

**James Haralambides**  
**Vita (10/2018)**

**University Address**

Department of Mathematics and Computer Science  
Barry University  
11300 NE 2nd Avenue  
Miami Shores, Florida 33161  
E-mail: [jharalambides@barry.edu](mailto:jharalambides@barry.edu)  
Phone: (305) 899-3286

**RESEARCH INTERESTS**

Embedded Design, Software Development, Applied Graph Theory.

**EDUCATION**

Ph.D. in Computer Science from the University of Texas at Dallas, 1991. Thesis title: "Graph Algorithms with Applications to VLSI Design and Optical Computing". Supervisor: Dr. Fillia Makedon.

M.S. in Computer Science from the University of Texas at Dallas, 1989.

Diploma (B.S., five-year studies) in Computer Engineering and Informatics from the University of Patras, Greece, 1985. Diploma thesis title: "Synchronization and Communication of Processes for a Parallel Simula Machine". Supervisor: Dr. Dimitrios Maritsas.

**HONORS AND AWARDS**

- Certificate of Professional Development, Barry University, 1999 – 2000, 2004 – 5, 2005 – 6, 2007 – 8, 2008 – 9, 2011 – 2, 2014 – 15, 2015 – 16, 2016-2017, and 2017-2018.
- Barry University Professional Development grant to attend the International Conference on Reconfigurable Computing and FPGAs (ReConfig '05), Puebla, Mexico, September 28 – 30, 2006.
- Apple Award, Office of Commuter Affairs, Barry University, academic year 2005 – 6.
- FSE-12 (ACM SIGSOFT 2004/FSE-12), Educator's Grant Program (funded to attend the tutorials on Software Engineering Education), Newport Beach, CA, November 1, 2004.
- Visiting Faculty Research Program, for funded research proposal entitled "3-Dimensional Routing", Air Force Research Laboratories/Information Directorate, Rome, NY, Summer 2004.
- Summer Faculty Program Fellow, National Research Council, The National Academies, for funded research proposal entitled "3-Dimensional Switchbox Routing", Air Force Research Laboratories/Information Directorate, Rome, NY, Summer 2003.
- Academic Excellence Award, academic years 2002 – 3 and 2003 – 4, Barry University.
- FSE-10 (10th International Symposium on the Foundations of Software Engineering/ACM SIGSOFT2002), Educator's Grant Program (funded to attend the tutorials and conference sessions), Charleston, SC, November 18 – 22, 2002.

- PLDI'99 (Programming Languages Design and Implementation) Educators' Grant, Atlanta, GA, May 1 – 4, 1999.
- Professional Achievement Award for the academic years 1992 – 3 and 1993 – 4, Barry University.
- Shapiro Scholarship for research collaboration, Dartmouth College, 1993.
- EDAC (European Design Automation Conference) Student Award for paper presentation, 1991.
- ACM-SIGDA Travel Fellowship Award for research proposal entitled, "Efficient Graph Bisection Algorithms", 1990.
- Texas Instruments Scholarship Award, 1986.
- Texas Hellenic Society Award, 1986.

#### EMPLOYMENT

- 8/06-Present Professor, Department of Mathematics and Computer Science, Barry University.
- 8/98-8/06 Associate Professor, Department of Mathematics and Computer Science, Barry University.
- 8/91-8/98 Assistant Professor, Department of Mathematics and Computer Science, Barry University.
- 1/89-8/91 Teaching Assistant, University of Texas at Dallas (Computer Graphics, Assembly Language, Programming Languages, and Computer Architecture).
- 9/88-12/88 Instructor for the Compilers Design course, University of Texas at Dallas.
- 1/88-8/88 Teaching Assistant, University of Texas at Dallas (Digital Logic, Automata Theory, and VLSI Design).
- 9/87-12/87 Research Assistant, Computer Learning Research Center (CLEAR), University of Texas at Dallas. Assisted in the installation of the VLSI Lab and the development of VLSI Computer Aided Instruction Software.
- 9/86-8/87 Research Assistant, Texas Instruments, Design Automation Division. Designed a Multilayer Initial Router (guaranteed 100% completion of nets).
- 9/85-8/86 Systems Manager (VAX 750/VMS, MicroVAX/Ultrix), Computer Technology Institute (C.T.I.), Patras, Greece.

#### COURSES TAUGHT (IN ALPHABETICAL ORDER)

Applied Cryptography\*, Assembly Language\*, Compiler Design\*, Computer Architecture\*, Computer Graphics\*, Computer Hardware Organization\*, Computer Networks\*, Computer Programming I & II, Concepts of Programming Languages\*, Data Communications, Data Structures and Algorithms, Database Design, Desktop Publishing, Discrete Mathematics, Embedded Multimedia Systems\*, Fundamentals of Programming, Introduction to Computers, Introduction to Multimedia, Interactive Multimedia Systems, Object-Oriented Programming and C++, Operating Systems, Parallel Processing\*, Seminar, Software Engineering, and VLSI Design\*.

\*primary instructor

## **LANGUAGES AND OPERATING SYSTEMS**

Bash, C, Visual C++, C++/CLI, Visual Basic, Java, HTML, CSS, Javascript, Prolog, Lisp, Assembly, FORTRAN, SQL, Lingo

UNIX, Linux, DOS, Windows XP, 7, 8, and 10, Android

## **KNOWLEDGE OF SOFTWARE APPLICATIONS:**

Quartus/Altera (Programmable Logic Device Design), Electronic Workbench/MultiSim (Computer Hardware), Microsoft Access/MySQL (Database Design), Adobe Dreamweaver (Web Design), HTML/CSS (Web Authoring), Adobe Premiere (Audio/Video Processing for Multimedia), Adobe Director (Authorware), Adobe InDesign (Desktop Publishing), Octave (software development, numerical computations), Visual Paradigm (UML, Software Engineering), Wireshark (Computer Networks), Xilinx ISE Design Suite (Embedded Design), Netbeans and Android Studio (Integrated Development Environments), etc.

## **IMPLEMENTATION, ORGANIZATION, AND OPERATION OF THE FOLLOWING LABS:**

Embedded Systems Lab (Xilinx ISE Design, Spartan 3E, Spartan 6, Virtex 5 development boards, and peripheral modules)

Computer Architecture and Digital Design Lab (Digital Trainers, Multisim, Xilinx ISE Webpack)

## **REFEREEING IN JOURNALS, CONFERENCES, AND BOOKS**

- Book review for book entitled: "Cryptography and Network Security", by William Stallings, Sixth Edition, Prentice Hall/Pearson, 2015.
- Joint IAPR International Workshops on Structural and Syntactic Pattern Recognition (S+SSPR 2008) and Statistical Techniques in Pattern Recognition (SPR 2008).
- Hawaii International Conference on System Sciences (HICSS-38, 2004, HICSS-39, 2005, HICSS-40, 2006, HICSS-41, 2007).
- 40th Southeastern Symposium on Systems Theory, 2007.
- Book review for book entitled: "Computer Organization and Assembly Language for Intel Processors", submitted for publication to Thomson Course Technology, 2005.
- 44th ACM Southeast Conference, 2005.
- Journal for Discrete and Applied Mathematics, 2003.
- INFORMS Journal on Computing, 2003.
- Parallel Processing Symposium.
- Information Processing Letters.
- Golden West International Conference on Intelligent Systems, 1995.
- Educational Media (ED-MEDIA/ED-TELECOM '96).
- SIAM Journal on Discrete Mathematics.

## **AFFILIATIONS**

- IEEE (Institute of Electronics and Electrical Engineers) member since 1986.

- Member of the Chamber of Engineers of Greece, since 1985.
- Professional license of electrical installations of all specialties and categories, license no. K-221, 1999, Greece.
- Member and Secretary of the Council of the Hellenic Cultural Foundation "Socrates", 1997-8.

#### **PROFESSIONAL ACTIVITIES**

- Administrator of the Faculty Senate Sharepoint site, 2016-8.
- Volunteer judge for the 2018 Miami-Dade County Public Schools Elementary Science Fair, Miami Dade College – North, Miami, FL, February 10, 2018.
- Volunteer judge for the 2018 LSSF STEM Undergraduate Research Symposium, Florida International University, Miami, FL, March 24, 2018.
- Volunteer judge for the 2017 LSSF STEM Undergraduate Research Symposium, Palm Beach State College Gardens Campus, Palm Beach Gardens, FL, April 1, 2017.
- Member of the Faculty Senate, 2016-8.
- Co-Chair of the Communications & Technology Committee, 2016-8.
- Member of the Search Committee, Dept. of Mathematics and Computer Science, Summer I, 2016.
- Volunteer judge for the 2016 LSSF STEM Undergraduate Research Symposium, Broward Community College North Campus, Coconut Creek, FL, April 2, 2016.
- Judge for the South Florida Regional Science and Engineering Fair (SFRSEF), STEM Expo, Miami, FL, February 6, 2016.
- Judge for the 2015 LSSF STEM Undergraduate Research Symposium, Indian River State College, Port Saint Lucie, FL, April 4, 2015.
- Judge for the 7th STEM Annual Symposium, Barry University, Florida, April 16, 2015.
- Judge for the South Florida Regional Science and Engineering Fair (SFRSEF), STEM Expo, Miami, FL, February 7, 2015.
- Judge for the 2014 LSSF STEM Undergraduate Research Symposium at Florida International University, Miami, FL, April 12, 2014.
- Judge for the Miami Dade STEM Expo's 60th South Florida Regional Science and Engineering Fair, Miami, FL, January 25, 2014.
- Member of the Arts and Sciences Council, 2014-16.
- Member of the Faculty Welfare Committee, Barry University, 2009-16. Liaison for the Faculty Compensation plan (2009-15).
- Judge for the 2012 Future City Competition Regionals (South Region), Miami, FL, January 21, 2012.
- Elected Member of the Rank and Promotion Committee, 2008-9.
- Member of the Master of Arts in Liberal Studies Coordinating Committee, 2008-9.
- Member of the Communications and Technology Committee, Barry University, 2006-7 and 2007-8.
- Session Chair for the 2005 International Conference on Scientific Computing, CSC 2005.
- Member of the General Education/Distribution Requirements Curriculum Committee, Barry University, 2004-5, and 2005-6.
- Member of the Ethics Committee, Barry University, 2002-3 and 2003 – 4.
- Communiqué Liaison, Dept. of Mathematics and Computer Science, Barry University, 2002-3, 2003-4, and 2004-5.
- Member of the Information Technology Advisory Council, Barry University, 1998-9.
- Silver Knights Awards Judge for the years 1996, 1997, 1998, and 1999.

- Member of the Academic Affairs Committee, Barry University, 1997-8.
- Member of the Academic Computer Advisory Council, Barry University, 1994-5 and 1995-6.
- ED-MEDIA/ED-TELECOM '96 Program Committee Member, 1996.
- Session Chair for the Golden West International Conference on Intelligent Systems, 1994.
- Member of the Computer Science Faculty Search Committee, Department of Mathematics and Computer Science, Barry University, 1992-3 and 1993-4.
- Member of the Academic Development Committee at Barry University, 1992-3.
- Participant in the Community Laboratory Research Program, 1991-3.
- Participant in the Magnet Program as a teacher, 1992 and 1995.

## **SCHOLARLY AND CREATIVE ACTIVITIES**

### **Externally Funded Research**

#### **Proposals funded (federal agencies)**

1. Proposal title: “Collaborative Research: An Integrative Course and Laboratory Research Experience: Embedded Multimedia Applications on FPGAs”, submitted May 2008 to NSF (National Science Foundation). Funded for the amount of \$47,753, February 2009. The project was active for academic years 2009 – 10, 2010 – 11, and 2011 – 2012 (one year no-cost extension). Course CS-412 (Embedded Multimedia Systems) is approved and taught as part of the project.
2. Proposal title: “Multi-level 3-Dimensional Placement and Routing”, Visiting Research Faculty Program”, Air Force Research Laboratories/Information Directorate, submitted November 2003. Funded for the amount of \$11,600 (plus living expenses). Research was carried at the Air Force Research Laboratories/Information Directorate, May 10 – July 2, 2004. Software Application and Technical report were produced by the end of the tenure period.
3. Proposal title: “3-Dimensional Switchbox Routing”, Summer Faculty Fellowship Program, National Research Council, The National Academies, Air Force Research Laboratories/Information Directorate, submitted November 2002. Funded for the amount of \$11,600 (plus living expenses). Research was carried at the Air Force Research Laboratories/Information Directorate, May 5 – June 27, 2003. Software Application and Technical report were produced by the end of the tenure period.

#### **Poster Presentations (Undergraduate Research)**

1. “An Automated Advisor Assistant”, with students Kyle Lothian and Ricardo Gomez, 10<sup>th</sup> STEM Annual Symposium, Barry University, FL, April 6, 2018, and 2018 STEM Undergraduate Research Symposium, Florida International University, Miami, FL, March 24, 2018.
2. “A mobile university locator and guide”, with student Jose Gomez, 10<sup>th</sup> STEM Annual Symposium, Barry University, FL, April 6, 2018, and 2018 STEM Undergraduate Research Symposium, Florida International University, Miami, FL, March 24, 2018.
3. “A Mobile Degree-Audit System”, with students Julian Dasilva and Roland Schiller, 9<sup>th</sup> STEM Annual Symposium, Barry University, FL, April 12, 2017, and 2017 LSSF STEM Undergraduate Research Symposium, Palm Beach State College – Gardens Campus, FL, April 1, 2017.

4. "Multimedia Campus Locator", with students Jose Gomez, Alfonso Logrono, and Oliver Bautista, 9<sup>th</sup> STEM Annual Symposium, Barry University, FL, April 12, 2017, and 2017 LSSF STEM Undergraduate Research Symposium, Palm Beach State College – Gardens Campus, FL, April 1, 2017.
5. "Using the Ant Colony Optimization Algorithm to Enhance Blood Vessels in Retinal Images", with students Julian Dasilva and Luis Khawly, 8<sup>th</sup> STEM Annual Symposium, Barry University, FL, March 23, 2016, and 2016 LSSF STEM Undergraduate Research Symposium, Broward Community College North Campus, Coconut Creek, FL, April 2, 2016.
6. "Automated music composition using random segments in the Arabic maqam system", with students Julian Dasilva and Luis Khawly, 8<sup>th</sup> STEM Annual Symposium, Barry University, FL, March 23, 2016.
7. "Plotting for Simple Indefinite Integrals and Composite Functions", with students Alfonso Logrono, Jose Gomez, and Roland Schiller, 8<sup>th</sup> STEM Annual Symposium, Barry University, FL, March 23, 2016.
8. "Embedded Music Composition", with students Julian Dasilva and Luis Khawly, 7<sup>th</sup> STEM Annual Symposium, Barry University, FL, April 16, 2015.
9. "Power consumption comparisons for cryptographic algorithms using symmetric encryption and primality tests for mobile devices", with students Lukas Bijaminas and Hugo Torres, 7<sup>th</sup> STEM Annual Symposium, Barry University, FL, April 16, 2015.
10. "Enhancing Blood Vessels in Retinal Images using Gaussian Filters", with students Aarti Ragoonath and Lukas Bijaminas, 2015 LSSF STEM Undergraduate Research Symposium, Indian River State College, Port Saint Lucie, FL, April 4, 2015.
11. "Embedded Image Steganography", (with Lukas Bijaminas), 2014 LSSF STEM Undergraduate Research Symposium, Florida International University, Miami, FL, and 6<sup>th</sup> STEM Annual Symposium, Barry University, FL, 2014.
12. "Function and Partial Derivative Plotter", (with Aarti Ragoonath, Hussain Allehyani), 2014 LSSF STEM Undergraduate Research Symposium, Florida International University, Miami, FL, and 6<sup>th</sup> STEM Annual Symposium, Barry University, FL, 2014.
13. "An Automated Registration System", (with Ryshawn Butler, Wadner Joseph, Alexis Yohe), 5<sup>th</sup> STEM Annual Symposium, Barry University, FL, 2013.
14. "Function Plotter", (with Aarti Ragoonath, Charles Thompson), 5<sup>th</sup> STEM Annual Symposium, Barry University, FL, 2013.
15. "American Sign Language Pattern Recognition: An Embedded Design Approach", (with Wadner Joseph), 4<sup>th</sup> STEM Annual Symposium, Barry University, FL, 2012.
16. "Dynamic Image Spherization using Programmable Logic", (with Hugo Torres, Reynaldo Pino), 4<sup>th</sup> STEM Annual Symposium, Barry University, FL, 2012.
17. "Embedded Image Processing: Edge Detection on FPGAs", (with Orin Harris, Islande Belizaire, Wadner Joseph), 3<sup>rd</sup> STEM Annual Symposium, Barry University, FL, 2011.
18. "Embedded Sound Processing: Implementing the Echo Effect", 3<sup>rd</sup> STEM Annual Symposium, Barry University, FL, 2011.
19. "Embedded System Design: Synthesizing Music Using Programmable Logic", (with George Burri, Khalil Martin), 3<sup>rd</sup> STEM Annual Symposium, Barry University, FL, 2011.
20. "UML Design for an Automated Registration System", (with Denist Oscar, Valendie Alix, Islande Belizaire), 3<sup>rd</sup> STEM Annual Symposium, Barry University, FL, 2011.

21. "Smart Home: The future of living", (with Danny Levons, Stephen Vickers-Griffiths), 2nd STEM Annual Symposium, Barry University, FL, 2010.
22. "Using FPGAs to Provide Faster Digitally Enhanced Images in Order to Demonstrate a More Efficient Way to Process Images When Compared to Using Software", (with Darnell Henry, Jonathan Fineout), 2nd STEM Annual Symposium, Barry University, FL, 2010.
23. "The role of Embedded Systems in the Modern Automobile", (with George Burri, Khalil Martin), 2nd STEM Annual Symposium, Barry University, FL, 2010.
24. "On Some Bounds for Field Programmable Interconnection Chips", (with Dinesh Bhatia), poster presentation, First International Symposium on FPGAs, Monterey, CA, February, 1995.

## **Publications**

### **Conference Publications**

1. "Reducing DDR Latency for Embedded Image Steganography", (with L. Bijaminas), *International Conference on Embedded Systems and Applications*, ESA'14, Las Vegas, NV, pp. 27 – 31, 2014.
2. "A multilevel, multidimensional undergraduate course and lab experience on embedded multimedia systems", (with D. Charalampidis), *Proceedings of the 43rd ACM Technical Symposium on Computer Science Education*, SIGCSE 2012, Raleigh, NC, USA, pp. 631 – 636, February 29 – March 3, 2012.
3. "A progressive de-skewing technique for document image analysis", (with D. Charalampidis), *Proceedings of the SPIE Defense & Security Symposium, Visual Information Processing*, vol. 6575, Orlando, Florida, April 9 – 13, 2007.
4. "Multilevel Routing for 3-Dimensional Circuits", *Proceedings of the 10th WSEAS International Conference on COMPUTERS*, Athens, Greece, July 13-15, pp. 1224 – 1228, 2006.
5. "Multi-level Graph Bisection and "Cocktail" Matching", Conference on Scientific Computing (CSC'05), Las Vegas, NV, June 20 – 23, 2005.
6. "Bounds for Multi-Terminal Net Implementations on FPICs" (with D. Bhatia), Proceedings of the 4th Canadian Workshop on Field Programmable Devices, CFPD96, pp. 170 – 77, May 1996.
7. "Resource Requirements for Field Programmable Interconnection Chips" (with D. Bhatia), Proceedings of the VLSI Design Conference, VLSI'95, New Delhi, India, pp. 376 – 380, January 1995.
8. "The Problem of Partitioning with Duplications and its Applications" (with S. Tragoudas), Third Golden West International Conference on Intelligent Systems, Las Vegas, Nevada, pp. 905 – 913, June 1994.
9. "Bipartitioning into Overlapping Sets" (with S. Tragoudas), *Journal of Computing and Information*, JCI, CD version, ISSN 1201-8511, Special Edition: Proceedings of the International Conference on Computing and Information, ICCI'94, Peterborough, Canada, pp. 296 – 310, May 1994.
10. "Rip up and Reroute in a Global Visualization System" (with F. Makedon, J. David and D. Bhatia), in the Proc. of the European Robotics and Intelligent Systems Conference, EURISCON'91, [EU 141], Corfu, Greece, June 1991.
11. "Approximation Algorithms for the Bandwidth Minimization Problem for a Large Class of Trees" (with F. Makedon), Proc. of the International Conference on Computing and Information, ICCI'91, Ottawa, Canada, pp. 60 – 66, May 1991.

12. "Iterative Compaction: An Improved Approach to Graph and Circuit Bisection" (with F. Makedon), Proc. of the European Design and Automation Conference, EDAC '91, Amsterdam, Netherlands, pp. 523 – 527, February 1991.
13. "Approximation Algorithms for the Bandwidth Minimization Problem for Caterpillar Graphs" (with F. Makedon and B. Monien), Proc. of the 2nd Parallel and Distributed Processing Conference, PDP'90, Dallas, pp. 301 – 307, December 1990.
14. "Straight Line Mesh and Hypercube Layouts on the Plane" (with A. Simvonis), Proc. of the ISMM International Conference on Parallel and Distributed Computing and Systems, PDCS'90, New York, pp. 1 – 4, October 1990.
15. "Drawing Graphs in the Plane with High Resolution" (with M. Formann, T. Hagerup, M. Kaufmann, F.T. Leighton, A. Simvonis, E. Welzl and G. Woeginger), Proc. of the 31st IEEE Symposium on Foundations of Computer Science, FOCS '90, St. Louis, pp. 86 – 95, October 1990.

### Journal Publications

1. "On Multilevel 3-Dimensional Placement and Routing", WSEAS Transactions on Information Science & Applications, Volume 3, No. 10 , pp. 1940 – 1946, October 2006.
2. "Bounds and Practical Layouts for Field Programmable Interconnection Chips" (with D. Bhatia), IEEE Transactions on VLSI Systems, Vol. 8, No. 3, pp. 346 – 355, 2000.
3. "Bounds, Designs, and Layouts for Multi-Terminal FPIC Architectures" (with D. Bhatia), Integration: the VLSI Journal, Vol. 28, pp. 141 – 156, 1999.
4. "Approximation Algorithms for the Bandwidth Minimization Problem for a Large Class of Trees" (with F. Makedon), Theory of Computing Systems, Vol. 30, pp. 67 – 90, 1997.
5. "Bipartitioning into Overlapping Sets" (with S. Tragoudas), International Journal of Foundations of Computer Science, Vol. 6, No. 1, pp. 67 – 88, 1995.
6. "The Problem of Partitioning with Duplications and its Applications" (with S. Tragoudas), International Journal of Artificial Intelligence Tools, Vol. 3, No. 3, pp. 395 – 405, 1995.
7. "Drawing Graphs in the Plane with High Resolution" (with M. Formann, T. Hagerup, M. Kaufmann, F.T. Leighton, A. Simvonis, E. Welzl and G. Woeginger), SIAM Journal on Computing, Vol. 22, No. 5, pp. 1035 – 1052, 1993.
8. "Bandwidth Minimization: An Approximation Algorithm for Caterpillars" (with F. Makedon and B. Monien), Journal of Mathematical Systems Theory 24, pp. 169 – 177, 1991.

### Technical Reports

1. "Multi-level 3-Dimensional Placement and Routing", Air Force Research Laboratories/Information Directorate, Summer 2004.
2. "3-Dimensional Switchbox Routing", Air Force Research Laboratories/Information Directorate, Summer 2003.
3. "Drawing graphs in the plane with high resolution", M. Formann, T. Hagerup, J. Haralambides, M. Kaufmann, F.T. Leighton, A. Simvonis, E. Welzl, G. Woeginger (1990). Report B 90-10, Mathematik Serie B, Freie Universität Berlin.