

Rogério Schmidt Feris

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IBM T. J. Watson Research Center
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Current Position

- Full-time Research Scientist at IBM T. J. Watson Research Center, New York
- Affiliate Assistant Professor, University of Washington

Research Area: Computer Vision for Intelligent Video Surveillance

Education

Ph.D. degree in Computer Science 01/2002-08/2006

University of California, Santa Barbara. (GPA: 3.98/4.0)

Thesis title: Detection and analysis of depth discontinuities with lighting and viewpoint variation

Advisor: Dr. Matthew Turk

Thesis Committee: Steve Seitz, Ramesh Raskar, Tobias Hollerer, Yuan-Fang Wang and Matthew Turk

M.S. degree in Computer Science (GPA: 4.0/4.0) 03/1999-05/2001

University of Sao Paulo, Brazil

Thesis title: Efficient real-time face tracking in wavelet subspace
(*Awarded thesis in nationwide competition*)

Advisor: Dr. Roberto Marcondes Cesar Jr.

B.S. degree in Computer Engineering (GPA: 9.4/10.0) 03/1994-12/1998

University of Rio Grande (FURG), Brazil

Awards and Distinctions

- **IBM Outstanding Innovation Achievement Award** – prestigious IBM Research award received for contributions in physical security and video analytics, 2011.
- **6th Plateau Invention Award** – for reaching 20 filed patents, 2011.
- **Far-Reaching Research Award** – competitive grant from IBM Research to pursue research towards building the next-generation camera networks (with Ankur Datta, Lisa Brown, and Rick Kjeldsen), 2010.
- **IBM Outstanding Accomplishment**, Smart Vision Suite (SVS) – internal IBM prize given to our team, 2010.
- **North American Frost & Sullivan Award** for Video Surveillance Software Company of the Year – prize given to IBM in recognition of our work in video surveillance, 2008.

- **IBM Emerging Leader in Multimedia** – I was among eight students selected from top universities by IBM - July 2005.
- **NSF Grant** – I co-wrote with my PhD advisor an NSF proposal **on my thesis topic** which was awarded funding - Detection and Analysis of Discontinuities in Computer Vision – Matthew Turk, Rogerio Feris and Ramesh Raskar, 2005.
- **Best Computer Science MSc Thesis in Brazil – 2nd Prize, 2002** (*Nationwide Competition*). Award received at the Congress of Brazilian Computer Society
- Undergraduate Scientific Awards - Software for Animation of Wave Spectrums in 3D (CIC'97 regional contest – 2nd prize) and Heuristic Search for Best Path Estimation (CRICTE'97 regional contest – 1st prize), 1997
- Nationwide Computer Science competition for high school students – 1st place in the regional phase with software for face sketching from witness descriptions, 1994.

Professional Experience

IBM Watson Research (Research Scientist)

Hawthorne, NY
September 2006 – present

I am one of the key inventors of the IBM Smart Surveillance Solution, a leading-edge camera-based surveillance system with automatic event detection and search capabilities. My work has not only led to high-quality publications, but also significant product impact.

Affiliate Assistant Professor, University of Washington

July 2008 - present

As part of this affiliate faculty appointment, I co-advised Haowei Liu PhD thesis, provided help in the student selection process, and I'm currently co-advising the PhD thesis of Jun Xie.

Adjunct Professor Columbia University

Manhattan, NY
January – May, 2008

I co-taught a graduate course E6998-007 “Automatic Video Surveillance” at Columbia University (Spring Semester, 2008)

IBM Global Technology Services – 2008 Assignment

One-year assignment to IBM Global Technology Services, with the goal of helping the commercialization of the IBM Smart Surveillance Solution.

IBM Watson Research (Internship)

Hawthorne, NY
June - September, 2005

Worked on Darpa EC-ASSIST project (MIT, Georgia Tech, IBM and UC-Irvine). Developed a new method for general object detection using wavelet networks and Adaboost learning.

Mitsubishi Electric Research Labs

Cambridge, MA
June 2003 – Jan 2004

Research intern with Ramesh Raskar. Worked on finding depth discontinuities in real-world scenes (using multi-flash imaging) and gradient domain methods for non-photorealistic rendering.

Microsoft Research

San Francisco CA

June – September, 2001

I'm proud to have worked with Touring Award Jim Gray as my manager during the internship.

Research intern with Jim Gemmell / Kentaro Toyama

Worked with computer vision and graphics in a gaze-aware videoconferencing system. Developed a new method for facial feature localization using hierarchical wavelet networks. **Final Evaluation:** Consistently exceeds all position requirements and expectations. Accomplishments are highly valued and may be well beyond the scope of the position. Demonstrates higher standards of performance excellence relative to individuals with comparable levels of responsibility.

Publications

Book Chapters

- H. Liu, R. S. Feris, and M.T. Sun, "Benchmarking Datasets for Human Activity Recognition", Visual Analysis of Humans – Looking at People, Springer 2011
- H. Liu, M.T. Sun, and R. S. Feris, "Video Activity Recognition", Multimedia Analysis, Processing and Communication, Z. Li, J. Kacprzyk, D. Tao, E. Izquierdo, W. Lin, and H. Wang ed., Springer, 2010.
- R. S. Feris, A. Hampapur, Y. Zhai, R. Bobbitt, L. Brown, D. Vaquero, Y-L. Tian. H. Liu and M-T. Sun, "Case Study: IBM Smart Surveillance System", Intelligent Video Surveillance: Systems and Technology, by Taylor & Francis Group, LLC, 2009.
- Y. Zhai, R. S. Feris, L. Brown, R. Bobbitt, A. Hampapur, S. Pankanti, Q. Fan, A. Yanagawa, Y. Tian, S. Velipasalar, "Composite Event Detection in Multi-Camera and Multi-Sensor Surveillance Networks", Multi-Camera Networks: Concepts and Applications, by Elsevier, 2009.
- Y. Tian, R. S. Feris, L. Brown, D. Vaquero, Y. Zhai and A.Hampapur, "Multi-Scale People Detection and Motion Analysis for Video Surveillance", Machine Learning for Human Motion Analysis: Theory and Practice, IGI Global, 2009.
- D. Vaquero, R. Feris, L. Brown, A. Hampapur and Matthew Turk, "Attribute-based People Search", Intelligent Video Surveillance: Systems and Technology, by Taylor & Francis Group, LLC, 2009.
- Y. Tian, A. Hampapur, L. Brown, R. S. Feris, M. Lu, A. Senior, C. Shu and Y. Zhai. "Event Detection, Query, and Retrieval for Video Surveillance". Artificial Intelligence for Maximizing Content Based Image Retrieval, 2008.
- R. S. Feris, M. Turk, R. Raskar, K. Tan and G. Ohashi. "Recognition of Isolated Fingerspelling Gestures Using Depth Edges". B. Kisanin, V. Pavlovic and T. Huang (eds.), Real-time Vision for Human-Computer Interaction, Springer-Verlag, 2005.

Journal Publications

- R. S. Feris, B. Siddiquie, J. Petterson, Y. Zhai, A. Datta, L. Brown and S. Pankanti, "Large-Scale Vehicle Detection, Indexing, and Search in Urban Surveillance Videos", IEEE Transactions on Multimedia, 2012.
- S. Pankanti, L. Brown, J. Connell, A. Datta, Q. Fan, R. S. Feris, N. Haas, Y. Li, N. Ratha and H. Think, "Practical Computer Vision: Example Techniques and Challenges", IBM Journal of Research and Development, 2011.
- Y. Tian, R. S. Feris, H. Liu, A. Hampapur, and M. Sun. "Robust Detection of Abandoned and Removed Objects in Complex Surveillance Videos". IEEE Transactions on Systems, Man, and Cybernetics--Part C: Applications and Reviews, 2010.
- H. Liu, R. S. Feris, V. Krueger and M.T. Sun. "Unsupervised Action Classification Using Space-Time Link Analysis". Eurasip Journal on Advances in Signal Processing, 2010.
- A. Hampapur et al. "Analytics Driven Asset Management". IBM Smart Cities Journal, 2010.
- R. S. Feris, R. Raskar, L. Chen, K. Tan and M. Turk. "Multi-Flash Stereopsis: Depth Edge Preserving Stereo with Small Baseline Illumination". IEEE Transactions on Pattern Analysis and Machine Intelligence (**PAMI**), vol. 30, no. 1, pp. 147-159, 2008.
- Y. Zana, R. Cesar, R. Feris and M. Turk. "Local Approach for Face Verification in Polar Frequency Domain". Image and Vision Computing Journal, vol. 24, no. 8, pp. 904-913, 2006.
- R. S. Feris, M. Turk, R. Raskar and K. Tan. "Specular Highlights Detection and Reduction with Multi-Flash Photography". International Journal of the Brazilian Computer Society, vol. 1, no. 12, pp. 35-42, 2006.
- Y. Chang, C. Hu, R. S. Feris and M. Turk. "Manifold-Based Analysis of Facial Expressions". Image and Vision Computing Journal, vol.24, no. 6, pp. 605-614, 2006.
- R. Raskar, K. Tan, R. S. Feris, J. Kobler, J. Yu and M. Turk. "Harnessing Real-World Depth Edges with Multi-Flash Imaging". IEEE Computer Graphics and Applications (IEEE CG&A), vol. 25, no. 1, pp. 32-38, January 2005.
- R. S. Feris, V. Krueger and R. Cesar. "A Wavelet Subspace Method for Real-time Face Tracking". Journal of Real-time Imaging, vol. 10, pp. 339-350, 2004.
- R. Raskar, K. Tan, R. S. Feris, J. Yu and M. Turk. "Non-photorealistic Camera: Depth Edge Detection and Stylized Rendering using Multi-Flash Imaging". ACM Transactions on Graphics (**SIGGRAPH 2004**), Vol. 23, Issue 3, August 2004. Also accepted in SIGGRAPH Emergent Technologies, 2004.

Conference Publications

- B. Siddiquie, R. S. Feris and L. Davis. "Image Ranking and Retrieval Based on Multi-Attribute Queries". IEEE Conference on Computer Vision and Pattern Recognition (**CVPR 2011**), **Oral Presentation (3.5% acceptance)**, USA, 2011.

- R. S. Feris, B. Siddiquie, Y. Zhai, J. Petterson, L. Brown and S. Pankanti. "Attribute-based Vehicle Search in Crowded Surveillance Videos". ACM International Conference on Multimedia Retrieval (ICMR 2011), Oral Presentation (16% acceptance), Trento, Italy, 2011.
- A. Datta, R. S. Feris and D. Vaquero. "Hierarchical Ranking of Facial Attributes". IEEE International Conference on Automatic Face and Gesture Recognition (FG 2011), Santa Barbara, California, 2011.
- R. S. Feris, J. Petterson, B. Siddiquie, L. Brown and S. Pankanti. "Large-Scale Vehicle Detection in Challenging Urban Surveillance Environments". Workshop on Applications of Computer Vision (WACV 2011), Kona, Hawaii, 2011.
- H. Liu, R. S. Feris, V. Krueger and M.T. Sun. "Unsupervised Action Classification Using Space-Time Link Analysis". IEEE International Symposium on Circuits and Systems (ISCAS 2010), Paris, France, 2010.
- L. Chen, J. McAuley, R. S. Feris, T. Caetano and M. Turk. "Shape Classification Through Structured Learning of Matching Measures". IEEE Conference on Computer Vision and Pattern Recognition (CVPR'09), Miami, Florida, June 2009
- D. Vaquero, R. Raskar, R. S. Feris and M. Turk. "A Projector-Camera Setup for Geometry-Invariant Frequency Demultiplexing". IEEE Conference on Computer Vision and Pattern Recognition (CVPR'09), Miami, Florida, June 2009
- R. S. Feris, Y. Tian, Y. Zhai and A. Hampapur. "Facial Image Analysis Using Local Feature Adaptation Prior to Learning" IEEE International Conference on Automatic Face and Gesture Recognition, Amsterdam, Netherlands, 2008.
- Y. Tian, R. S. Feris and A. Hampapur, "Real Time Detection of Abandoned and Removed Objects in Complex Environments". IEEE International Workshop on Visual Surveillance, 2008 (in conjunction with ECCV 2008).
- D. Vaquero, R. S. Feris, M. Turk and R. Raskar. "Characterizing the Shadow Space of Camera-Light Pairs". IEEE Conference on Computer Vision and Pattern Recognition (CVPR'08), Anchorage, Alaska, June 2008.
- L. Chen, R. S. Feris, Y. Zhai, L. Brown and A. Hampapur. "An Integrated System for Moving Object Classification in Surveillance Videos", IEEE International Conference on Advanced Video and Signal-Based Surveillance", Santa Fe, New Mexico, September 2008.
- L. Chen, R. S. Feris and M. Turk. "Efficient Partial Shape Matching Using the Smith-Waterman Algorithm". CVPR Workshop on Non-Rigid Shape Analysis and Deformable Image Alignment, Anchorage, Alaska, June 2008.
- A. Hampapur, L. Brown, R. S. Feris, A. Senior, C. Shu, Y. Tian, Y. Zhai and M. Lu, "Searching Surveillance Video". IEEE International Conference on Advanced Video and Signal-Based Surveillance, London, UK, September 2007.
- A. Senior, L. Brown, A. Hampapur, C. Shu, Y. Zhai, R. S. Feris, Y. Tian, S. Borger and C. Carlson, "Video Analytics for Retail: the IBM Smart Surveillance Retail

Solution”. IEEE International Conference on Advanced Video and Signal-Based Surveillance”, London, UK, September 2007.

- R. S. Feris, Y. Tian and A. Hampapur. “Capturing People in Surveillance Video”. IEEE International Workshop on Visual Surveillance, 2007.
- R. S. Feris, R. Raskar and M. Turk. “Dealing with Multi-scale Depth Changes and Motion in Depth Edge Detection”. Proceedings of SIBGRAPI'06 Brazilian Symposium on Computer Graphics and Image Processing, Manaus, Brazil, October 2006. IEEE Computer Society press. **Awarded "One of the Best Image Processing and Computer Vision Papers"**
- H. Guan, J. Chang, L. Chen, R. Feris, and M. Turk. “Multi-view Appearance-based 3D Hand Pose Estimation”. IEEE Workshop on Vision for Human Computer Interaction (in conjunction with CVPR'06), New York, NY, June 2006.
- H. Guan, R. S. Feris and M. Turk. “The Isometric Self-Organizing Map for Hand Pose Estimation”. International Conference on Face and Gesture Recognition, Southampton, UK, 2006.
- R. S. Feris, L. Chen, M. Turk, R. Raskar and K. Tan. “Discontinuity Preserving Stereo with Small Baseline Multi-Flash Illumination”. International Conference on Computer Vision (ICCV'05), - **oral presentation** (4% acceptance), Beijing, China, 2005.
- Y. Zana, R. Cesar, R. S. Feris and M. Turk. “Face Verification in Polar Frequency Domain: a Biologically Motivated Approach”. International Symposium on Visual Computing, Lake Tahoe, NV, 2005.
- R. S. Feris, R. Raskar, K. Tan and M. Turk. “Specular Reflection Reduction with Multi-Flash Imaging”. Proceedings of SIBGRAPI'04 Brazilian Symposium on Computer Graphics and Image Processing, Curitiba, Brazil, October 2004. IEEE Computer Society press – also accepted as a poster in SIGGRAPH 2004.
- R. S. Feris, M. Turk, R. Raskar, K. Tan and G. Ohashi. “Exploiting Depth Discontinuities for Vision-based Fingerspelling Recognition”. IEEE Workshop on Real-Time Vision for Human-Computer Interaction (in conjunction with CVPR'04), Washington DC, USA, June 2004
- K. Tan, J. Kobler, R. S. Feris, P. Dietz and R. Raskar. “Shape Enhanced Surgical Visualizations and Medical Illustrations with Multi-flash Imaging”. International Conference on Medical Imaging Computing and Computer Assisted Intervention (MICCAI'04), Rennes, France 2004.
- C. Hu, Y. Chang, R. S. Feris and M. Turk. “Manifold Based Analysis of Facial Expression”. IEEE Workshop on Face Processing in Video (in conjunction with CVPR'04), Washington DC, USA, June 2004.
- C. Hu, R. S. Feris and M. Turk. “Real-time View-Based Face Alignment Using Active Wavelet Networks”. Workshop on Analysis and Modeling of Faces and

Gestures (in conjunction with ICCV'03), Nice, France, October 2003.

- C. Hu, R. S. Feris and M. Turk. "Active Wavelet Networks for Face Alignment". In Proceedings of British Machine Vision Conference, Norwich, 2003.
- M. Turk, C. Hu, R. S. Feris, F. Lashkari and A. Beall. "TLA Based Face Tracking". In Proceedings of the 15th International Conference on Vision Interfaces, Calgary, Canada, 2002.
- R. S. Feris, J. Gemmell, K. Toyama and V. Krueger. "Hierarchical Wavelet Networks for Facial Feature Localization". International Conference on Automatic Face and Gesture Recognition, Washington D.C., USA, May 20-21, 2002.
- R. S. Feris, V. Krueger and R. M. Cesar Jr. "Efficient Real-Time Face Tracking in Wavelet Subspace". Workshop on Recognition, Analysis and Tracking of Faces and Gestures in Real-Time Systems (in conjunction with ICCV'01), Vancouver, BC, 2001.
- R. S. Feris and R. M. Cesar Jr. "Locating and Tracking Facial Landmarks Using Gabor Wavelet Networks". Lecture Notes in Computer Science, vol. 2013, pp. 311-320. ICAPR'2001 International Conference on Advances in Pattern Recognition, Rio de Janeiro, Brazil, May 2001. The International Association for Pattern Recognition, Springer-Verlag press.
- V. Krueger and R. Feris. "Wavelet Subspace Method for Real-time Face Tracking. Proc. Pattern Recognition", 23rd DAGM Symposium, Munich, Germany 2001.
- R. S. Feris, T. E. Campos and R. M. Cesar Jr. "A Project for Face Recognition from Video Sequences Using GWN and Eigenfeature Selection". In Proceedings of WAICV'2000 Workshop in Artificial Intelligence and Computer Vision, pp. 141-145, Atibaia, Brazil, November 2000.
- R. S. Feris and R. M. Cesar Jr. "Tracking Facial Features Using Gabor Wavelet Networks". In Proceedings of SIBGRAPI'2000 Brazilian Symposium on Computer Graphics and Image Processing, pp. 22-27, Gramado, Brazil, October 2000. IEEE Computer Society press.
- T. E. Campos, R. S. Feris, R. M. Cesar Jr. "Improved Face versus Non-Face Discrimination Using Fourier Descriptors through Feature Selection". In Proc. of SIBGRAPI'2000 Brazilian Symposium on Computer Graphics and Image Processing, pp. 28-35, Gramado, Brazil, October 2000. IEEE Computer Society press.
- R. S. Feris, T. E. Campos, R. M. Cesar Jr. "Detection and Tracking of Facial Features in Video Sequences". Lecture Notes on Artificial Intelligence, vol. 1793, pp. 127-135. Proc. MICAI-2000, Acapulco, Mexico, April 2000. Springer-Verlag press.
- T. E. Campos, R. S. Feris, R. M. Cesar Jr. "Eigenfaces versus Eigeneyes: First Steps Towards Performance Assessment of Representations for Face Recognition". Lecture Notes on Artificial Intelligence, vol. 1793, pp. 193-201. Proceedings of MICAI-2000, Acapulco, Mexico, April 2000. Springer-Verlag press.

- R. S. Feris, W. F. Lages. “Stereo Image Matching Using Correlation and Relaxation Labeling”. IV Congress for Scientific Initiation and Postgraduation at Aeronautics Institute of Technology, pp. 193-199, Sao Jose dos Campos-SP, Brazil, October 1998 (in portuguese).

Theses and Reports

- R. S. Feris. “Detection and Analysis of Depth Discontinuities with Lighting and Viewpoint Variation”, PhD thesis, University of California, Santa Barbara, 2006.
- R. S. Feris, J. Gemmell, K. Toyama and V. Krueger. “Facial Feature Detection using a Hierarchical Wavelet Face Database”. Microsoft Research Technical Report MSR-TR-2002-05, January 2002.
- R. S. Feris, R. Cesar Jr. “Efficient Real-time Face Tracking in Wavelet Subspace”. MSc. thesis, University of Sao Paulo, May 2001. **Awarded as the Second Best Computer Science MSc. Thesis in Brazil (Nationwide Competition, 2002)**

Demos and Posters

- IBM Centennial Demo – Traffic Analysis Using Video Analytics. Lincoln Center, Manhattan, New York 2011.
- R. S. Feris, L. Brown, Q. Fan, A. Datta, S. Pankanti, A. Hampapur, Y. Zhai, R. Bobbitt, R. Kjeldsen, M. Lu, C. Shu, S. Russo and C. Milite, "IBM Smart Surveillance System: Searchable Video Analytics for Urban Environments and Retail Stores". CVPR DEMO, 2010.
- A. Agrawal, V. Branzoi, R. Chellappa, R. S. Feris, R. Raskar, K. Tan and M. Turk. “Depth Edges in Real-Time Using a Multi-Flash Camera”. CVPR DEMO, 2005
- R. Raskar, K. Tan, R. S. Feris, J. Yu and M. Turk. “Non-photorealistic Camera: Automatic Stylization with Multi-Flash Imaging”. SIGGRAPH Emergent Technologies, 2004.
- R. S. Feris, R. Raskar, K. Tan and M. Turk. “Specular Reflection Reduction Using a Multi-Flash Camera”. To appear as a SIGGRAPH poster, 2004.

Patents

- R. Raskar and R. S. Feris, “Stylized Rendering Using a Multi-Flash Camera”. US Patent #7,738,725; Filed in May 2004; Issued in June 2010.
- I have filed **20 patent applications** (pending) and received my 6th Plateau Award

Teaching Experience

Adjunct Professor, Columbia University

- Automatic Video Surveillance, Spring 2008 (Graduate Course)

Teaching Assistant, UC-Santa Barbara

- Introduction to Computer Vision, 2002
- Advanced Computer Graphics, 2002 (Graduate Course)
- Introduction to Artificial Intelligence, 2002

Guest Lecturer for Artificial Intelligence (2002) and 3D User Interfaces (2005)

Professional Activities

- Corporate Relations Chair, IEEE Conference on Automatic Face and Gesture Recognition (FG 2011), Santa Barbara, USA, 2011
- Doctoral Consortium Co-Chair, IEEE Conference on Automatic Face and Gesture Recognition (FG 2011), Santa Barbara, USA, 2011
- **General Co-Chair, First International Workshop on Parts and Attributes** (<http://rogerioferis.com/PartsAndAttributes/>), Crete, Greece, 2010 (in conjunction with ECCV 2010) – with Christoph Lampert, Tiberio Caetano, and David Forsyth.
- Department Intern Coordinator, IBM Research, 2010
- Seminar PIC Coordinator, IBM Research, 2010-2011
- Program Committee Member:
 - 2011 – CVPR, ICCV, WACV
 - 2010 – CVPR, ECCV, VS, ICPR
 - 2009 – CVPR, ICIP, VS, ACCV
 - 2008 – ECCV, AVSS
 - 2007 – CVPR, ICCV, ACCV
- Reviewer for major conferences and journals in computer vision/graphics, including ACM SIGGRAPH, IEEE Transactions on PAMI, Pattern Recognition Letters, IVC Journal, CVIU Journal, CVPR, ICCV, Face and Gesture Recognition, Eurographics, ISMAR, and others.
- Member of committee for selection of the best paper award – International Conference in Image Processing (ICIP 2008)
- Member of the organizing committee for the 2006 and 2007 “IBM Watson Emerging Leaders in Multimedia Workshop”
- Member of the organizing committee of I Workshop on Artificial Intelligence and Computer Vision, 19-22 November 1997, Atibaia, Brazil.

Media Press Coverage

- **CBS News** – starting at minute 7:20 when they show our system:
http://www.youtube.com/watch?v=Nf_PzCfpPug
- **ABC News** - How they put our video analytics to test:
http://abclocal.go.com/wls/story?section=news/special_segments&id=7294108

- **ABC News** - How we helped solving a high-profile suicide case in the city of Chicago: <http://abclocal.go.com/wls/story?section=news/local&id=7154116>
- **ABC News** - Our general video Analytics in the city of Chicago: http://abclocal.go.com/wls/story?section=news/national_world&id=6138580
- **Brazilian Media:** My work was reported in several newspapers, magazines, and television programs, including Jornal do SBT, Ciencia Hoje, TV USP and RBS TV

Management

- Xiaoyu Wang (PhD Student, U. Missouri) – Project: Traffic Analysis for IBM Centennial Demo, 2011.
- Behjat Siddiquie (PhD Student, UMD) – Projects: 1) Image Ranking and Retrieval Using Multi-Attribute Queries and 2) Large-Scale Vehicle Detection, Summer and Fall 2010
- James Petterson (PhD Student, NICTA) – Project: Large-scale feature selection for object detection, Summer 2010
- Ankur Datta (Post-doc, CMU) – Project: Hierarchical Attribute Ranking, 2009.
- Duan Tran (PhD Student, UIUC) – Project: Large Scale Object Classification. IBM Research Intern. Summer and Fall 2008.
- Haowei Liu (PhD Student, UW) – Project: Activity Analysis. IBM Research/GTS Intern. Summer and Fall 2008.
- Daniel Vaquero (PhD Student, UCSB) – Project: People Search. IBM Research/GTS Intern. Summer and Fall 2008.
- Anil Kongara (MS Student. U. Houston) – Project: Cognitec Face Recognition Integration. IBM Developer Intern. Summer and Fall 2008.
- Longbin Chen (PhD Student, UCSB) – Far-field Object Classification, Structured Learning for Shape Classification. IBM Research Intern - Fall and Winter 2007.
- Lisa Capetola and Blanca Cambi (College Interns) – Data Collection for Learning Classifiers, 2007 - 2008.

Invited Talks

- Attribute-based Object Retrieval. Invited talk at ICMR 2011 Practitioner's day, Trento, Italy 2011.
- Searching for People and Vehicles in Urban Environments. City College of New York, May 2010. Host: Yingli Tian
- The IBM Smart Surveillance System. Talk given at Cognitec, Dresden, Germany, September 2008. Host: Roger Kelesoglu
- Person Identification through Search Based on Physical Attributes. IBM Conference on Maturing and Leveraging Biometrics Analytics, 2008.
- The IBM Smart Surveillance System. **University of Washington**, 2007. Host: Linda Shapiro

- Computer Vision for Digital Photography and Smart Surveillance. **Princeton University**, 2007. Host: Fei-Fei Li
- Multi-Flash Photography and Applications. **Kodak Research**, Intelligent Systems Lab, Rochester, NY, 2007. Host: Jiebo Luo
- Detection and Modeling of Depth Discontinuities with Lighting and Viewpoint Variation. **HP Laboratories**, Computer Vision and Graphics group, Palo Alto, CA, 2007. Host: Bruce Culbertson
- Discontinuity Detection and Modeling with Lighting and Viewpoint Variation. **Adobe Advanced Technology Labs**, Seattle, WA, 2006 (also presented at University of Washington). Host: David Salesin
- Detection and Analysis of Depth Discontinuities in Computer Vision. **NASA – Jet Propulsion Laboratory**, 2006. Host: Larry Matthies
- What Can We Do With a Multi-Flash Camera? **IBM T.J. Watson Research**, Hawthorne, NY, 2005. Host: Deepak Turaga (as part of Emerging Leaders in Multimedia Seminar)
- A Wavelet Subspace Method for Real-time Face Tracking. **Microsoft Research, Redmond, WA**, 2001. Host: Kentaro Toyama