Vishnu Naresh Boddeti

CONTACT INFORMATION

CyLab
Carnegie Mellon University
Pittsburgh, PA 15213

412 254 4486
naresh@cmu.edu
vishnu.boddeti.net

RESEARCH INTERESTS

Computer Vision, Machine Learning, Signal Processing and Biometric Recognition

EMPLOYMENT

Carnegie Mellon University, Pittsburgh, USA
Research Staff, CyLab — *February 2015-Present*

EMPLOYMENT

Carnegie Mellon University, Pittsburgh, USA
Postdoctoral Fellow, Robotics Institute — *February 2013-January 2015*

- Supervisor: Prof. Takeo Kanade

Ittiam Systems Pvt. Ltd, Bangalore, India
Summer Intern — *May 2006-July 2006*

EDUCATION

Carnegie Mellon University, Pittsburgh, USA
Ph.D, Electrical and Computer Engineering — *August 2007-December 2012*

- Advisor: Prof. Vijayakumar Bhagavatula

M.S, Electrical and Computer Engineering — *August 2007-May 2009*

- Advisor: Prof. Vijayakumar Bhagavatula

Indian Institute of Technology, Madras, India
BTech, Electrical Engineering — *August 2003-July 2007*

- Advisor: Prof. A N Rajagopalan

JOURNAL PUBLICATIONS

Vishnu Naresh Boddeti and Takeo Kanade, "Explicit Pose, Deformation and Occlusion Modeling for Object Representation," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *Under Review*

Vishnu Naresh Boddeti, Myung-Cheol Roh, Jongju Shin, Takaharu Oguri and Takeo Kanade, "Face Alignment Robust to Pose, Expressions and Occlusions," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *Under Review*

Jonathon M. Smereka, Vishnu Naresh Boddeti and B. V. K. Vijaya Kumar, "Probabilistic Deformation Models for Challenging Periocular Image Verification," *IEEE Transactions on Information Forensics and Security*, 2015 (In Press)

Joseph Fernandez, Vishnu Naresh Boddeti, Andres Rodriguez and B.V.K Vijaya Kumar, "Zero-Aliasing Correlation Filters for Object Recognition," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2015.

Vishnu Naresh Boddeti and B.V.K Vijaya Kumar, "A Framework for Binding and Retrieving Class-Specific Information to and from Image Patterns using Correlation Filters," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Sep 2013.

Andres Rodriguez, Vishnu Naresh Boddeti, B.V.K Vijaya Kumar and Abhijit Mahalanobis, "Maximum Margin Correlation Filter: A New Approach for Simultaneous Localization and Classification," *IEEE Transactions on Image Processing*, Feb 2013.

Vishnu Naresh Boddeti and B.V.K Vijaya Kumar, "Extended Depth of Field Iris Recognition using Unrestored Wavefront-Coded Imagery," *IEEE Transactions on Systems, Man, and Cybernetics - Part A (SMC-A)*, May 2010.

Conference Publications

Jonathon Smereka, Vishnu Naresh Boddeti, Vijayakumar Bhagavatula and Andres Rodriguez, "Stacked Correlation Filters for Biometric Verification," *ICASSP 2016*

Hironori Hattori, Vishnu Naresh Boddeti, Kris Kitani and Takeo Kanade, "Learning Scene-Specific Pedestrian Detectors without Real Data," *CVPR 2015*

Andy Zheng, Vishnu Naresh Boddeti, Kris Kitani and Takeo Kanade, "Face Alignment Refinement," *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2015.

Yair Movshovitz-Attias, Vishnu Naresh Boddeti, Zijun Wei and Yaser Sheikh, "'3D Pose-by-Detection of Vehicles via Discriminatively Reduced Ensembles of Correlation Filters," *British Machine Vision Conference (BMVC)*, 2014.

B. V. K. Vijaya Kumar, Joseph A. Fernandez, Andres Rodriguez and Vishnu Naresh Boddeti, "Recent advances in correlation filter theory and application," Proc. SPIE 9094, Optical Pattern Recognition XXV, May 2014.

Stephen Siena, Vishnu Naresh Boddeti and B. V. K. Vijaya Kumar, "Maximum-Margin Coupled Mappings for Cross-Domain Matching," *Biometrics: Theory, Applications and Systems (BTAS)*, 2013 (oral, **Best Paper Award**).

Vishnu Naresh Boddeti, Takeo Kanade and B. V. K. Vijaya Kumar, "Correlation Filters for Object Alignment," *CVPR 2013*

M. Maruf, Vijayakumar Bhagavatula, Vishnu Naresh Boddeti and Jonathan M. Smereka,"Rank information fusion for challenging ocular recognition," *12th IEEE International Conference on Cognitive Informatics & Cognitive Computing (ICCI*CC), New York City, USA, July 2013.*

Stephen Siena, Vishnu Naresh Boddeti and B. V. K. Vijaya Kumar, "Coupled Marginal Fisher Analysis for Low-resolution Face Recognition," *"What is in a face?" workshop, ECCV 2012*

Ilari Shafer, Kai Ren, Vishnu Naresh Boddeti, Yoshihisa Abe and Christos Faloutos, "RainMon: An Integrated Approach to Mining Bursty Timeseries Monitoring Data," *Proceedings of the 18th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, Beijing, China, 2012*

Arun Ross, Raghavender Jillela, Jonathon M. Smereka, Vishnu Naresh Boddeti, B. V. K. Vijaya Kumar, Ryan Barnard, Xiaofei Hu, Paul Pauca, Robert Plemmons, "Matching Highly Non-Ideal Ocular Images: An Information Fusion Approach," *5th IAPR International Conference on Biometrics*, 2012 (oral).

Vishnu Naresh Boddeti, B.V.K. Vijaya Kumar and Krishnan Ramkumar, "Improved Iris Segmentation Based on Local Texture Statistics," *45th Asilomar Conference on Signals, Systems and Computers*, 2011. (oral, invited paper)

Vishnu Naresh Boddeti, Jonathon Smereka and B.V.K. Vijaya Kumar, "A comparative evaluation of iris and ocular recognition methods on challenging ocular images," *International Joint Conference on Biometrics*, 2011. (oral)

Vishnu Naresh Boddeti, Fei Su and B.V.K. Vijaya Kumar, "A Biometric Key-Binding and Template Protection Framework using Correlation Filters," *Proceedings of the Third International Conference on Advances in Biometrics (ICB)*, pp. 919-929, 2009.

Vishnu Naresh Boddeti and B.V.K. Vijaya Kumar, "Extended Depth of Field Iris Recognition with Correlation Filters," *Biometrics: Theory, Applications and Systems (BTAS)*, 2008. (oral, nominated for best-paper award)

Book Chapters

B.V.K. Vijaya Kumar, Jason Thornton, Marios Savvides, Vishnu Naresh Boddeti and Jonathon M. Smereka, "Application of Bayesian Graphical Models for Iris Recognition," chapter in *Handbook of Statictics Machine Learning (eds. C.R Rao and Venu Govindaraju),* Springer Verlag 2013.

B.V.K. Vijaya Kumar, Jason Thornton, Marios Savvides, Vishnu Naresh Boddeti and Jonathon M. Smereka, "Application of Correlation Filters for Iris Recognition," chapter in *Handbook of Iris Recognition (eds. Kevin Bowyer and Mark Burge),* Springer Verlag, 2013.

Raghavender Jillela, Arun Ross, Vishnu Naresh Boddeti, B. V. K. Vijaya Kumar, Xiaofei Hu, Robert Plemmons, Paul Pauca, "Iris Segmentation Algorithms for Challenging Periocular Images," chapter in *Handbook of Iris Recognition, (eds. K. Bowyer and M. Burge),* Springer Verlag 2013.

Research Talks

- NEC Labs, Cupertino *August 2014*
  A Framework for Robust Fitting of High-Resolution Object Representation Models
- VASC Seminar Series, Carnegie Mellon University *January 2014*
  Correlation Filters: Theory and Applications
- CSE Seminar Series, University of Notre Dame *February 2013*
  Correlation Filters for Biometric Applications
- IBM Research, New Delhi *April 2012*
  Correlation Filters: Theory and Applications
- International Joint Conference on Biometrics, Washington D.C *October 2011*
  A comparative evaluation of iris and ocular recognition methods on challenging ocular images
- Asilomar Conference on Signals, Systems and Computers, Pacific Grove CA *November 2011*
  Improved Iris Segmentation Based on Local Texture Statistics
- Biometrics: Theory, Applications and Systems, Washington D.C *October 2008*
  Extended Depth of Field Iris Recognition with Correlation Filters

Teaching Experience

Teaching Assistant - Digital Signal Processing. *Spring 2009*
Responsibilities include conducting recitations, writing problem solutions and grading exams.
Teaching Assistant - Signals and Systems. *Fall 2009*
Responsibilities include conducting recitations, preparing homeworks, preparing exams, preparing and conducting labs.

Honors and Awards

- Best Paper Award at BTAS 2013
- Doctoral Consortium Fellowship at BTAS 2011
- Dean's Fellowship, Carnegie Mellon University, 2007-2012
- Merit Scholarship, Indian Institute of Technology, Madras, 2003-2007
- Pratibha Scholarship for Outstanding Academic Achievement, Government of Andhra Pradesh, India, 2000-2002

Professional Activities

- *Member:* IEEE
- *Reviewer:*
  - IEEE Signal Processing Letters (SPL)
  - IEEE Transactions on Image Processing (TIP)
  - IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
  - IEEE Transactions on Systems, Man, and Cybernetics - Part A (SMC-A)
  - IEEE Transactions on Systems, Man, and Cybernetics - Part B (SMC-B)
  - International Conference on Biometrics: Theory, Applications and Systems (BTAS)
  - IEEE Conference on Automatic Face and Gesture Recognition
  - International Conference on Biometrics (ICB)

Computer Skills

- Programming: C/C++, Matlab, Python
- Libraries: OpenCV, Eigen, Numerical Python (Numpy, Scipy, CVXOPT etc.)
- Publishing: LaTeX
- Platforms: Various GNU/Linux Distributions, Mac OS X, Microsoft Windows.

Leadership

- *Member:* Org Management Steering Committee at CMU (2011-2012).
- *President:* Indian Graduate Student's Association at CMU (2010-2011).
- *Treasurer:* Indian Graduate Student's Association at CMU (2009-2010).

References

Available on request.