

Daniel André Vaquero

EDUCATION

- Sep/2006 - present* **PhD Candidate, Computer Science**
University of California, Santa Barbara
Advisor: Dr. Matthew Turk
- Mar/2004 - Apr/2006* **MSc, Computer Science**
University of Sao Paulo, Brazil
Thesis title: Multiresolution Design of Morphological Operators from Examples
Advisor: Dr. Junior Barrera (co-advised with Dr. Roberto Hirata Jr.)
- Feb/2000 - Dec/2003* **BSc, Computer Science (with honors)**
University of Sao Paulo, Brazil
Final project: Fingerprint Verification using Mathematical Morphology
Advisor: Dr. Junior Barrera

PROFESSIONAL EXPERIENCE

- Aug/2009 - present* **Nokia Research Center, Palo Alto, CA**
Research Intern
- Research internship on mobile computational photography, working with the Visual Computing and Ubiquitous Imaging group
- Jul/2008 - Dec/2008* **IBM T. J. Watson Research Center, Hawthorne, NY**
Research / Global Technology Services Intern
- Conducted research and development work with Dr. Rogerio Feris and Dr. Arun Hampapur in the Exploratory Computer Vision Group. Created algorithms for visual surveillance as part of the IBM Smart Surveillance System (SSS), and implemented a video retrieval system using C++, Java and the WebSphere Application Server to automatically search for people in surveillance videos based on attributes such as facial hair type, presence of eyeglasses or sunglasses, baldness, shirt color, etc.
- Jul/2007 - Sep/2007* **Mitsubishi Electric Research Labs, Cambridge, MA**
Visiting Research Intern
- Collaborated with Dr. Ramesh Raskar on active illumination techniques for computer imaging
- Mar/2006 - Aug/2006* **Olympya Software, Brazil**
Researcher
- Created probabilistic models and algorithms for the FutWeb MMOG soccer simulator

Jan/2001 - Feb/2003

Institute of Mathematics and Statistics, University of Sao Paulo, Brazil
Systems Administrator

- Administered the Institute's undergraduate student network, composed of 5 servers and around 60 workstations (all Linux machines) with more than 1000 users. Supported various services, such as: e-mail, Internet connection, web pages, firewall, SSH machine for external connections, web mail, DNS, NIS, web cache proxy, printing system and user support

SCHOLARSHIPS & AWARDS

2009	Finalist for the IBM Research Ph.D. Fellowship
2008	Doctoral Student Travel Grant (to attend CVPR 2008), UC Santa Barbara
2006	Lisa Kaz Graduate Fellowship, UC Santa Barbara
2004	MSc Scholarship, FAPESP (a Brazilian state agency)
2004	Honorable mention received during the IME-USP Commencement Ceremony, awarded to outstanding graduates of the Computer Science Program
2003	Undergraduate Research Scholarship, CNPq (a Brazilian federal agency)

PUBLICATIONS

Conference Publications

D. A. Vaquero, R. S. Feris, D. Tran, L. Brown, A. Hampapur and M. Turk. Attribute-Based People Search in Surveillance Environments. To appear in IEEE Workshop on Applications of Computer Vision (WACV 2009), Snowbird, Utah, December 7-8, 2009. (**selected for oral presentation – acceptance rate 12%**)

D. A. Vaquero, R. Raskar, R. S. Feris and M. Turk. A Projector-Camera Setup for Geometry-Invariant Frequency Demultiplexing. In IEEE Conference on Computer Vision and Pattern Recognition (**CVPR 2009**), Miami, Florida, June 22-24, 2009. (**top conference, highly selective – acceptance rate 383/1464**)

D. A. Vaquero, R. S. Feris, M. Turk and R. Raskar. Characterizing the Shadow Space of Camera-Light Pairs. In IEEE Conference on Computer Vision and Pattern Recognition (**CVPR 2008**), Anchorage, Alaska, June 24-26, 2008. (**top conference, highly selective – acceptance rate 508/1593**)

D. A. Vaquero, J. Barrera and R. Hirata Jr. A Maximum-likelihood Approach for Multiresolution W -operator Design. In XVIII Brazilian Symposium on Computer Graphics and Image Processing (SIBGRAPI 2005), p. 71-78, Natal, Brazil, October 9-12, 2005, IEEE CS Press.

Book Chapters

D. A. Vaquero, R. S. Feris, L. Brown, A. Hampapur and M. Turk. Attribute-Based People Search. To appear in Y. Ma and G. Qian (Eds.), *Intelligent Video Surveillance: Systems and Technology*, Taylor and Francis Group, LLC, 2009.

R. S. Feris, A. Hampapur, Y. Zhai, R. Bobbitt, L. Brown, D. A. Vaquero, Y. Tian, H. Liu and M.-T. Sun. Case Study: IBM Smart Surveillance System. To appear in Y. Ma and G. Qian (Eds.), *Intelligent Video Surveillance: Systems and Technology*, Taylor and Francis Group, LLC, 2009.

Y. Tian, R. S. Feris, L. Brown, D. A. Vaquero, Y. Zhai and A. Hampapur. Multi-Scale People Detection and Motion Analysis for Video Surveillance. To appear in Liang Wang, Li Cheng, and Guoying Zhao, editors. *Machine Learning for Human Motion Analysis: Theory and Practice*, IGI Global, 2009.

Extended Abstracts

D. A. Vaquero, R. S. Feris, L. Brown, A. Hampapur and M. Turk. People Search in Surveillance Videos. To appear in Fourth Graduate Student Workshop on Computing (GSWC 2009), Santa Barbara, California, October 2, 2009. (selected for oral presentation)

D. A. Vaquero, R. Raskar, R. S. Feris and M. Turk. Single-Shot, Geometry-Invariant Shadow Demultiplexing. To appear in Fourth Graduate Student Workshop on Computing (GSWC 2009), Santa Barbara, California, October 2, 2009.

D. A. Vaquero, J. Barrera and R. Hirata Jr. An Entropy Minimization Approach for Designing W -Operators. In Eighth International Symposium on Mathematical Morphology (ISMM 2007), Rio de Janeiro, Brazil, October 10-13, 2007.

D. A. Vaquero and M. Turk. An Analysis of Shadows in Camera-Light Pairs and Its Application to Multiflash Depth Edge Detection. In Second Graduate Student Workshop on Computing (GSWC 2007), Santa Barbara, California, September 28, 2007. (selected for oral presentation)

Posters

D. A. Vaquero and J. Barrera. Fingerprint Verification Using Mathematical Morphology. In 11th International Undergraduate Research Symposium of the University of Sao Paulo (SIICUSP 2003), Sao Carlos, Brazil.

Thesis

D. A. Vaquero. Multiresolution Design of Morphological Operators from Examples. MSc thesis, Institute of Mathematics and Statistics, University of Sao Paulo, Brazil, April 2006.

PATENT DISCLOSURES

Four patent disclosures filed with the IBM T. J. Watson Research Center, currently under evaluation by IBM's IP department.

TEACHING EXPERIENCE

Teaching Assistant, University of California, Santa Barbara

- CS 12 - Programming Methods in C (Fall 2006)
- CS/ECE 181B - Introduction to Computer Vision (Spring 2007)

Guest Lecturer, University of California, Santa Barbara

- CS/ECE 181B - Introduction to Computer Vision (Spring 2007). Title: "Multiflash Imaging and Applications".
- CS/ECE 181B - Introduction to Computer Vision (Winter 2009). Title: "Multiflash Imaging / People Search in Surveillance Videos".

Teaching Assistant, University of Sao Paulo, Brazil

- CCM118 - Computer Science I (2nd semester 2001)
- CCM128 - Computer Science II (1st semester 2002)

PROFESSIONAL ACTIVITIES

Reviewer for computer vision conferences: CVPR, ICCV, ECCV, Face and Gesture Recognition, SIBGRAPI

Reviewer for IEEE Transactions on Circuits and Systems for Video Technology

Student member of the IEEE

INVITED TALKS

July 29, 2009 Nokia Research Center, Palo Alto, CA. Title: “Frequency-Based Shadow Demultiplexing and People Search by Attributes”. Host: Dr. Kari Pulli.

June 28, 2007 University of Sao Paulo, Brazil. Title: “Multiflash Imaging and Applications”. Host: Prof. Roberto Hirata Jr.

VOLUNTEER ACTIVITIES

Jan 15, 2009 **Laguna Blanca High School Visit, Four Eyes Lab, UC Santa Barbara**

- Research presentations for ten students from the Laguna Blanca Senior Science Seminar class

Apr 8, 2008 **LEAPS Visit, Four Eyes Lab, UC Santa Barbara**

- Outreach workshop for local eight grade science classes

2005 - 2006 **IME-USP Computer Vision Lab**

- Administered the Vision Lab computer network, composed of 2 servers and more than 15 workstations. Supported services such as e-mail, Internet connection, web pages, firewall, SSH machine for external connections, DNS, NIS, web cache proxy, printing system and user support
- <http://www.vision.ime.usp.br/>

2001 - 2002 **IME-USP Linux User Group**

- Taught an Introductory Course on Linux to the incoming Computer Science students in 2001
- Organized Linux Install Shows for the Institute’s community

SPECIFIC SKILLS

- General background in Computer Vision, Image Processing, Graphics and Machine Learning. Relevant coursework: Computer Vision and Image Processing, Real-Time Computer Graphics, Pattern Recognition, Shape Analysis, Mathematical Morphology, Speech Recognition, Computational Geometry, Advanced Topics in Computer Vision
- Windows and Linux user-space development: various libraries, editors, compilers, GUIs, and other development tools
- Extensive programming experience in C/C++, Java, MATLAB
- Experience with OpenGL, programmable shaders (NVIDIA Cg), OpenCV, Qt, mobile phone development (maemo)
- Good programming knowledge of Bash and Perl
- Expert-level Unix and Linux system administration skills (Apache, qmail, Squid, NIS, NFS, Bind, djbdns, IPchains/IPtables, etc.)
- Distributed objects and middleware (CORBA, Java RMI, J2EE)