

VLAD C. CARDEI, Ph.D.

1003 Quadling Ave.
Coquitlam, BC, V3K 2A9, Canada
Phone: (604) 939-6945
E-mail: vcardei@cs.sfu.ca
URL: <http://www.geocities.com/vcardei>

Career Goals / Research Interests

I am interested in a career in applied R&D, where I can use my knowledge and my imagination to design and develop new technologies and products. My research interests are in the fields of computer vision, sensors, digital imaging and neural networks. Current research is in machine vision, image enhancement for robotic vision, digital imaging, image restoration, remote sensing and sensors. Other research areas I am interested in are natural language processing (semantic representations using neural networks) and hardware design.

Education

- ♦ **Sept. 1995 – Jan. 2000:** Simon Fraser University, Dept. of Computing Science; Ph.D. in Computer Science. Thesis Title: “*A Neural Network Approach to Color Constancy*”.
- ♦ **Sept. 1988 – July 1993:** Polytechnic University of Bucharest, Faculty of Control Engineering and Computer Science, Software Department; degree obtained: M.Sc. Thesis title: “*Optical Character Recognition System, using Neural Networks*”.

Experience

- ♦ **July 1999 – present:** *Vision Research Scientist*, International Submarine Engineering, Port Coquitlam, BC, Canada.
 - ♦ Together with a team from HR Textron and Textron Systems, I designed, implemented and tested real-time image processing algorithms for the vision system used in Smart Pump automated car refueling gas stations (built for Shell Oil). The vision system is responsible for computing the position of the car in the bay and for locating the fuel door. The algorithms that I implemented improved the reliability of the vision system in outdoor environments, with uncontrolled lighting conditions.
 - ♦ As part of a team at ISE, I helped design and implement a real-time stereo vision system for an automatic fueling robot for assembly lines. The vision system locates and tracks the fuel stem of cars on the assembly line, and provides real-time positioning feedback to the control system.
- ♦ **1996 – July 1999:** *Doctoral Research*. Computational Vision Lab, Simon Fraser University. Supervisory committee: Dr. Brian Funt and Dr. Bob Hadley.
 - ♦ Research in machine vision, digital photography, neural network approaches to color correction, image restoration, sensors and calibration techniques.
- ♦ **1996:** *Graduate Research Assistant*. School of Computing Science. Simon Fraser University.
 - ♦ Designed a neural network for language acquisition from sparse input with no error feedback.
 - ♦ Designed a neural network for semantic micro-feature prediction.
- ♦ **1995–1996:** *Teaching Assistant*. School of Computing Science. Simon Fraser University.

- ♦ CPTM-201 (Data Structures) and CMPT-384 (Symbolic Computation).
- ♦ **1994–1995: *Systems Engineer***. CDT Consulting, Ltd. (a Romanian based company). Full-time.
 - ♦ Designed and implemented a data acquisition and processing system for civil engineering that provides structural analysis under various static and dynamic scenarios (e.g. earthquakes)
- ♦ **1993–1994: *Executive Manager***. Gemeni, Ltd. (a Romanian-Swiss company). Full-time.
 - ♦ Managed the day-to-day operations of the company.
- ♦ **1991–1993: *GIS analyst*** (contract work).
 - ♦ The beneficiary of the projects was France Telecom. The contracts included image vectorization and software development, in AutoLISP, for the AutoCAD environment. The software covered two main areas, one regarding a database interface for the vectorized elements and one regarding automatic image registration and other plug-ins.
- ♦ **1991–1993: *Database Developer***. (contract work).
 - ♦ Contracts included various relational database applications, written in FoxPro.
- ♦ **1991-1993: *Desktop Publisher and Graphic Designer***. (contract work).
 - ♦ DTP, technical editing and graphic design for *Paideia Publishing House*.

U.S. Patents

- ♦ **Method of Estimating the Illuminant Chromaticity Using Neural Networks**. Co-inventors: Brian Funt, Vlad C. Cardei and Kobus Barnard, **U.S. Patent 5,907,629**.
- ♦ **Fully Programmable Priority Encoder**. Co-inventors: Vlad C. Cardei and Slawomir Pilarski. U.S. provisional patent application filed.

Programming Skills

- ♦ Extensive programming experience (more than 15 years; four national programming awards) with C/C++ (including Visual C++), Pascal, LISP, Fortran, Matlab, assembly languages for various architectures (Intel, IBM360, Zylog, etc.). Experience with various operating systems, including WinNT, Unix, QNX, etc. Experience with OOP, using Visual C++ (including MFC).

Professional Activities

- ♦ Reviewer for *IEEE Transactions on Image Processing*
- ♦ Reviewer for *CVPR'99 (Computer Vision and Pattern Recognition)*
- ♦ Reviewer for *ICANN'99 (Intl. Conf. on Artificial Neural Networks)*
- ♦ Member of the B.C. Advanced Studies Institute Graduate Student Advisory Committee (1997-1999)

Affiliations

- ♦ IEEE (*The Institute of Electrical and Electronics Engineers*)
- ♦ IEEE Computer Society
- ♦ IS&T (*The Society for Imaging Science and Technology*)

Scholarships/Fellowships

- ◆ NSERC (National Sciences and Engineering Research Council) PGS-B Scholarship (1998-2000)
- ◆ SFU President's Ph.D. Research Stipend (Summer 1999)
- ◆ Robar Industries Limited Graduate Scholarship in Expert Systems (Spring 1999)
- ◆ Westak Int'l Sales Inc. Graduate Scholarship in Expert Systems (Spring 1999)
- ◆ Clark, Wilson Graduate Scholarship in Expert Systems (Spring 1999)
- ◆ SFU (Simon Fraser University) Graduate Fellowship (Summer 1998)
- ◆ Ralph M. Howatt Family Graduate Scholarship in Expert Systems (Spring 1998)
- ◆ Century 21 Charlwood Family Graduate Scholarship in Expert Systems (Spring 1998)
- ◆ FAS (Faculty of Applied Sciences) Graduate Fellowship (Fall 1997)
- ◆ SFU (Simon Fraser University) Graduate Fellowship (Summer 1997)
- ◆ Deskin Sales Graduate Scholarship in Expert Systems (Spring 1997)
- ◆ Ladner Downs Graduate Scholarship in Expert Systems (Spring 1997)

Publications – Journals & Books

- ◆ Vlad C. Cardei and Brian Funt, "Color Correcting Uncalibrated Digital Images," *J. of Imaging Science and Technology*, Invited Paper. In press.
- ◆ Brian Funt and Vlad C. Cardei, "Computational Uses of Colour", in *Vancouver Studies in Cognitive Science, Vol 9: Color Perception*, Ed. Steven Davis, Oxford Univ. Press, 1999.
- ◆ Bob Hadley and Vlad C. Cardei, "Language Acquisition from Sparse Input and No Error Feedback," *Neural Networks* (12)2, Elsevier Science, pp. 217-235, 1999.

Publications – Conference Proceedings & Technical Reports

- ◆ Vlad C. Cardei and Brian Funt, "Committee-Based Color Constancy," *Proc. IS&T/SID Seventh Color Imaging Conf.*, pp.311-313, Scottsdale, Nov. 1999.
- ◆ Vlad C. Cardei, Brian Funt and Kobus Barnard, "White Point Estimation for Uncalibrated Images," *Proc. IS&T/SID Seventh Color Imaging Conf.*, pp.97-100, Scottsdale, Nov. 1999.
- ◆ Vlad C. Cardei, Brian Funt and Michael Brockington, "Issues in Color Correcting Digital Images of Unknown Origin", *CSCS 12*, Bucharest, Romania, May 26-29, 1999.
- ◆ Vlad C. Cardei, "From Dichromatic to Trichromatic Images; Implications for Image Recovery and Visualization", *PICS' 99*, Savannah, Georgia, April 25-28, 1999.
- ◆ Brian Funt and Vlad C. Cardei, "Bootstrapping Color Constancy," *Proc. SPIE Vol. 3644, pp.421-428, Human Vision and Electronic Imaging IV, B.E. Rogowitz and T.N. Pappas; Eds.*, May 1999.
- ◆ Vlad C. Cardei, Brian Funt and Kobus Barnard, "Adaptive Illuminant Estimation Using Neural Networks," *ICANN'98*, Skövde, Sweden, Sept. 2-4, 1998.
- ◆ Robert F. Hadley, Dirk Arnold and Vlad C. Cardei, "Syntactic Systematicity Arising from Semantic Predictions in a Hebbian-Competitive Network," *Proc. of the Twentieth Annual Conf. of the Cognitive Science Society*, Madison, Wisconsin: Lawrence Erlbaum Associates, Publ., 1998.
- ◆ Robert F. Hadley and Vlad C. Cardei, "Acquisition of the Active-Passive Distinction from Sparse Input and No Error Feedback," *Conf. on Computational Psycholinguistics*, Berkeley, August 10-12, 1997.

- ♦ Vlad C. Cardei, Brian Funt, Kobus Barnard, “Modeling Color Constancy with Neural Networks,” *Proc. Int. Conf. on Vision, Recognition, Action: Neural Models of Mind and Machine*, Boston, May 29-31, 1997.
- ♦ Brian Funt, Vlad C. Cardei, Kobus Barnard, “Neural Network Color Constancy and Specular Reflecting Surfaces,” *AIC Color '97*, Kyoto, Japan, May 25-30, 1997.
- ♦ Brian Funt, Kobus Barnard, Michael Brockington, Vlad C. Cardei, “Luminance-Based Multi-Scale Retinex,” *AIC Color '97*, Kyoto, Japan, May 25-30, 1997.
- ♦ Brian Funt, Vlad C. Cardei, Kobus Barnard, “Learning Color Constancy,” *Proc. IS&T/SID Fourth Color Imaging Conf.*, Scottsdale, Nov. 19-22, 1996.
- ♦ Robert F. Hadley and Vlad C. Cardei, “Acquisition of the Active-Passive Distinction from Sparse Input and No Error Feedback,” *Technical Report CSS-IS TR97-01*, Simon Fraser University, 1997.
- ♦ Vlad C. Cardei and Robert F. Hadley, “Predicting Semantic Categories Using a Hybrid Neural Network,” *Technical Report CSS-IS TR97-02*, Simon Fraser University, 1997.

Professional awards

- ♦ ASI Excellent Poster Award: “Computers Seeing Colour” (with K. Barnard). (ASI Exchange, Vancouver, 1998).
- ♦ The First Prize for the research theme: “Optical Character Recognition System, using Neural Networks”. (Polytechnic University of Bucharest, 1993).
- ♦ The First Prize for the research theme: “Contributions at the Development of Programs for Determining the Parameters of the Structures of Crystalline Nets” (co-author). (Polytechnic University of Bucharest, 1990).
- ♦ The Special Prize of the Physics Chair for the research theme: “A Database Related to Information about Scientific Research in the Field of Physics of the Materials” (co-author). (Polytechnic University of Bucharest, 1989)
- ♦ Winner of the National Computing Science Competition: Third Prize (1984), Special Prize (1985), First Prize (1986), Third Prize (1987).

References

- ♦ References will be provided upon request.