Spain, September 3-7, 2007

O37 S. Lazarova-Molnar, V. Beiu, and W. Ibrahim: Proxels for Reliability Assessment of Future Nano-Circuits

International Trends in NanoTechnology Conference TNT’07

San Sebastian, Spain, September 3-7, 2007

O36 H. Amer, and V. Beiu: On Global Communications for Nano-Architectures – Brain versus Rent’s Rule

International Trends in NanoTechnology Conference TNT’07

San Sebastian, Spain, September 3-7, 2007

O35 B.A.M. Madappuram, and V. Beiu

Using Standing Waves for Communications Might Work for Crossbar Architectures

International Trends in NanoTechnology Conference TNT’07

San Sebastian, Spain, September 3-7, 2007

O34 M.H. Sulieman, and V. Beiu: Investigating the Reliability of Single-Electron-Technology Gates and Circuits

UAEU Annual Research Conference ARC-8, Al Ain, UAE, April 23-25, 2007

O33 V. Beiu, J. Nyathi, and S. Aunet

Sub-Pico (Femto) Joule Switching: High-Speed Reliable CMOS Circuits Are Feasible

International Conference on Innovations in Information Technology IIT’05

Dubai, UAE, September 26-28, 2005

<http://www.it-innovations.ae/iit005/proceedings/articles/E_5_IIT05_Beiu.pdf>

O32 V. Beiu, S. Aunet, R. Rydberg III, A. Djupdal, and J. Nyathi

The Vanishing Majority Gate – Trading Power and Speed for Reliability

IEEE International Workshop on Design and Test of Defect-Tolerant

Nanoscale Architectures NanoArch’05, Palm Springs, CA, USA, May 1, 2005

O31 J. Nyathi, V. Beiu, and S. Aunet: Sub Femto Joule Switching – High Speed Reliable CMOS Circuits Are Feasible

ASILOMAR Conference on Signal, Systems and Computers

Pacific Groove, CA, USA, November 7-10, 2004

O30 J. Nyathi, V. Beiu, and S. Aunet

Femto Joule Switching – Review of Low Energy Design Styles for the Nano Era ***Invited***

International Symposium on Nano and Giga Challenges in Nanoelectronics NGCM’04

Krakow, Poland, September 13-17, 2004

O29 V. Beiu, U. Rückert, S. Roy, and J. Nyathi: On Nanoelectronic Architectural Challenges and Plausible Solutions

International Symposium on Nano and Giga Challenges in Nanoelectronics NGCM’04

Krakow, Poland, September 13-17, 2004

O28 V. Beiu, and A. Zawadzki: Why VLSI / Nano Library Design Should Use Kolmogorov’s Superpositions

International Symposium on Nano and Giga Challenges in Nanoelectronics NGCM’04

Krakow, Poland, September 13-17, 2004

O27 V. Beiu: On Biological and Hardware Neural Networks ***Invited***

International Joint Meeting AMS-SMM, Denton, TX, USA, May 19-22, 1999

O26 V. Beiu, J. Frigo, and K.R. Moore: Why the Nervous Networks Are Reliable

International Symposium on Artificial Intelligence and Adaptive Systems CIMAF’99

Havana, Cuba, March 24-28, 1999

O25 V. Beiu, J. Frigo, and K.R. Moore: On the Reliability of Nervous Nets

International Conference on Computational Intelligence for Modeling

Control and Automation CIMCA’99, Vienna, Austria, February 17-19, 1999

O24 S. Draghici, and V. Beiu: On Issues Related to VLSI Implementations of Neural Networks

International Conference on Cognitive and Neural Systems CNS’98

Boston, MA, USA, May 27-30, 1998

O23 V. Beiu, J.A. Peperstraete, J. Vandewalle, and R. Lauwereins

Digital Implementation of Neural Networks Using Threshold Gates

International Conference Romania and Romanians in Contemporary Science ICRRCS’94

Sinaia, Romania, May 24-27, 1994

<http://citeseerx.ist.psu.edu/viewdoc/citations;jsessionid=E6CF9AE07D31AEDC41844D7E839B9EAB?doi=10.1.1.30.8504>

O22 D.O. Creteanu, and V. Beiu: Systolic Pattern Recognition System

International Conference on Fuzzy Systems and Artificial Intelligence IFSAI’92

Iaşi, Romania, October 28-31, 1992

O21 V. Beiu, D.C. Ioan, M. Dumbrava, and O. Robciuc

Physical Fields Determination Using Continuous Boltzmann Machines ***Invited***

Symposium on Parallel Computing, Bucharest, Romania, December 10-11, 1991

O20 V. Beiu: Motion Detection with Neural Networks

International Conference on Industrial and Applied Mathematics ICIAM’91

Washington DC, USA, July 8-12, 1991

O19 V. Beiu: Neural Network Solutions for Motion Detection

International Symposium on Applied Informatics, Innsbruck, Austria, February 18-21, 1991

O18 A. Florea, V. Beiu, and S. Georgescu: Expert System Development with a Neural Network Simulator

International Conference on AI and Control Systems for Robots AICSR’89

Strbskoe Pleso, Czechoslovakia, November 6-10, 1989

O17 V. Beiu: From Systolic Arrays to Neural Networks ***Invited***

International Symposium on Informatics INFO-IASI’89

Iaşi, Romania, October 19-21, 1989

O16 M. Constantinescu, and V. Beiu: Theoretical Aspects of Parallel Algorithms for Histogram Modification

International Conference on Computer Systems MICROSYSTEM’89

Carlsbad (Karlovy Vary), Czechoslovakia, September 18-21, 1989

O15 V. Beiu, and S. Georgescu: Neural Network Models of Vision

IAPR Workshop on Computer Vision, Tokyo, Japan, October 12-14, 1988

O14 A. Florea, and V. Beiu: Expert Decisions Using Neural Models

Conference on Electronics, Telecommunication, Control and Computers CNETAC’88

Bucharest, Romania, December 7-9, 1988

O13 V. Beiu: Hierarchical Memory Enhanced with List Processing Facilities

International Conference on Computer Systems MICROSYSTEM’88

Bratislava, Czechoslovakia, August 30 - September 1, 1988

O12 V. Beiu: Parallel Line-Drawing Algorithms

International Conference on Computer Systems MICROSYSTEM’88

Bratislava, Czechoslovakia, August 30 - September 1, 1988

O11 V. Beiu. M. Ionescu, E. Paşol, and L. Zuzu: VLSI Implementation of a Statistical Multiplexer

International Symposium Mini and Microcomputers ISMM-MIMI’87

Lugano, Switzerland, June 29 - July 2, 1987

O10 V. Beiu, M. Ionescu, E. Paşol, and L. Zuzu: Adaptive Multiplexing Algorithm and Its Possible VLSI Implementation

Mediterranean Electrotechnical Conference MELECON’87, Rome, Italy, March 24-26, 1987

O9 V. Beiu: Smart Image Memory for Parallel Line Generation

Conference on Electronics, Telecommunication, Control and Computers CNETAC’86

Bucharest, Romania, December 4-6, 1986

O8 F. Moraru, C. Ispas, S. Constantin, A. Niculescu, and V. Beiu: Automat Conical Ball Bearing Sorting System

National Conference on Automatic Measurement Systems Using Computer Techniques

Bucharest, Romania, May 22-24, 1986

O7 V. Beiu: Parallel Adder with Regular Structure

Conference on Electronics, Telecommunication, Control and Computers CNETAC’85

Bucharest, Romania, November 21-23, 1985

O6 V. Beiu: Self-Testable and Self-Repairable Units – A Must for VLSI Structures

Conference on Electronics, Telecommunication, Control and Computers CNETAC’84

Bucharest, Romania, November 22-24, 1984

O5 V. Beiu: High Reliability Memory Organization

Conference on Electronics, Telecommunication, Control and Computers CNETAC’83

Bucharest, Romania, November 17-18, 1983

O4 V. Beiu: Using Microprocessors in Audio Systems

Conference on Electronics, Telecommunication, Control and Computers CNETAC’82

Bucharest, Romania, November 17-19, 1982

O2 V. Beiu: Method for Storing Digital Information on a Video Recorder

Conference on Electronics, Telecommunication, Control and Computers CNETAC’81

Bucharest, Romania, November, 1981

 **11. BDI Technical Reports .**

 **Remark: 25 have appeared only as technical reports, while 42 have also been published (conferences / journals)**

[**https://www.lanl.gov/library/find/reports/index.php**](https://www.lanl.gov/library/find/reports/index.php)

TR67 V. Beiu: WTEC-NANO2 (21 pages)

International Study of the Long-term Impacts and Future Opportunities for

Nanoscale Science and Engineering, September 2010

TR66 V. Beiu, H.E. Makaruk, D. Morgan, and L. Popa-Simil

ARGOS Advanced RTR (Real Time Radiography) Graphical Object Selection

Los Alamos Unrestricted Report LA-UR-03-2477, April 2003

TR65 V. Beiu, H.E. Makaruk, D. Morgan, and L. Popa-Simil: ARGOS – The Problem

Los Alamos Unrestricted Report LA-UR-03-2474, April 2003

TR64 V. Beiu: On Automatic Synthesis of Analog / Digital Circuits

Los Alamos Unrestricted Report LA-UR-98-3463, 1998

TR63 V. Beiu: Larger Bases and Mixed Analog / Digital Neural Networks

Los Alamos Unrestricted Report LA-UR-98-3462, 1998

TR62 V. Beiu, J. Frigo, and K.R. Moore: On the Reliability of Nervous Nets

Los Alamos Unrestricted Report LA-UR-98-3461, 1998

TR61 V. Beiu: Neural Inspired Parallel Computations Require Analog Processors

Los Alamos Unrestricted Report LA-UR-98-3325, 1998

TR60 V. Beiu, and S. Draghici: Designing Constructive Neural Learning Algorithms Based on Information Entropy Bounds

Los Alamos Unrestricted Report LA-UR-98-3168, 1998

TR59 V. Beiu: On Kolmogorov’s Superposition and Boolean Functions

Los Alamos Unrestricted Report LA-UR-98-2883, 1998

TR58 V. Beiu: 2D Neural Hardware vs 3D Biological Ones

Los Alamos Unrestricted Report LA-UR-98-2504, 1998

TR57 V. Beiu, S. Draghici, and T. De Pauw: A Constructive Approach to Calculating Lower Entropy Bounds

Los Alamos Unrestricted Report LA-UR-98-2333, 1998

TR56 V. Beiu: Implementing Size-Optimal Discrete Neural Networks Requires Analog Circuitry

Los Alamos Unrestricted Report LA-UR-98-1702, 1998

TR55 V. Beiu, and K.R. Moore: On Analog Implementation of Discrete Neural Networks

Los Alamos Unrestricted Report LA-UR-98-1609, 1998

TR54 V. Beiu: How to Build VLSI-Efficient Neural Chips

Los Alamos Unrestricted Report LA-UR-97-4460, 1997

TR53 V. Beiu: Implementing Size-Optimal Discrete Neural Networks Requires Analog Circuitry

Los Alamos Unrestricted Report LA-UR-97-4432, 1997

TR52 V. Beiu, and H.E. Makaruk: On Deeper Nets for Classification Problems

Los Alamos Unrestricted Report LA-UR-97-4413, 1997

TR51 V. Beiu, and H.E. Makaruk: Deeper and Sparser Nets Are Optimal

Los Alamos Unrestricted Report LA-UR-97-4359, 1997

TR50 V. Beiu, S. Draghici, and H.E. Makaruk: On Limited Fan-In Optimal Neural Networks

Los Alamos Unrestricted Report LA-UR-97-4314, 1997

TR49 V. Beiu, and H.E. Makaruk: Constructive Entropy Bounds Based on n-Dimensional Complexes

Los Alamos Unrestricted Report LA-UR-97-4251, 1997

TR48 V. Beiu, and H.E. Makaruk: Small Fan-In Is Beautiful

Los Alamos Unrestricted Report LA-UR-97-3493, 1997

TR47 V. Beiu: On the Circuit and VLSI Complexity of Threshold Gate COMPARISON

Los Alamos Unrestricted Report LA-UR-97-3353, 1997

TR46 V. Beiu, and S. Draghici: On Sparsely Connected Optimal Neural Networks

Los Alamos Unrestricted Report LA-UR-97-2970, 1997

TR45 V. Beiu, and H.E. Makaruk

Computing Volumes of $n$-Dimensional Complexes

Los Alamos Unrestricted Report LA-UR-97-2873, 1997

TR44 V. Beiu: Entropy, Constructive Neural Learning, and VLSI Efficiency

Los Alamos Unrestricted Report LA-UR-97-2843, 1997

TR43 V. Beiu: The Next Generation of Neural Networks Chips

Los Alamos Unrestricted Report LA-UR-97-1917, 1997

TR42 V. Beiu: When Reduced Connectivity Neural Networks Are Complexity Optimal?

Los Alamos Unrestricted Report LA-UR-97-1916, 1997

TR41 V. Beiu: Digital Integrated Circuit Implementations (of Neural Networks)

Los Alamos Unrestricted Report LA-UR-97-1900, 1997

TR40 V. Beiu: Enhanced Lower Entropy Bounds with Application to Constructive Learning

Los Alamos Unrestricted Report LA-UR-97-1877, 1997

TR39 S. Draghici, V. Beiu, and I.K. Sethi: A VLSI Optimal Constructive Algorithm for Classification Problems

Los Alamos Unrestricted Report LA-UR-97-1609, 1997

TR38 V. Beiu, and S. Draghici: On Sparsely Connected Optimal Neural Networks

Los Alamos Unrestricted Report LA-UR-97-1567, 1997

TR37 V. Beiu: When Constants Are Important

Los Alamos Unrestricted Report LA-UR-97-1262, 1997

TR36 V. Beiu, S. Draghici, and T. De Pauw: A Constructive Approach to Calculating Lower Entropy Bounds

Los Alamos Unrestricted Report LA-UR-97-884, 1997

TR35 V. Beiu: Optimization of Circuits Using a Constructive Neural Network Learning Algorithm

Los Alamos Unrestricted Report LA-UR-97-851, 1997

TR34 V. Beiu: Enhanced Lower Entropy Bounds with Application to Constructive Learning

Los Alamos Unrestricted Report LA-UR-97-516, 1997

TR33 V. Beiu: Reduced Complexity Constructive Learning Algorithm

Los Alamos Unrestricted Report LA-UR-97-515, 1997

TR32 S. Draghici, and V. Beiu: Entropy Based Comparison of Neural Networks for Classification

Los Alamos Unrestricted Report LA-UR-97-483, 1997

TR31 V. Beiu, and S. Draghici: Limited Weights Neural Networks: Very Tight Entropy Based Bounds

Los Alamos Unrestricted Report LA-UR-97-294, 1997

TR30 V. Beiu: When Constants Are Important

Los Alamos Unrestricted Report LA-UR-97-226, 1997

TR29 V. Beiu: Constant Fan-In Discrete Neural Networks Are VLSI-Optimal

Los Alamos Unrestricted Report LA-UR-97-61, 1997

TR28 V. Beiu, and T. De Pauw: Tight Bounds on the Size of Neural Networks for Classification Problems

Los Alamos Unrestricted Report LA-UR-97-60, 1997

TR27 V. Beiu: Optimization of Circuits Using a Constructive Neural Network Learning Algorithm

Los Alamos Unrestricted Report LA-UR-97-59, 1997

TR26 V. Beiu: On the Circuit and VLSI Complexity of Threshold Gate COMPARISON

Los Alamos Unrestricted Report LA-UR-96-3591, 1996

TR25 V. Beiu: New VLSI Complexity Results for Threshold Gate COMPARISON

Los Alamos Unrestricted Report LA-UR-96-3576, 1996

TR24 J.C. Lemm, V. Beiu, and J.G. Taylor: Density Estimation as a Preprocessing Step for Constructive Algorithms

Munster University Technical Report MS-TPI-95-10, 1995

TR23 V. Beiu, D.C. Ioan, M. Dumbrava, and O. Robciuc

Physical Fields Determination Using Continuous Boltzmann Machines

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, December 1991

TR22 V. Beiu: Motion Detection with Neural Networks

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, September 1991

TR21 V. Beiu: Neural Network Solutions for Motion Detection

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, March 1991

TR20 V. Beiu: Neural Network Priority Queue

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, October 1990

TR19 A. Florea, V. Beiu, and S. Georgescu: Expert System Development with a Neural Network Simulator

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, December 1989

TR18 V. Beiu: From Systolic Arrays to Neural Networks

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, November 1989

TR17 M. Constantinescu, and V. Beiu: Theoretical Aspects of Parallel Algorithms for Histogram Modification

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, October 1989

TR16 V. Beiu, and A. Florea: Basic Structure of a Program Used to Simulate Processor Networks

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, December 1988

TR15 A. Florea, and V. Beiu: Expert Decisions Using Neural Models

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, December 1988

TR14 V. Beiu: Hierarchical Memory Enhanced with List Processing Facilities

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, October 1988

TR13 V. Beiu: Parallel Line-Drawing Algorithms

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, October 1988

TR12 V. Ivanov, and V. Beiu: Heuristic Simulation of Circuits Using PROLOG

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, February 1988

TR11 V. Beiu, M. Ionescu, E. Paşol, and L. Zuzu: VLSI Implementation of a Statistical Multiplexer

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, September 1987

TR10 V. Beiu, M. Ionescu, E. Paşol, and L. Zuzu: Adaptive Multiplexing Algorithm and Its Possible VLSI Implementation

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, April 1987

TR9 V. Beiu: Smart Image Memory for Parallel Line Generation

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, December 1986

TR8 F. Moraru, C. Ispas, S. Constantin, A. Niculescu, and V. Beiu: Automat Conical Ball Bearing Sorting System

Technical Report, Department of Mechanics, University “Politehnica” of Bucharest, Romania, June 1986

TR7 V. Beiu: Parallel Adder with Regular Structure

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, December 1985

TR6 V. Beiu: Self-Testable and Self-Repairable Units: A Must for VLSI Structures

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, December 1984

TR5 V. Beiu: Highly Reliable Memory Organization

Technical Report, CSE Department, University “Politehnica” of Bucharest, Romania, December 1983

TR4 V. Beiu: Memory Structure with Simultaneous Read and Write Capabilities

Technical Report, Military Academy of Sciences, Bucharest, Romania, November 1982

TR3 V. Beiu: Using Microprocessors in Audio Systems

Technical Report, Research Institute for Computer Technique, Bucharest, Romania, December 1982

TR2 V. Beiu: Method for Recording Digital Information on a Video Recorder

Technical Report, Research Institute for Computer Technique, Bucharest, Romania, December 1981

TR1 V. Beiu: Reliability Enhanced Memory with Gracefully Degrading Performances

Technical Report, Research Institute for Computer Technique, Bucharest, Romania, July 1981

 **11. Patents 5 are indexed in ISI WoS as articles, hence they are also reported under #1 .**

P11 V. Beiu: Low-Power Differential Conductance-Based Logic Gate and Method of Operation Thereof

US 6,580,296, June 17, 2003 1–18

<https://patents.google.com/patent/US6580296/> DIIDW:2003656312

P10 V. Beiu: Microprocessor and a Digital Signal Processor Including Adder and Multiplier Circuits

Employing Logic Gates Having Discrete and Weighted Inputs

US 6,516,331, February 4, 2003 1–14

<https://patents.google.com/patent/US6516331/> DIIDW:2000349800

P9 V. Beiu: Adder Circuits Employing Logic Gates Having Discrete Weighted Inputs and a

Method of Operation Therewith

US 6,502,120, December 31, 2002 1–13

<https://patents.google.com/patent/US6502120/>

P8 V. Beiu: Adder Having Reduced Number of Internal Layers and Method of Operation Thereof

US 6,438,572, August 20, 2002 [Also as WO/2001/023992 and AU40251/01] 1–11

<https://patents.google.com/patent/US6438572/> DIIDW:2001316145

P7 V. Beiu: Noise Tolerant Conductance-Based Logic Gate and Methods of Operation and

Manufacturing Thereof

US 6,430,585, August 6, 2002 [Also as WO/2001/024367 and AU76009/00] 1–16

<https://patents.google.com/patent/US6430585/> DIIDW:2001281699

P6 V. Beiu: Adder Having Reduced Number of Internal Layers and Method of Operation Thereof

TW 493139, July 1, 2002 1–15

<https://twpat1.tipo.gov.tw/tipotwoc/tipotwekm?!!FR_493139>

P5 V. Beiu: Noise Tolerant Conductance-Based Logic Gate and Methods of Operation and

Manufacturing Thereof

TW 483249, April 11, 2002 1–13

<https://twpat1.tipo.gov.tw/tipotwoc/tipotwekm?!!FR_483249>

P4 V. Beiu: Adder and Multiplier Circuits Employing Logic Gates Having Discrete, Weighted Inputs

and Methods of Performing Combinatorial Operations Therewith

TW 481774, April 1, 2002 1–14

<https://twpat1.tipo.gov.tw/tipotwoc/tipotwekm?!!FR_481774>

P3 V. Beiu: Logic Gate Having Reduced Power Dissipation and Method of Operation Thereof

US 6,259,275, July 10, 2001 1–19

<https://patents.google.com/patent/US6259275/> DIIDW:2001595137

P2 V. Beiu: Adder and Multiplier Circuits Employing Logic Gates Having Discrete, Weighted Inputs

and Methods of Performing Combinatorial Operations Therewith

US 6,205,458, March 20, 2001 [Also as WO/2000/017802 and AU58155/99] 1–14

<https://patents.google.com/patent/US6205458/>

P1 V. Beiu: LSI Unit for Mutual Exclusion

RO 84763, April 26, 1984 1–12

 **12. Research Grants .**

2020 • Short term travel grants (invited): ICCCC’20 (US$ 500) 0.5K$

2019 • Short term travel grants (invited): ECC’19 (US$ 300) 0.3K$

2018 • Short term travel grants (invited): ICCCC’18 (US$ 800), SOFA’18 (US$ 600) 1.4K$

**2016 – 2021** • **Novel Bio-inspired Cellular Nano-architectures** PI 9.3MRON

**BioCell-NanoART** • With V.-F. Duma (UAV), F.-D. Munteanu (UAV), C. Stoica (UAV), POC-A1-A1.1.3-E nr. 30/2016

 • P. Gaspar (UAV), V.E. Balas (UAV), M. Balas (UAV), A. Cavaco-Paulo

 • (U Minho), L. Daus (UTC Bucharest)

2016 – Short term travel grants (invited): ICCCC’16 (US$ 500), SOFA’16 (US$ 500) 2K$

 • IEEE-NANO’16 (US$ 1,000)

2014 – 2016 – ATIC-SRC Center of Excellence in Energy Efficient Electronic Systems (ACE4S) Co-PI 35MAED

ULP-DigiFinA • Task: Ultra-low Power Digital Sub-threshold FinFET Amplifiers SRC GRC ACE4S

 • Originally with G. Fettweis (TU Dresden) and M. Alioto (Natl. U Singapore)

 • <https://www.src.org/newsroom/press-release/2013/452/>

2013 – 2016 – Strengthening Research Collaborations in High-impact and Emerging Co-PI 1.23M€

SECRET • Technologies between GCC and EU EU EM 545790-EM-1-2013-1-UK-ERA MUNDUS-EMA22

 • With *B. Aziz M. Rahman* PI (City U London), G. Cuniberti (TU Dresden), V.

 • Hessel (TU Eindhoven), O. Benitez (U Deusto), P. Candeloro (U Magna Graecia),

 • C. Themistos (Frederick U), H. Bourdoucen (Sultan Qaboos U), F. Bou-Rabee

 • (Kuwait U), S.A. Al-Mansoori (U Bahrain), F. Kharbash (UAEU)

2012 – 2015 – Synaptic Molecular Networks for Bio-inspired Information Processing Co-PI 2.81M€

SYMONE • With *G. Wendin* PI (Chalmers U), D. Vuillaume (CNRS-IEMN), J. Roncali EU FP7-ICT-318597

 • (CNRS-MOLTECH), M. Calame (Basel U), S. Yitzchaik (HUJI), C. Gamrat

 • (CEA), and G. Cuniberti (TU Dresden)

2012 – 2014 – Unconventional Sizing for Enabling Low Power Digital Design PI 200K$

Use-LP • With M. Alioto (U Siena / Natl. U Singapore), A. Beg (UAEU), SRC 2012-TJ-2332

 • W. Ibrahim (UAEU), and F. Kharbash (UAEU)

2011 – • Ultra Low-Power Application-specific Non-Boolean Architectures [Intel Co] Co-PI 1M$

ULP-NBA • With *Intel* PI, D. Hammerstrom (Portland State U), W. Porod (U Notre Dame), URO 2011-05-24G

 • S.P. Levitan (U Pittsburgh), T. Shibata (U Tokyo), T. Roska (Hungarian

 • Acad. Sci.), M. Pufall (NIST), D. Weistein (MIT), and M.R. Stan (U Virginia)

2011 – 2015 – Ultra Low Power NEMS-CMOS PI 300K$

ULP-NEMS-CMOS • With T.-J.K. Liu (UC Berkeley), W. Ibrahim (UAEU), and A. Beg (UAEU) SRC 2011-HJ-2184

2011 – 2013 – Brain-inspired Interconnects for Nanoelectronics (BiIN) PI 586KAED

 • With W. Ibrahim (UAEU) [UAE Natl. Res. Found.] NRF 1108-00451

2011 – 2013 – Algorithms & EDA for Accurate Nano-Circuits Reliability Calculations (CREDA2) Co-PI 506KAED

 • With *W. Ibrahim* PI (UAEU) [UAE Natl. Res. Found.] NRF 1108-00329

2013 – Short term travel grants (invited): TUDresden (US$ 7,000) 7K$

2012 – Short term travel grants (invited): EDCC’12 (US$ 1,000) 1K$

2011 – Short term travel grants (invited): IEEE-NANO’11 (US$ 500), EU Brussels 28.5K$

 • (US$ 8,000), EU Paris (US$ 5,000), NSF (US$ 5,000), ATIC-SRC (US$ 10,000)

2011 – 2012 – Brain-inspired Hybrid Topologies for Nano-architectures [SRC 2011-RJ-2150G] PI 40K$

2010 – Short term travel grants (invited): IDT’10 (US$ 500), IJCNN’10 (US$ 1,500), 6K$

 • INC6 (US$ 1,000), MEES’10 (US$ 3,000)

2009 – 2011 – Brain-inspired Interconnects for Nanoelectronics [British Council PMI2 RCGS271] PI 39KUK£

2009 [on hold] – Emirates Center for Nanoscience & Nanoengineering [UAE Natl. Res. Found.] Co-PI 50MAED

 • <http://www.thenational.ae/news/uae-news/education/grant-aids-research-centres>

2009 – Short term travel grants (invited): EU (US$ 7,000), U Oslo (US$ 5,000), IEEE- 20.5K$

 • NANO’09 (US$ 1,000), ESSCIRC’09 (US$ 1,500), NanoNet’09 (US$ 1,000),

 • WDSN’09 (US$ 5,000)

2008 – Short term travel grants (invited): NSF (US$ 5,000), LANL (US$ 2,000), SAMOS 33K$

 • VIII (US$ 5,000), Tohoku U (US$ 10,000), U Paris-Sud (US$ 3,000), U Oslo (US$ 5,000)

2007 – Short term travel grants (invited): NSF (US$ 5,000), EU (US$ 8,000), HP Labs (US$ 51.4K$

 • 6,000), FENA / UCLA (US$ 1,000), ULSIWS’07 (US$ 400), ISMVL’07 (US$ 1,000),

 • SHARCS’07 (US$ 2,000), DTIS’07 (US$ 3,000), DCIS’07 (US$ 3,000), IECON’07 (US$

 • 3,000), Tohoku U (US$ 5,000), MWSCAS’07 (US$ 1,000), IEEE-NANO’07 (US$

 • 1,000), ICSPC’07 (US$ 500), ICTRF’07 (US$ 500), IDT’07 (US$ 500), IWANN’07

 • (US$ 5,000), NanoMaterials’07 (US$ 500), Univ. Oslo (US$ 5,000)

2006 – 2011 – Center for Excellence in Intelligent Systems [InvestNI, IDF and U Ulster] Co-PI 20.4MUK£

 • Center for Neural Inspired Nano Architectures (~1.8MUK£, 2007–2010)

2007 – Mapping the proxel method to reliability analysis of nanoarchitectures [UAEU] Co-PI 8KAED

2006 – Short term travel grants (invited): NSF (US$ 5,000), WNEC’06 (US$ 2,500), 8.5K$

 • IDT’06 (US$ 500), AICCSA’06 (US$ 500)

2006 – Investigation of the reliability of single electron technology gates & circuits [UAEU] Co-PI 8KAED

2005 – Short term travel grants (invited): ICM’05 (US$ 3,000), U Ulster (US$ 9,000), 16K$

 • SNB’05 (US$ 3,000), IIT’05 (US$ 1,000)

2005 – 2006 – Defect-tolerant high-performance low-power computing with hybrid CMOS Co-PI 100K$

 • molecular circuits [Advanced Research & Development Agency, ARDA]

2004 – Short term travel grants (invited): ASAP’04 (US$ 500), NGCM’04 (US$ 1,000), 3.5K$

 • IJCNN’04 (US$ 500), Heinz Nixdorf Inst. (US$ 1,500)

2003 – Short term travel grants (invited): MWSCAS’03 (US$ 500), ICNNSP’03 (US$ 500), 6.5K$

 • NIPS’03 (US$ 500), U Paderborn (US$ 1,500), IJCNN’03 (US$ 500), IWANN’03

 • (US$ 500), NCI’03 (US$ 500), Heinz Nixdorf Inst. (US$ 2,000)

2002 – 2004 – Direct Digital Frequency Synthesizers (DDFSs) for reconfigurable communication Co-PI 250K$

 • systems. DDFSs have been investigated and implemented in silicon-on-insulator

 • (SOI) and CMOS for space applications [Air Force Research Lab / CDADIC]

2002 – Short term travel grant (invited): LANL, Los Alamos (US$ 5,000) 5K$

2001 – Short term travel grant (invited): Berkeley Wireless Research Center (US$ 4,000) 4K$

2000 – 2003 – Conducting research on ultra-fast low-power floating point units (FPUs), PI 500K$

 • with applications to graphic accelerators and gaming workstations [Rose Research]

2000 – 2003 – Evaluating / examining solutions for ultra-fast low-power en/decryption allowing PI 500K$

 • for wire-speed (i.e., on-the-fly) crypto-processors [Rose Research]

1999 – 2005 – Pioneered *FastLogic*, an enabling VLSI technology based on novel ultra-fast logic PI 3M$

 • gates, and a systematic design methodology for using them. Low-power was
 • achieved by means of a novel self-timed power-down mechanisms, as well as
 • differential (charge recycling) circuits. Several versions of *FastLogic* gates have
 • been designed, simulated, tested, and patented (during 1999-2001). Ultra-low
 • power sub-threshold versions have also been designed using an original cross-
 • coupled adaptive body biasing scheme for boosting reliability. [Rose Research]

1999 – 2002 – Exploring alternatives and improving on ultra-fast low-power multiplication and PI 1M$

 • multiply-accumulate with application to digital signal processing [Rose Research]

1999 – Short term travel grant (invited): AMS-SMM’99 (US$ 500) 0.5K$

1998 – 1999 – Researched, analyzed and enhanced ultra-fast VLSI adders. The theoretical results PI 500K$

 • obtained have been verified and patented. [Rose Research]

1998 – Short term travel grants (invited): NC’98 (US$ 500), CNRS-Paris (US$ 1,000), 3K$

 • PARELEC’98 (US$ 500), EIS’98 (US$ 1,000)

1997 – Short term travel grants (invited): SBRN’97 (US$ 5,000), IDIAP, Switzerland 12.1K$

 • (US$ 2,000), Heinz Nixdorf Inst. (US$ 1,500), U Paris XII (US$ 1,000), Royal

 • Holloway U (US$ 1,000), Oxford U (US$ 1,000), NEuroTop’97 (US$ 600)

1996 – 1998 – Field Programmable Neural Arrays (FPNAs) as a component of the Deployable PI 180K$

 • Adaptive Processing Systems (DAPS) carried out at Los Alamos National

 • Laboratory (LANL). This was a multi-faceted R&D program, developing

 • algorithms and prototyping systems for real-time remote and autonomous

 • processing of data gathered on land, in the air, or in space. Specified and

 • designed neural-inspired adaptive algorithms and their mapping onto FPGAs.

1996 – Short term travel grants (invited): ANITA’96 (US$ 1,500), SBRN’96 (US$ 2,500), 4.5K$

 • AT’96 (US$ 500)

1995 – Short term travel grants (invited): ADT’95 (US$ 500) 0.5K$

1994 – 1996 – Programmable Neural Arrays, Design & VLSI Implementation of Neural Networks PI 440K$

 • Using Threshold Gates [EU CHBICT941741]

1992 – 1994 – VLSI-efficient threshold logic gates (Concerted Research Action of the Flemish Community) 21K$

1994 – Short term travel grants (invited): ConTI’94 (US$ 300), EMCSR’94 (US$ 300), 1.1K$

 • RRCS’94 (US$ 500)

1993 – Short term travel grants (invited): ROSYCS’93 (US$ 300), ESSAN’93 (US$ 600) 0.9K$

1992 – Short term travel grant (invited): EPFL (US$ 500) 0.5K$

1991 – Short term travel grants (invited): ICIAM’91 (US$ 1,500), ICANN’91 (US$ 1,500) 3K$

1991 – Expert of DEANNA (Data-base for European Artificial Neural Network Activity), an

 • ESPRIT exploratory action led by JENNI (Joint European Neural Network Initiative)

1990 – 1991 – Negotiated, won, managed, and coordinated SPRING Software Consult contracts

 » Dedicated En / Decryption and GUI [Ministry of National Defense] PI 20K$

 » CAD Training (lectures) [AVERSA SA] PI 5K$

 » Software Package for Microbusiness [Chemistry Research Institute] Co-PI 10K$

 » Data Acquisition CAD Package [Chemistry Research Institute] PI 10K$

 » PC Training (lectures) [Ministry of National Defense] PI 5K$

1990 – Short term travel grant (invited): PARCELLA’90 (US$ 300) 0.3K$

1988 – Dedicated watch-dog system: Feasibility study & reliability analysis PI 50K$

 • [Electrical Networks Institute]

1987 – 1988 – Studied and analyzed Prolog as a research tool for circuit simulations [UPB] Co-PI

1987 – Short term travel grant (invited): ComEuro’87 (US$ 400) 0.4K$

1987 – Dedicated Database Package [National Information & Documentation Institute] PI 50K$

1987 – Hierarchical Self-testable and Self-repairable Content Addressable Memory [UPB] PI 50K$

 – High Speed Antialiasing Cascadable Circuit [UPB] PI 50K$

1984 – 1987 – VLSI CAD Package (PC version) [UPB] PI 100K$

 – Automatic Conical Ball Bearing Sorter [Bearings Factory Alexandria, now Koyo] PI 100K$

1983 – Mutual exclusion circuit (patented) [Research Institute for Computer Techniques] PI

 – Floppy disk interface [Research Institute for Computer Techniques]

1981 – 1982 – Ultra high-speed floating point unit. New improved algorithms with innovations PI

 • at the microprogramming level [Research Institute for Computer Techniques]

1981 – Ultra high-speed highly reliable central processing unit with enhancements at PI

 • the microprogramming level [Research Institute for Computer Techniques]

1980 – Involved in the final testing stages of the CE-100 computer (PDP equivalent) Co-PI

1979 – 1980 – High speed graphic workstation: 1024×1024 with 16 intensities [UPB] 5K$

 • 20 MHz HP vectorial display and original CPU design (tested at 60 MHz)

 » Three Best Paper Awards at the Students’ Scientific Research Conference

 » Best MSc Thesis Award for *“innovations in workstation design”*

1977 – 1980 – National Merit Scholarship [Ministry of Science & Education] 10K$