

Nader Bagherzadeh, Ph.D.

Expertise

- Digital Signal Processing Architectures
 - Processor Architectures (VLIW, Superscalar)
 - VLSI Design
 - Computer Networks & Digital Telecommunication
 - Computer Graphics
 - Memory System Architecture
 - DRAM, SRAM, EEPROM, and Flash memory
 - Automotive Computing
 - Error Detection and Correction
 - Machine Learning Accelerators
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Electrical Engineering and Computer Science Department

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Education

<u>Year</u>	<u>College/University</u>	<u>Degree</u>
1987	The University of Texas at Austin	Ph.D., Computer Engineering
1979	The University of Texas at Austin	MS, Electrical Engineering
1977	The University of Texas at Austin	BS (with honors), Electrical Engineering

Employment History

From:	1987	University of California at Irvine
To:	Present	Irvine, CA
Position:		<i>2003- Present: Professor, Department of Electrical Engineering and Computer Science</i>
		<i>1998-2002: Professor and Chair, ECE/EECS Department</i>
		<i>1993-1997: Associate Professor, ECE Department</i>
		<i>1987-1992: Assistant Professor, ECE Department</i>

Consultant Curriculum Vitae

From: 1980 **AT&T Bell Labs**
To: 1984 Holmdel, NJ
Position: *Member of Technical Staff, No.5 ESS Hardware/Software T1Line Interface Design*

Awards and Honors

1973-77 Dean's honor roll for six semesters; UT Austin
1984 Outstanding achievement award; AT&T Bell Labs
2002 Best Paper award in IEEE Transactions on VLSI Design
2002 Best Student Paper award in the proceedings of ASPDAC'02
2014 Khwarizmi International Award
2014 IEEE Fellow
2015 Professor of the Year for the EECS Department, UCI
2020 Best Paper award in the proceedings of IEEE EDGE Computing

Consulting History

From: 2006 **STEC**
To: 2008 Irvine, CA
Duties: Flash memory CODEC design and evaluation

From: 2006 **Tialinx**
To: 2008 Newport Beach, CA
Duties: Radar DSP board design and evaluation

From: 2000 **Morpho Technologies**
To: 2005 Irvine, CA
Duties: Co-Founder; DSP design for communication and multimedia systems

Litigation Support Experience

Date: 2024 **Kirkland & Ellis LLP**
Case: *TCL Electronics Holdings Ltd. vs. Intellectual Ventures I LLC*
Project: Expert Witness for TCL
Status: IPR pending
Contact: Russell Levine
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Chicago, IL 60654
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Consultant Curriculum Vitae

Date: 2024 **Covington & Burling LLP**
Case *Redstone Logics LLC v. Samsung Electronics Co., Ltd.*
Project: Expert Witness for Samsung Electronics Co., Ltd.
Status: IPR pending
Contact: Ali Mojibi
1999 Avenue of the Stars
Los Angeles, CA 90067-4643
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Date: 2023 **Finnegan, LLP**
Case TBD
Project: Expert Witness for Nissan Motor Co.
Status: In progress
Contact: Luke McCammon
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Washington, D.C., 20001
Direct Dial: (202) 408-4273
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Date: 2023 **REICHMAN JORGENSEN LEHMAN & FELDBERG LLP**
Case TBD
Project: Expert Witness for Valtrus Innovation Ltd
Status: In progress
Contact: Patrick Colsher
100 Marine Parkway, Suite 300
Redwood Shores, CA 94065
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Date: 2023 **McKool Smith**
Case *TexasLDPC Inc. v Broadcom Inc., LSI Corporation, Avago Technologies U.S., Inc.; C.A. No. 18-1966-SB*
Project: Expert Witness for Broadcom
Status: Dismissed without prejudice
Contact: Steven Rizzi
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Consultant Curriculum Vitae

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Date: 2023
Case: **Caldwell Cassidy & Curry**
BeSang Inc. v. Intel and/or Micron, CIVIL ACTION NO. 2:23-CV-00028-JRG-RSP and Case No. 3:23-cv-00113-HZ
Project: Expert Witness for BeSang
Status: Stay
Contact: Bjorn A. Blomquist
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Dallas, Texas 75201
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Date: 2023
Case: **Mintz**
Daedalus v. Qualcomm Inc. and Samsung Electronics Co.
Project: Expert Witness for Daedalus Prime LLC
Status: ITC, provided technical support without rendering an opinion in a report.
Case is closed.
Contact: Peter F. Snell
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New York, NY 10017
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Date: 2022
Case: **Arnold & Porter**
Rex Computing, Inc. v. Cerebras Systems Inc.
Project: Expert Witness for Rex Computing, IPR Petition by Cerebras
Status: Board sided with Rex and did not grant the petition
Contact: Nicolas Lee,
44th Floor, 777 South Figueroa Street

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nicholas.lee@arnoldporter.com

Date: 2022 **Quinn Emanuel Urquhart & Sullivan, LLP,**
Case MediaTek Inc. v. NXP Semiconductors N.V.
Project: Expert Witness for Media Tek
Status: Settled
Contact: Jordan B. Kaericher
 865 S Figueroa St 10th Floor
 Los Angeles, CA 90017
 Direct Tel.: (213) 443-3843
 Company: (213) 443-3000
 jordankaericher@quinnemanuel.com

Date: 2022 **Bartlit Beck LLP**
Case Viasat vs. Kioxia and Western Digital, Patent Litigation Consulting
Project: Expert Witness for Viasat. Provided declaration
Status: IPR; Board decided in favor of Viasat
Contact: Scott McBride
 54 West Hubbard Street
 Chicago, IL 60654
 Direct Tel.: (312) 494-4436
 scott.mcbride@bartlitbeck.com

Date: 2022 **Arch & Lake LLP**
Case Autel v. Hunter Engineering Company
Project: Expert Witness for Autel. Provided patent analysis
Status: Inactive
Contact: Hao Tan,
 203 N La Salle St #2100,
 Chicago, IL 60601
 Direct Tel.: (312) 558-1368
 haotan@archlakelaw.com

Date: 2022 **Adhoot & Wolfson PC and Miller Shah LLP**
Case Winnie Clark et al v. American Honda Motor Co., Inc.,
Project: Brief discussion for the Class; no additional duties
Status: Class Action Consideration
Contact: Christopher Stiner
 Adhoot/Wolfson: (888) 333-8996

Consultant Curriculum Vitae

cstiner@ahdootwolfson.com

- Date: 2021 **Kilpatrick Townsend, LLP**
Case: Autel Intelligent Tech. Corp., LTD vs. Orange Electronic Co., LTD
Project: Expert Witness for Autel. Provided IPR declaration
Status: Pending IPR Decision
Contact: David A. Reed,
Suite 2800, 1100 Peachtree Street NE
Atlanta, GA 30309-4528
Direct Tel.: (404) 745-2548
Company: (404) 815-6500
dreed@kilpatricktownsend.com
- Date: 2021 **Desmarais LLP**
Case: AMD, QCM, and STM vs. Monterey Research
Project: Expert Witness for Monterey. Provided IPR declarations and was deposed.
Status: Settled
Contact: Jordan Malz,
230 Park Avenue
New York, NY 10169
Direct Tel.: (212) 351-5497
Company: (212) 351-3400
JMalz@desmaraisllp.com
www.desmaraisllp.com
- Date: 2020 **Devlin Law Firm LLC**
Case: Engagement for Assistance with Certain Patents Asserted by Flash-Control, LLC
Project: Expert Witness for Flash Control. Provided IPR declaration and was deposed.
Status: Pending IPR Decision
Contact: Jim Lennon,
1526 Gilpin Avenue
Wilmington, Delaware 19806
Tel.: (302) 449-9010
Cell: (302) 593-4486
www.devlinlafirm.com
- Date: 2019 **The Honorable David O. Carter**

Consultant Curriculum Vitae

Case Limestone Memory Systems vs. Micron Technology, et al.
Project: Special Master for Judge Carter
Status: Settled
Contact: Judge David O. Carter,
Ronald Reagan Federal Building, United States Courthouse
411 West Fourth Street, Courtroom 9D
Santa Ana, CA 92701-4516

Date: 2018 **Arnold & Porter Kaye Scholer LLP**
Case Samsung Electronics Co. Ltd. vs. Home Semiconductor Corp.
Project: Expert Witness for Samsung
Status: Case dismissed
Contact: Ali Sharifahmadian,
601 Massachusetts Ave., NW
Washington, DC 20001-3743
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Date: 2018 **Fried, Frank, Harris, Shriver & Jacobson LLP**
Case Intel Corp. vs. Godo Kaisha IP Bridge 1
Project: Expert Witness for IP Bridge
Status: Closed IPR
Contact: Robert Masters,
801 17th Street, NW
Washington, DC 20006
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Consultant Curriculum Vitae

Publications

Journals Refereed

- j1 P. Suhler, N. Bagherzadeh, M. Malek, and N. Iscoe, "Software authorization systems," *IEEE Software*, pp. 34-41, September 1986.
- j2 A. Guzman, E. Krall, P. McGehearty, and N. Bagherzadeh, "Performance of symbolic applications on a parallel architecture," *International Journal of Parallel Programming*, vol. 16, no.3, pp. 183-214, 1987.
- j3 Y. Moon, N. Bagherzadeh, and J. Sklansky, "A macropipelined multicomputer architecture for image analysis," *Journal of the Optical Society of America*, pp. 951-962, 1989.
- j4 D. Blough and N. Bagherzadeh, "Near-optimal message routing and broadcasting in faulty hypercubes," *International Journal of Parallel Programming*, vol. 19, no. 5, pp. 405-423, 1990.
- j5 N. Bagherzadeh, S. Heng, and C. Wu, "A parallel asynchronous garbage collection algorithm for distributed systems," *IEEE Transactions on Knowledge and Data Engineering*, vol. 3, no. 1, pp. 100-107, March 1991.
- j6 A. Kavianpour and N. Bagherzadeh, "Application of three-valued logic for distributed termination detection," *International Journal of Computers and Electrical Engineering*, vol. 17, no. 2, pp. 65-74, 1991.
- j7 A. Kavianpour and N. Bagherzadeh, "Finding circular shapes in an image on a pyramid architecture," *Pattern Recognition Letters*, vol. 13, no. 12, pp. 843-848, December 1992.
- j8 N. Bagherzadeh and K. Hawk, "Parallel implementation of the auction algorithm on the Intel hypercube," *Journal of Computer and Software Engineering*, vol. 1, no. 1, pp. 17-32, 1993.
- j9 A. Abnous, C. Christensen, J. Gray, J. Lenell, A. Naylor, and N. Bagherzadeh, "Design and implementation of the 'Tiny RISC' microprocessor," *Journal of Microprocessors and Microsystems*, vol. 16, no. 4, pp.187-193, 1992.

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- j10 A. Abnous and N. Bagherzadeh, "Pipelining and bypassing in a VLIW processor," *IEEE Transactions on Parallel and Distributed Systems*, vol. 5, no. 6, pp. 658-664, June 1994.
- j11 A. Kavianpour and N. Bagherzadeh, "A systematic approach for mapping application tasks in hypercubes," *IEEE Transactions on Computers*, vol. 42, no. 6, pp. 742-746, June 1993.
- j12 A. Kavianpour and N. Bagherzadeh, "Parallel algorithms for line detection on a pyramid architecture," *International Journal of Pattern Recognition and Artificial Intelligence*, Vol. 8, no.1, pp. 337-349, 1994.
- j13 C. Bowen and N. Bagherzadeh, "Image processing applications in C++ on a hypercube multicomputer," *International Journal of Computers and Electrical Engineering*, vol. 19, no. 5, pp. 351-364, 1993.
- j14 A. Kavianpour, S. Shoari, and N. Bagherzadeh, "A new approach for circle detection on multiprocessors," *Journal of Parallel and Distributed Computing*, vol. 20, no. 2, pp. 256-260, February 1994.
- j15 S. Latifi and N. Bagherzadeh, "Incomplete star: An incrementally scalable network based on the star graph," *IEEE Transactions on Parallel and Distributed Systems*, vol. 5, no. 1, pp. 97-102, January 1994.
- j16 N. Bagherzadeh, N. Nassif, and S. Latifi, "A routing and broadcasting scheme on faulty star graphs," *IEEE Transactions on Computers*, Vol 42, no. 11, pp 1398-1403, November 1993.
- j17 J. Gray, A. Naylor, A. Abnous, and N. Bagherzadeh, "VIPER: a VLIW integer microprocessor," *IEEE Journal of Solid States and Circuits*, Vol. 28, no. 12, pp 1377-1383, December 1993.
- j18 J. Lenell and N. Bagherzadeh, "A performance comparison of several superscalar processor models with a VLIW processor," *Journal of Microprocessors and Microsystems*, Vol 18, no. 3, pp 232-242, 1994.
- j19 A. Kavianpour, N. Bagherzadeh, and S. Shoari, "Finding elliptical shapes in an image using a pyramid architecture," *International Journal of Computers and Electrical Engineering*, vol. 21, no. 1, pp. 69-75, Jan 1995.
- j20 S. Latifi, M. M. de Azevedo, and N. Bagherzadeh, "A star-based I/O-bounded network for massively parallel systems," *IEE Proceedings-Computers and Digital Techniques*, Vol. 142, No. 1, January 1995.

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- j21 M. M. de Azevedo, N. Bagherzadeh, and S. Latifi, "Broadcasting algorithms for the star-connected cycles interconnection network," *Journal of Parallel and Distributed Computing*, 25, 209-222 (1995).
- j22 S. Wallace and N. Bagherzadeh, "Performance issues of a superscalar microprocessor," *Microprocessors and Microsystems*, Vol. 19, No. 4, pp 187-199 (1995).
- j23 A. Abnous and N. Bagherzadeh, "Architectural design and analysis of a VLIW processor," *International Journal of Computers and Electrical Engineering*, Vol 21, No. 2, pp 119-142 (1995).
- j24 T. Kato and N. Bagherzadeh, "A novel superscalar architecture using scheduling patterns and performance analysis," *The Transactions of the Institute of Electronics, Information, and Communication Engineers D-I*, Vol.J78-D-I, No. 9, pp 809-819 (1995).
- j25 N. Bagherzadeh and M. Dowd, "Computation in faulty stars," *IEEE Transactions on Reliability*, Vol 44, No. 1, pp 114-119 (1995).
- j26 N. Bagherzadeh, M. Dowd, and S. Latifi, "A well-behaved enumeration of star graphs," *IEEE Transactions on Parallel and Distributed Systems*, Vol 6, No. 5, pp 531-535, May (1995).
- j27 M. M. de Azevedo, N. Bagherzadeh, M. Dowd, and S. Latifi, "Some topological properties of star connected cycles," *Information Processing Letters*, 58, pp 81-85 (1996).
- j28 N. Bagherzadeh, M. Dowd, and N. Nassif, "Embedding an arbitrary binary tree into the star graph," *IEEE Transactions on Computers*, Vol 45, No. 4, pp 475-481 (1996).
- j29 N. Bagherzadeh and M. Dowd, "Problems on routing bounded distance assignments in hypercubes," *Computer Systems-Science and Engineering*, Vol 11, No. 4, pp 221-226, July (1996).
- j30 S. Latifi and N. Bagherzadeh, "On cluster-star graph and its properties," *Computer Systems-Science and Engineering*, Vol 11, No. 3, pp 145-149, May (1996).
- j31 S. Shoari and N. Bagherzadeh, "Computation of the fast fourier transform on the star-connected cycle networks," *International Journal of Computers and Electrical Engineering*, Vol 22, No. 4, pp 235-246 (1996).
- j32 N. Nassif and N. Bagherzadeh, "A grid embedding into the star graph for image analysis solutions," *Information Processing Letters*, Vol. 60, No. 5, pp 255-260 (1996).

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- j33 S. Latifi, N. Bagherzadeh, and R. Gajjala, "Fault-tolerant embedding of linear arrays and rings in the star graph," *International Journal of Computers and Electrical Engineering*, Vol 23, No. 2, pp 95-107 (1997).
- j34 S. Latifi and N. Bagherzadeh, "On embedding rings into a star-related network," *Information Sciences*, Vol. 99, No. 1-2, pp 21-35 (1997)
- j35 S. Shoari, N. Bagherzadeh, T. Milner, and J. S. Nelson, "Moment algorithms for blood vessel detection in infrared images of laser-heated skin," *International Journal of Computers and Electrical Engineering*, Vol 23, No. 5, January (1998).
- j36 M. M. de Azevedo, N. Bagherzadeh, M. Dowd, and S. Latifi, "Average distance and routing algorithms in the star-connected cycles interconnection network," *International Journal of Science and Technology-Special Issue of Computer in Scientia Iranica*, Vol. 3, No. 4, (1997).
- j37 N. Bagherzadeh, M. Dowd, and S. Latifi, "Faster Column Operations in Star Networks," *Telecommunication Systems*, Vol. 10, Nos. 1, 2 (1998).
- j38 M. M. de Azevedo, N. Bagherzadeh, and S. Latifi, "Low expansion packings and embeddings of hypercubes into star graphs: a performance-oriented approach," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 9, No. 3, (1998).
- j39 S. Shoari, N. Bagherzadeh, D. Goodman, T.E. Milner, D. J. Smithies, and J.S. Nelson, "A parallel algorithm for pulsed laser infrared tomography," *Pattern Recognition Letters*, 19 (1998).
- j40 S. Wallace and N. Bagherzadeh, "A scalable register file architecture for superscalar processors," *Microprocessors and Microsystems*, Vol. 22, No. 1, (1998).
- j41 S. Wallace and N. Bagherzadeh, "Modeled and measured instruction fetching performance for superscalar microprocessors," *IEEE Transactions on Parallel and Distributed Systems*, Vol. 9, No. 6, (1998).
- j42 N. Nassif and N. Bagherzadeh, "Image component labeling on the star graph using divide and conquer," *IEE Proceedings-Computers and Digital Techniques*, Vol. 145, No. 1, (1998).
- j43 M. Lee, G. Lu, H. Singh, N. Bagherzadeh, F. Kurdahi, E. Filho, and V. Castro Alves, "MorphoSys A Reconfigurable Computing Chip," *IEEE Circuits and Systems Newsletter*, Vol. 10, No 1, March/April 1999.
- j44 M. Lee, H. Singh, G. Lu, N. Bagherzadeh, F. Kurdahi, E. Filho, and V. Castro Alves, "Design and Implementation of the MorphoSys Reconfigurable Computing

Consultant Curriculum Vitae

Processor,” *Journal of Signal Processing Systems for Signal, Image, and Video technology*, Vol. 24, No. 2/3, pp. 147-164, March 2000.

- j45 H. Singh, M. Lee, G. Lu, F. Kurdahi, N. Bagherzadeh, and E. Filho, “MorphoSys: An Integrated Reconfigurable System for Data-Parallel and Computation-Intensive Applications,” *IEEE Transactions on Computers*, Vol. 49, No. 5, pp. 465-481 (2000).
- j46 R. Maestre, F. Kurdahi, M. Fernandez, R. Hermida, N. Bagherzadeh, and H. Singh, “Kernel scheduling techniques for efficient solution of space exploration in reconfigurable computing,” *EUROMICRO Journal of Systems Architecture on Modern Methods and Tools in Digital System Design*, 2000.
- j47 R. Maestre, F. Kurdahi, M. Fernandez, R. Hermida, N. Bagherzadeh, and H. Singh, “A Formal Approach to Context Scheduling for Multi-context Reconfigurable Architectures,” *IEEE Transactions on VLSI Design-Special Issue on Reconfigurable Computing*, Vol. 9, Issue 1, pp. 173-185, Feb 2001.
- j48 R. Maestre, F. Kurdahi, M. Fernandez, R. Hermida, N. Bagherzadeh, and H. Singh, “A Framework for Reconfigurable Computing: Task Scheduling and Context Management,” *IEEE Transactions on VLSI Design-Special Issue on System Level Design*, Vol. 9, Issue 6, pp. 858-873, Dec 2001 (Best Paper Award).
- j49 P. Chou, J. Liu, D. Li, and N. Bagherzadeh, “IMPACCT: Methodology and Tools for Power-Aware Embedded Systems,” *Kluwer Design Automation of Embedded Systems*, pp. 205-232, October 2002.
- j50 J. Liu, P. Chou, and N. Bagherzadeh, “Power-Aware Task Motion for Enhancing Dynamic Range of Embedded Systems with Renewable Energy Sources in Proceedings of the Workshop on Power Aware Computer Systems,” in *Lecture Notes in Computer Science* (LNCS), Springer-Verlag, pp. 84--99. 2002.
- j51 R. Maestre, F. Kurdahi, M. Fernandez, R. Hermida, N. Bagherzadeh, and H. Singh, “A Framework for Reconfigurable Computing: Task Scheduling and Context Management-a Summary,” *Circuits and Systems Magazine*, IEEE, Vol. 2, Issue 4, pp. 48-51, 2002.
- j52 M. Sanchez-Elez, H. Du, N. Tabrizi, Y. Lung, N. Bagherzadeh, and M. Fernandez, “Algorithm Optimizations and Mapping Scheme for Interactive Ray Tracing on a Reconfigurable Architecture,” *Computers & Graphics*, 2003
- j53 G. Venkataramani, W. Najjar, F. Kurdahi, N. Bagherzadeh, W. Bohm and J. Hammes, “Automatic Compilation to a Coarse-grained Reconfigurable System-on-Chip,” *ACM Trans. on Embedded Computing Systems*, November 2003.
- j54 B. Gorjiara, N. Bagherzadeh, and P. Chou, “Ultra-fast and Efficient Algorithm for Energy Optimization by Gradient-based Stochastic Voltage and Task Scheduling,”

Consultant Curriculum Vitae

ACM Transactions on Design Automation of Electronic Systems (TODAES), Volume 12 , Issue 4 (September 2007)

- j55 J. Bahn, S. Lee, and N. Bagherzadeh, "Design of a Router for Network-on-Chip," *International Journal of High Performance Systems Architecture*, 2007 - Vol. 1, No.2 pp. 98 - 105
- j56 A. Niktash, H. Parizi, and N. Bagherzadeh, "A Reconfigurable Processor for Forward Error Correction," *ARCS 2007*, LNCS 4415, pp. 1-13, 2007
- j57 J. Bahn and N. Bagherzadeh, "Design of Simulation and Analytical Models for a 2D-meshed Asymmetric Adaptive Router," *Computers & Digital Techniques, IET*, Volume 2, Issue 1, January 2008 Page(s):63 - 73
- j58 F. Rivera, M. Sanchez-Elez, R. Hermida, and N. Bagherzadeh, "Scheduling methodology for conditional execution of kernels onto multicontext reconfigurable architectures," *Computers & Digital Techniques, IET*, Volume 2, Issue 3, May 2008 Page(s):199 - 213
- j59 J. Bahn, S. Lee, Y. Yang, J. Yang, and N. Bagherzadeh, "On Design and Application Mapping of a Network-on-Chip (NoC) Architecture," *Parallel Processing Letters (PPL)*, Volume: 18, Issue: 2 (June 2008), pp. 239 - 255
- j60 N. Tabrizi and N. Bagherzadeh, "An ASIC Design and Formal Analysis of a Novel Pipelined and Parallel Sorting Accelerator," *Integration, The VLSI Journal*, Volume 41, Issue 1 (January 2008), Pages 65-75
- j61 S. Lee, J. Bahn, Y. Yang, and N. Bagherzadeh, "A Generic Network Interface architecture for a Networked Processor Array (NePA)," *ARCS 2008*, LNCS 4934, pp. 247-260, 2008
- j62 J. Bahn, J. Yang, W. Hu, and N. Bagherzadeh, "Parallel FFT Algorithms on Network-on-Chips," *Journal of Circuits, Systems, and Computers* 18(2): 255-269, 2009.
- j63 F. Bagci, F. Kluge, T. Ungerer, and N. Bagherzadeh, "Optimisations for LocSens - an Indoor Location Tracking System Using Wireless Sensors," *International Journal of Sensor Networks (IJSNET)*, Vol. 6, Nos. 3/4, 2009.
- j64 J. Bahn and N. Bagherzadeh, "On-Chip Interconnection Network with an Efficient Parallel Buffer Structure and Generic Traffic," *Scientia Iranica, Computer Science & Engineering and Electrical Engineering*. Vol. 16, No. 2, pp. 104-118, 2009.
- j65 M. Sanchez-Elez, N. Bagherzadeh, and R. Hermida, "A Framework for Low Energy Data Management in Reconfigurable Multi-Context Architectures," *Journal of Systems Architecture*, 2009, Pages 127-139

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- j66 S. Lee and N. Bagherzadeh, "A Variable Frequency Link for a Power-Aware Network-on-Chip (NoC)," *INTEGRATION, the VLSI Journal*, 42 (2009) 479–485
- j67 S. Lee and N. Bagherzadeh, "A High Level Power Model for Network-on-Chip (NoC) Router," *Computers and Electrical Engineering*, 35 (2009) 837–845
- j68 Y. Yang, J. Bahn, S. Lee, J. Yang, and N. Bagherzadeh, "Parallel Processing for Block Ciphers on a Fault Tolerant Networked Processor Array," *International Journal of High Performance Systems Architecture*, Vol. 2, Nos. 3/4, 2010
- j69 J. Yang, S. Lee, C. Chen, and N. Bagherzadeh, "Ray Tracing on a Networked Processor Array," *International Journal of Electronics*, 2010, 97(10):1193-1205
- j70 F. Bagci, T. Ungerer, and N. Bagherzadeh, "Multi-level Security in Wireless Sensor Networks," *International Journal on Advances in Software*, Vol. 4, No. 6, 2010.
- j71 C. Wang, W. Hu, S. Lee, and N. Bagherzadeh, "Area and Power-Efficient Innovative Congestion-Aware Network-on-Chip," *Journal of Systems Architecture*, Volume 57 Issue 1, Pages 24-38, January, 2011
- j72 A. Hatanaka and N. Bagherzadeh, "A Scheduling Approach for Distributed Resource Architectures with Scarce Communication Resources," *Int. J. High Performance Systems Architecture*, Vol. 3, No. 1, Pages 12-22, 2011
- j73 C. Wang and N. Bagherzadeh, "High-throughput Differentiated Service Provision Router Architecture for Wireless Network-on-Chip," *Int. J. High Performance Systems Architecture*, Vol. 4, No. 1, Pages 38-56, 2012
- j74 F. Bolanos, J. Aedo, F. Rivera, and N. Bagherzadeh, "Mapping and Scheduling in Heterogeneous NoC through Population-Based Incremental Learning," *Journal of Universal Computer Science*, vol. 18, no. 7 (2012), 901-916
- j75 W. Hu, C. Chen, J. Bahn, and N. Bagherzadeh, "Parallel Low-Density Parity Check Decoding on a Network-on-Chip-Based Multiprocessor Platform," *IET Computers & Digital Techniques*, Vol. 6, Issue. 2, pp. 86–94, 2012
- j76 A. Hatanaka and N. Bagherzadeh, "A Software Pipelining Algorithm of Streaming Applications with Low Buffer Requirements," *Transactions D: Computer Science & Engineering and Electrical Engineering*, Vol. 19, No. 3, Pages 627-634, 2012
- j77 H. Abdullah, H. A. Elsadek, H. E. ElDeeb, and N. Bagherzadeh, "Fractional Derivatives Based Scheme for FDTD Modeling of nth-Order Cole–Cole Dispersive Media," *IEEE Antennas and Wireless Propagation Letters*, Vol. 11, Pages 281-284, 2012

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- j78 A. Alhussien, C. Wang, and N. Bagherzadeh, "Design and Evaluation of a High Throughput Robust Router for Network-on-Chip," *IET Computers & Digital Technique*, Vol. 6, Issue. 3, pp. 173–179, 2012
- j79 C. Wang, W. Hu, and N. Bagherzadeh, "A Load-Balanced Congestion-Aware Wireless Network-on-Chip Design for Multi-Core Platforms," *Microprocessors and Microsystems*, Vol. 36, Issue. 7, pp. 555-570, 2012
- j80 S. Azampanah, A. Khademzadeh, N. Bagherzadeh, M. Janidarmian, and R. Shojaee "Contention-Aware Selection Strategy for Application-Specific Network-on-Chip," *IET Computers & Digital Technique*, Vol. 7, Issue. 3, pp. 105-114, 2013
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Professional Associations and Achievements

- Fellow Member, Institute of Electrical and Electronics Engineers (IEEE)
- Member, IEEE Computer Society

Extramural Funding (over 8 million dollars)

- (with Dan Gajski, Lubomir Bic, and Kane Kim), 32 node Intel hypercube, *Information and Computer Science and Engineering (CISE) Research Instrumentation - NSF*, \$187,274, 1990. This equipment is shared with other co-principles to study parallelism.
- (with Jack Sklansky), "Multiprocessor Architecture for Image Processing," \$26,700. A MICRO Research Proposal with Rockwell International, 1990-91.
- (with Alex Nicolau), "Design of a RISC Based Multiprocessor for a Fine-Grain Optimizing Compiler," \$33,900. A MICRO Research Proposal with Northrop Corporation, 1990-91.
- (with Dan Gajski), "Design of a RISC Cluster VLSI Chip," \$120,000. A Western Digital Fellowship in VLSI Systems Engineering; support for two students for two years at \$30,000 per fellow per year (this amount includes a stipend of \$18,000, tuition and fees, \$3,000 for their project, and the remainder for the use of the Electrical and Computer Engineering Department)
- (with Kevin Tsai and Jack Sklansky), "A Hypermesh Architecture for Image Multiprocessing," \$20,000. A MICRO Research Proposal with Rockwell International, 1990-1991.

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- ARMY faculty fellowship, \$10,000, 1990.
- From Sony Corporation for support of advanced computer architecture design, \$30,000, Tokyo, Japan, 1990.
- NASA/ASEE faculty fellowship, \$10,000, 1991.
- From NKK Corporation for support of advanced computer architecture design, \$129,000, Tokyo, Japan, 1991-92.
- "A Quantitative Performance Comparison of a VLIW and Superscalar Architectures," \$30,000, a MICRO Research Proposal with Unitech, 1992-93.
- From Asahi Chemical for support of advanced computer architecture design, \$40,000, 1993-94.
- (with Douglas Blough), Intel MICRO project for iPSC/860 list price (\$265,000) plus cash donation from the state (\$15,000), 1994.
- "Software techniques for improving the efficiency of superscalar microprocessors," (\$25,000 from Unitech Research Inc), (\$11,247 from UC MICRO), 1995.
- (with Fadi Kurdahi), "Digital QAM structures," (\$20,000 from SMC), (\$14,288 from UC MICRO), 1995.
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- (with Fadi Kurdahi), "Dynamically reprogrammable architecture: a new approach to adaptive computing," \$1,182,000 DARPA, 1997-2000.
- (with Fadi Kurdahi), "CISE-NSF-CNPq collaboration research," \$150,000, NSF-CNPq, 1998-2000
- (with Fadi Kurdahi), "Dynamically reprogrammable architecture: a new approach to adaptive computing," \$280,000 DARPA Supplemental Funding, 2000-2001
- (with Pai Chou, Scott Jordan, Fadi Kurdahi, and J.L. Gaudiot-USC), "IMPAC²T: integrated management of power aware computation and communication technologies," \$750, 000, DARPA-ITO, 2000-2002

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- (with Fadi Kurdahi), “Synthesis of mission-specific processors,” \$500,000, NSF-ITR, 2000-2003
 - (with Fadi Kurdahi), “Using low power reconfigurable computing for high-speed and wireless network appliances,” \$200,000, CoRe (with Broadcom), 2000-2002
 - (with Hutchinson, Kuester, Shinozuka, and Warschauer), “Expanding Engineering Thinking: Interactive Visualization of Numerical Models”, \$410,000, NSF, 2002-2005
 - (with Chou), “Mission Aware Power Management,” \$680, 000, DARPA PACC Phase II, 2002-2004
 - “Design and Implementation of Automatic Parallel Detection Layer,”, \$24,000, NSF-INT (Egypt), 2001-2003
 - (with Faryar, Yang, and Bobrow), “ITR-Dev. of Intelligent Infrastructure For Hazard Mitigation,” \$300,000, NSF, 2002-2005.
 - “Development of FDTD Accelerator for 3D Mutual Interaction Between Human Body and Radiation From Wireless Devices,” \$28,500, NSF, 2005-2008
 - “Autonomic and Organic Real-time SoC Design,” €5,000, Bavaria California Technology Center (BaCaTec), 2004-2006
 - “Task Management on a Reconfigurable Architecture,” €10,200, Uuniversidad Complutense, Madrid, 2006-2007
 - “Multicore Computing,” €4,000, Bavaria California Technology Center (BaCaTec), 2008-2009
 - “US-Egypt Cooperative Research: Health Hazards due to Radiation from Mobile Base Stations,” \$50,000, NSF, Office of International Science & Engineering, 2010-2012
 - (with Nilsson, Miller, Detwiler, and Boyraz), “Nuclear Science and Security Consortium: Nuclear Engineering,” \$2,500,000, NNSA, 2011-2016
 - (with Li and Kurdahi), “Plug Load Energy Reporting and Display,” \$49,335, California Energy Resources Conservation and Development Commission, 2013-2014
 - (with Boyraz, Krivorotov, and Nilsson), “Radiation Characterization of STT-RAM Devices,” \$1,050,000, DTRA, 2016-2018; Additional One Year; \$350,000, 2020-2021
 - (with Jaeho Lee), “3D IC Thermal Management Based on TSV Placement Optimization and Novel Materials,” \$270,000, 2017-2020
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