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EDUCATION

Rutgers, The State University of New Jersey, New Brunswick, Ph.D. in Computer Science, January, 1989, "Theory and Applications of Free-Space Digital Optical Computing."

Rutgers, The State University of New Jersey, New Brunswick, M.S. in Computer Science, January, 1985, "Techniques for Parallel Numeric and Non-Numeric Algorithm Design in Digital Optics."

The University of Connecticut at Storrs, B.S.E. in Electrical Engineering and Computer Science, May, 1982.

EXPERIENCE

11/2000 - Present **CEO and President, Internet Institute USA.**

As the President and CEO of IIUSA (locations in Arizona and New Jersey), I led the company from its inception in 2000 as an information technology (IT) training support company to a prime contractor with nearly 20 workers. I started the operation by securing venture capital and university partnerships, followed by independent state licensure as a private postsecondary school in Arizona and New Jersey, with courses that lead to college credit through an articulation agreement with the University of Phoenix. As the business evolved, we developed expertise in a niche market covering IT training for the US military. Technologies covered include commercial and tactical switching and telephony, data and call routing, end-to-end terrestrial and satellite communication (including line-of-sight and tropospheric scatter), multiplexing (aggregation of local networks onto trunk lines), Cisco and Microsoft technologies, security, and supporting communication assets. I hold the most responsible position in acquiring and managing over $2.5M in government contracts.

7/1998 - 5/2002 **Director, Rutgers University Internet Institute, Rutgers University, New Brunswick, New Jersey**

As the primary founder and Director of the Rutgers University Internet Institute, I created an extensive continuing education enterprise in information technology. I created curricula and all business and technology aspects of a high-tech startup operating within a state university, with a regular staff of 10 that reported to me directly, and an additional staff of 40 part-time instructors and other staff that reported to me through my regular staff.

7/1989 - 6/2000 **Research Assistant Professor / Lecturer, Department of Computer Science, Rutgers University, New Brunswick, New Jersey**

Performed research in computer architecture, networking, and digital optical

computing. I held the most responsible position in acquiring and managing nearly $2.5M in government grants and contracts for which I served as the principal investigator. Authored dozens of peer reviewed journal publications, conference proceedings, and computing textbooks relating to computer architecture, free-space optical interconnects, processor-to-memory concepts, and digital design. Taught undergraduate and graduate courses in computer science. Served as research advisor to numerous graduate and undergraduate students.

2/1984 - 10/1989 **Member of Technical Staff, AT&T Bell Labs, Holmdel, New Jersey**

Performed research in computer architecture, digital optical computing, and networking. Developed a digital design methodology using regularized interconnection patterns at the gate and component levels (perfect shuffles interconnecting seas of gates.) Reported on research work in several professional publications (journals, conference proceedings, books and book chapters, patent disclosures.)

5/1982 - 2/1984 **Senior Technical Associate, AT&T Bell Labs, Holmdel, New Jersey**

Performed research in computer vision and parallel processing.

TEACHING COMPETENCIES

• Computer architecture
• Computer programming (Java, C, Perl)
• Operating systems (Unix / Windows / MacOS)
• Computer networks
• Cisco routing and switching (Cisco Certified Network Associate - CCNA)
• CompTIA A+ and Network+
• Promina / IDNX
• End-to-end overview of military communication assets and capabilities: Redcom IGX telephone switch, Promina multiplexer, KIV-7/KIV-19 encryption units, Pairgain DSL modem, media converters, Canoga Perkins fiber optic modem, Truetime GPS timing receiver, TACSAT, Tropo, LOS, TSSR, Single Shelter Switch, CV2048/8448 line drivers, servers, routers, firewalls.

CERTIFICATIONS

• Cisco Certified Network Associate (CCNA)
• CompTIA A+
• CompTIA Network+

PROFESSIONAL STATEMENT

As the President and CEO of IIUSA, I led the company from its inception in 2000 as an IT training support company to a thriving operation with nearly 20 workers. I started the operation by securing venture capital and university partnerships, followed by independent state licensure as a private postsecondary school in Arizona and New Jersey,

with courses that lead to college credit through an articulation agreement with the University of Phoenix. As the business evolved, we developed expertise in a niche market covering information technology training for the US military. Technologies specific to the military include tactical switching and telephony, data and call routing, end-to-end terrestrial and satellite communication (including line-of-sight and tropospheric scatter), multiplexing (aggregation of local networks onto trunk lines), Cisco and Microsoft technologies, security, and supporting communication assets.

Previously, I served as a computer science professor at Rutgers University (1989 - 2002), and as a research scientist at AT&T Bell Laboratories (1982 - 1989) working on advanced networking, computer architecture, and digital optical computing. My research in design methods for gate-level digital optical computing and network switching resulted in the seminal work *A Digital Design Methodology for Optical Computing*, (Miles Murdocca), The MIT Press, (1990). This background in forward looking computer architecture and networking supported my expertise as a researcher and as an IT training manager at both Rutgers University and IIUSA for the past several years.

As the primary founder and Director of the Rutgers University Internet Institute, I created an extensive continuing education enterprise in information technology. I created curricula and all business and technology aspects of a high-tech startup operating within a state university, with a regular staff of 10 that reported to me directly, and an additional staff of 40 part-time instructors and other staff that reported to me through my regular staff.

I am an accomplished author of college textbooks in computer science and engineering, including *Computer Architecture and Organization: An Integrated Approach*, (Miles Murdocca and Vincent Heuring), John Wiley & Sons (2006, in production) and *Principles of Computer Architecture* (Miles Murdocca and Vincent Heuring), Prentice Hall (2000). I am the author of dozens of professional papers and patents relating to information technology, as well as other books and articles. I teach college level computer architecture, networking, and programming, industry certification courses in computer technology and networking, and military training courses covering these topics and specialized technologies such as Promina multiplexing.

PUBLICATIONS – Books and Book Chapters

Murdocca, M. J. and V. P. Heuring, *Computer Architecture and Organization: An Integrated Approach*, John Wiley & Sons, (2006, in production). This is an undergraduate textbook for computer science majors.

Murdocca, M. J. and V. P. Heuring, *Principles of Computer Architecture*, Prentice Hall, (2000). This is an undergraduate textbook for computer science majors.

Murdocca, M. J., *Digital Logic*, Appendix A in *Computer Systems Design and Architecture*, V. Heuring and H. Jordan, Addison Wesley Longman, (1997). This is an undergraduate textbook for computer engineering majors.

Smith, D., M. J. Murdocca, and T. W. Stone, "Parallel Optical Interconnection," Chapter 8 in *Optical Computing Hardware*, edited by J. Jahns and S. Lee, pp. 193-226, Academic Press, (1994).

Murdocca, M. J., V. Gupta, and M. Majidi, "New Approaches to Digital Optical Computing Using Parallel Optical Array Logic," Chapter 8 in *Photonics in Switching*, vol. I, J. Midwinter, ed., Academic Press, pp. 195-223, (1993).

Murdocca, M. J., *A Digital Design Methodology for Optical Computing*, The MIT Press, (1990). This is a monograph covering free-space interconnection of optical logic devices.

PUBLICATIONS – Selected Journals, Conference Proceedings, and Patents

Murdocca, M. J. and V. P. Heuring, "Computer Memory," article in: *Encyclopedia of Computer Science*, 4/e, van Nostrand Reinhold, (1999).

Murdocca, M. J., R. V. Batchu, and M. Dennison, "Architectural Evaluation of Beam-Steered Shuffle Optical Interconnect," SPIE *10th Annual International AeroSense Symposium*, vol. 2749, (Apr. 1996).

Battiato, J. M., T. W. Stone, M. J. Murdocca, R. J. Bussjager, and P. R. Cook, "Free-Space Optical System Based on Vertical Cavity Surface-Emitting Lasers and Self-Electro-Optic Effect Devices," SPIE *10th Annual International AeroSense Symposium*, vol. 2749, (Apr. 1996).

Nahata, H. R. and M. Murdocca, "Decomposition of Two-Dimensional Microlaser Patterns," *Applied Optics*, vol. 35, (Mar. 10, 1996).

Murdocca, M., H. R. Nahata, and Y. Zhou, "Small Depth Beam-Steered Optical Interconnect," Proceedings of the Second International Conference on *Massively Parallel Processing using Optical Interconnects (MPPOI) '95*, San Antonio, pp. 50-56, (Oct. 1995).

Nahata, H. R. and M. Murdocca, "Decomposition Method for Matrix Addressable Microlaser Arrays," in *Optical Computing*, vol. 10, 1995 OSA Technical Digest Series, (Optical Society of America, Washington, DC, 1995), Salt Lake City, pp. 26-28.

Deatz, G. and M. Murdocca, "Organization for a Parallel Optical Memory Interface," in *Optical Computing*, vol. 10, 1995 OSA Technical Digest Series, (Optical Society of America, Washington, DC, 1995), Salt Lake City, pp. 80-82.

Murdocca, M., J. Battiato, D. Berger, R. Bussjager, P. Cook, H. R. Nahata, and T. Stone, "Reconfigurable Architecture Based on Selective Enabling of Microlasers," *International Journal of Optoelectronics*, vol. 9, no. 5, pp. 415-424, (1994).

Murdocca, M., H. R. Nahata, and Y. Zhou, "Control Strategy for an Optically Reconfigurable Architecture," in *Optical Computing*, Institute of Physics Conference Series, no. 139, pp. 79-82. This paper was presented with a two-page summary at the International Commission for Optics *Optical Computing '94* conference, Edinburgh, August 22-25, (1994).

Butrym, A., N. Craft, D. Guise, M. Murdocca, and F. Sauer, "A Model for a Reconfigurable Fine-Grained Optoelectronic Processor," Proceedings of the *International Parallel Processing Symposium '94 - Massively Parallel Processing Using Optical Interconnects*, Cancun, IEEE Computer Society Press, May 1994, pp. 19-26.

Murdocca, M., "A Case for All-Optical Digital Computing," in *Optical Computing Technical Digest, 1993*, (Optical Society of America, Washington, D. C., 1993), Palm Springs, vol. 7, pp. 309-312.

Murdocca, M. J., and V. Gupta, "Architectural Implications of Reconfigurable Optical Interconnects," *Journal of Parallel and Distributed Computing*, vol 17, no. 3, pp. 200-211, (Mar. 1993).

Prise, M. E., N. C. Craft, M. M. Downs, R. E. LaMarche, L. A. D'Asaro, L. M. F. Chirovsky, and M. J. Murdocca, "An Optical Digital Processor Using Arrays of Symmetric Self-Electrooptic Effect Devices," *Applied Optics*, **30**, no. 17, pp. 2287-2296, (Jun. 10, 1991).

Jahns, J., and M. J. Murdocca, "Optical Crossover Network," U. S. Patent #4,917,456, (Apr. 17, 1990).

Murdocca, M. J., "Digital Optical Computing: Some Advances," *The International Journal of Optoelectronics,* **5**, no. 2, pp. 191-205, (Mar. 1990).

Murdocca, M. J., "Connection Routing for Microoptic Systems," *Applied Optics*, **29**, no. 8, pp. 1106-1110, (Mar. 10, 1990).

Streibl, N., K.-H. Brenner, A. Huang, J. Jahns, J. Jewell, A. W. Lohmann, D. A. B. Miller, M. J. Murdocca, M. E. Prise, and T. Sizer, "Digital Optical Technologies," *Proceedings of the IEEE*, **77**, pp. 1954-1969, (Dec. 1989).

Murdocca, M. J., and T. J. Cloonan, "Optical Design of a Digital Switch," *Applied Optics*, **28**, pp. 2205-2517, (Jul. 1, 1989).

Murdocca, M. J., and B. Sugla, "Design for an Optical Random Access Memory," *Applied Optics*, **28**, pp. 182-188, (Jan. 1, 1989).

Jahns, J., and M. J. Murdocca, "Crossover Networks and their Optical Implementation,"

Applied Optics, **27**, pp. 3155-3160, (Aug. 1, 1988).

Murdocca, M. J., A. Huang, J. Jahns, and N. Streibl, "Optical Design of Programmable Logic Arrays," *Applied Optics*, **27**, pp. 1651-1660, (May 1, 1988).

Murdocca, M. J., "Digital Optical Computing with One-Rule Cellular Automata," *Applied Optics*, **26**, pp. 682-688, (Feb. 15, 1987).

(22 additional publications omitted)

OTHER PROFESSIONAL ACTIVITIES

Program committee member for: *SPIE Conference on Parallel and Distributed Methods for Image Processing II*, San Diego, July 20-21, 1998.

Member of program committee, *Massively Parallel Processing using Optical Interconnects (MPPOI) '95*, San Antonio, Texas, October 23-24, 1995.

Panel member for session entitled "Opto-Electronic Processing and Networking in Massively Parallel Processing Systems," *MPPOI '95*, San Antonio, Texas, October 23-24, 1995.

Served on NSF review panel for the HPCC Multidisciplinary Program, July, 1995.

Member of program committee, Optical Society of America *Topical Meeting on Optical Computing*, Salt Lake City, April, 1995.

Served on NSF/ECS CAREER review panel, January, 1995.

Co-guest editor (with Harry Jordan, Univ. Colorado at Boulder, Depts. of ECE and CS) of the Nov. 1994 special issue of *Proceedings of the IEEE* on Optical Computing Systems.

Member of program committee, *International Parallel Processing Symposium (IPPS) - MPPOI '94*, Cancun, Mexico, April, 1994.

Co-organizer (with Michael Prise of AT&T Bell Labs, and Alan Craig of AFOSR) of a workshop on Optical Computing Architectures held in Vail, Colorado, in January, 1991.