

Pradeep Buddharaju

CONTACT INFORMATION

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University of Houston – Clear Lake
Computer Science and Computer Information Systems
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RESEARCH INTERESTS

I am broadly and equally interested in all aspects of:

- Mobile computing, pervasive gaming, and human computer interaction
- Computational physiology, biomedical image processing and analysis
- Biometrics, machine learning, and computer vision

EDUCATION

University of Houston, Houston, TX
PhD. in Computer Science (*Dec 2007*)
Thesis: Physiology-based Face Recognition
Winner of the **Best PhD Award**, Dept of Computer Science
Advisor: Prof. Ioannis Pavlidis

M.S. in Computer Science (*Dec 2005*)
Thesis: Face Recognition in the Thermal Infrared Spectrum
Advisor: Prof. Ioannis Pavlidis

J.N.T.U, Hyderabad, India
B.Tech in Computer Science (*May 2002*)

- *Aggregate:* 80.66%, First Class with Distinction

WORK EXPERIENCE

Aug 2011–present: Assistant Professor
Department of Computer Science and Computer Information Systems
University of Houston Clear Lake

Sep 2010–Aug 2011: Research Assistant Professor
Department of Computer Science
University of Houston

Jan 2008–Sep 2010: Post Doctoral Fellow
Texas Learning and Computation Center (TLCC)
University of Houston

Summer 2005, 2006, 2007: Research Intern
Honeywell Laboratories, Minneapolis, MN

REFEREED PUBLICATIONS

BOOK CHAPTERS

1. **P. Buddharaju** and I. Pavlidis, "Physiology-based face recognition in the thermal infrared spectrum", in *Biomedical Engineering Handbook, 4th Edition, Medical Infrared Imaging – Principles and Practices*, M. Diakides, J.D. Bronzino, and D.R. Peterson, editors, CRC Press, ch. 18, pp. 1-16, 2013.
2. **P. Buddharaju**, and I. Pavlidis, "Face Recognition Under the Skin", in *Multibiometrics for Human Identification*, B. Bhanu and V. Govindaraju, editors, Cambridge University Press, 2011.
3. T. Bourlai, **P. Buddharaju**, I. Pavlidis, and Barbara Bass, "Methodological advances on pulse measurement through functional imaging", in *Computational Surgery and Dual Training, Advances in Pattern Recognition*, M. Garbey, B.L. Bass, C. Collet, M. de Mathelin, and R. Tran-Son-Tay, editors, pp. 101-121, Springer, 2010.
4. **P. Buddharaju**, I. Pavlidis, and C. Manohar, "Face recognition beyond the visible spectrum", in *Advances in Biometrics: Sensors, Algorithms and Systems*, N.K. Ratha and V. Govindaraju, editors, ch.9, pp. 157-180, Springer, October 2007
5. **P. Buddharaju** and I. Pavlidis, "Physiology-based face recognition in the thermal infrared spectrum", in *Medical Infrared Imaging*, N.A. Diakides and J.D. Bronzino, editors, Taylor and Francis Books, July 2007
6. **P. Buddharaju** and I. Pavlidis, "Multispectral face recognition – fusion of visual imagery with physiological information ", in *Face Biometrics for Personal Identification: Multi-Sensory Multi-Modal Systems*, R.I. Hammoud, B.R. Abidi, and M.A. Abidi, editors, pp. 91-108, Springer, 2007
7. I. Pavlidis, P. Tsiamyrtzis, C. Manohar, and **P. Buddharaju**, "Biometrics: Face recognition in thermal infrared", in *Biomedical Engineering Handbook*, 3rd Edition, ch. 29, pp. 1-15, CRC Press, 2006

REFEREED JOURNALS

1. I. Pavlidis, P. Tsiamyrtzis, D. Shastri, A. Wesley, Y. Zhou, P. Lindner, **P. Buddharaju**, R. Joseph, A. Mandapati, B. Dunkin, and B. Bass "Fast by nature – How stress patterns define human experience and performance in dexterous tasks", *Nature Scientific Reports*, vol. 2, March 6, 2012. [**Journal Impact Factor: 5.578**]
2. Y. Fujiki, K. Kazakos, C. Puri, **P. Buddharaju**, I. Pavlidis, and J. Levine "NEAT-o-Games: Blending physical activity and fun in the daily routine", *ACM Computers in Entertainment*, vol. 6, no. 2, April/June 2008
3. **P. Buddharaju**, I.T. Pavlidis, P. Tsiamyrtzis, and M. Bazakos "Physiology-based face recognition in the thermal infrared spectrum", in *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 29, no. 4, pp. 613-26, April 2007 [**Journal Impact Factor: 5.027**]

REFEREED INTERNATIONAL CONFERENCES & WORKSHOPS

1. **P. Buddharaju**, Y. Lokanathan "Mobile Exergaming – Exregames on the go" *Proceedings of the IEEE/ACM International Conference on Mobile Software Engineering and Systems*, Austin, Texas, May 14-22, 2016
2. **P. Buddharaju**, N. Pamidi "Mobile Exergames – Burn Calories While Playing Games on a Smartphone" *Proceedings of the IEEE International Workshop of Mobile Vision*, Portland, Oregon, June 23-28, 2013
3. A. Wesley, **P. Buddharaju**, R. Pienta, and I. Pavlidis. A comparative analysis of thermal and visual modalities for automated facial expression recognition. *Proceedings of the 8th International Symposium on Visual Computing (ISVC'12)*, Crete, Greece, July 2012
4. **P. Buddharaju**, D. Shastri, A. Mandapati, S. Vaidya, and I. Pavlidis "Who said

monitoring is boring?" *Proceedings of the 2011 ACM Conference on Human Factors in Computing Systems (CHI)*, Vancouver, British Columbia, May 7 - 12, 2011 [Acceptance Rate: 43%]

5. **P. Buddharaju**, Y. Fujiki, I. Pavlidis, and E. Akleman " A Novel Way to Conduct Human Studies and Do Some Good", *ACM Conference on Human Factors in Computing Systems (CHI)*, Atlanta, GA, April 10-15, 2010 [Acceptance Rate: 24.5%]
6. T. Bourlai, **P. Buddharaju**, I. Pavlidis, and B. Bass " On Enhancing Cardiac Pulse Measurements Through Thermal Imaging", *Proceedings of the 9th International Conference on Information Technology and Applications in Biomedicine*, Larnaca, Cyprus, November 5-7, 2009
7. **P. Buddharaju**, and I. Pavlidis "Physiological Face Recognition is Coming of Age", in *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR'09)*, Miami, FL, June 20-26, 2009 [Acceptance Rate: 22.1%]
8. K. Kazakos, Y. Fujiki, C. Puri, **P. Buddharaju**, I. Pavlidis, and J. Levine, "NEAT-o-Games: Exertion interfaces interwoven in daily life", in *Proceedings of the 2008 ACM Workshop on Exertion Interfaces*, Florence, Italy, April 6, 2008
9. **P. Buddharaju**, Y. Fujiki, K. Kazakos, C. Puri, I. Pavlidis, and J. Levine, "NEAT-o-Games: Ubiquitous game changes modern sedentary lifestyle", in *Video Proceedings of the 9th International Conference on Ubiquitous Computing*, Innsbruck, Austria, September 16-19, 2007
10. **P. Buddharaju**, I.T. Pavlidis, and P. Tsiamyrtzis, "Pose-invariant physiological face recognition in the thermal infrared spectrum", in *Proceedings of the 2006 IEEE Conference on Computer Vision and Pattern Recognition*, pp. 53-60, New York, New York, June 17-22, 2006
11. C. Puri, **P. Buddharaju**, N. Sun, and I. Pavlidis, "Physio-Vision with ATHEMOS", in *Video Proceedings of the IEEE CVPR*, New York, New York, June 17-22, 2006
12. Y. Ma, B. Miller, **P. Buddharaju**, and M. Bazakos. "Activity awareness: from predefined events to new pattern discovery", *Proceedings of the IEEE International Conference on Computer Vision Systems*, NY, January 5-7, 2006
13. Y. Ma, **P. Buddharaju**, and M. Bazakos. "Pattern discovery for video surveillance", *International Symposium on Visual Computing (ISVC 2005)*, Lake Tahoe, Nevada, December 5-7, 2005
14. **P. Buddharaju**, I. Pavlidis, and P. Tsiamyrtzis. "Physiology-based face recognition using the vascular network extracted from thermal facial images: A novel approach ", *Proceedings of the IEEE International Conference on Advanced Video and Signal based Surveillance*, Como, Italy, Sep 15-16, 2005
15. **P. Buddharaju**, J. Dowdall, P. Tsiamyrtzis, D. Shastri, I. Pavlidis and M.G. Frank. "Automatic Thermal Monitoring System (ATHEMOS) for Deception Detection", *Video Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, San Diego, CA, June 20-26, 2005
16. **P. Buddharaju**, I. Pavlidis and I.A. Kakadiaris. "Face Recognition in the Thermal Infrared Spectrum", In *Proceedings of the Joint IEEE International Workshop on Object Tracking and Classification Beyond the Visible Spectrum (OTCBVS'04)*, Washington, DC, July, 2004

PROFESSIONAL TEACHING AT UHCL ACTIVITIES

- **Instructor** of courses 'Research Project & Seminar (Capstone)', 'Mobile Applications Development', 'Mobile Game Programming', 'Pattern Recognition and Image Processing', 'Design of Database Systems', and 'Computer Organization & Assembly Programming' at the Dept. of Computer Science, University of

Houston Clearlake – fall 2011 to present

TEACHING BEFORE UHCL

- **Co-Instructor** of the novel course ‘*Ubiquitous Computing*’ at the Department of Computer Science, University of Houston – fall 2008, 2009, and 2010
- **Instructor** of the successful ‘*iPhone Programming Outreach Course*’ offered in collaboration with the College of Continuing Education at the University of Houston – fall 2010, and summer 2011
- **Teaching Assistant** to Prof. Ioannis Pavlidis in the courses ‘*Fundamentals of Software Engineering*’ and ‘*Infrared Imaging*’ – fall 2004, spring 2004

PROFESSIONAL SERVICE AT UHCL

- Member of ABET Accreditation Committee, 2013
- Member of CS Admissions Committee, 2012 to present

CONFERENCE ACTIVITIES

- *Program Committee Member*, IEEE International Conference on Identity, Security and Behavior Analysis (ISBA 2015), Hong Kong, Mar 23 – 25, 2015
- *Program Committee Member*, 2nd IEEE/IAPR International Joint Conference on Biometrics, Clearwater, Florida, Sep 29 – Oct 4, 2014
- *Program Committee Member*, 9th IEEE International Conference on Automatic Face and Gesture Recognition, Santa Barbara, California, March 21-25, 2011
- *Biometrics Area Chair*, 5th IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS’08), Santa Fe, NM, September 1-3, 2008

EXTERNAL REVIEWER

- Image and Vision Computing Journal (since 2008)
- Transactions on Information Forensics & Security (since 2009)
- Journal of Machine Vision and Applications (since 2010)
- IEEE Computer Graphics and Applications Journal (since 2010)
- The ACM CHI Conference on Human Factors in Computing Systems (2010)
- Journal of Biomedical Optics (since 2010)
- Transactions of Image Processing (since 2013)

GRANTS AND CONTRACTS

- **Faculty Research Support Fund (FRSF)**
Role: Principal Investigator
Sponsors: University of Houston – Clear Lake
Performance Period: September 2014
Funding: \$4000
Description: MOBILE EXERGAMES – BURN CALORIES WHILE PLAYING GAMES ON A SMARTPHONE AND HAVING FUN
- **Human Identification and Intent Determination from Thermal Imagery I**
Role: Co-Investigator
Sponsors: Department of Defense
Performance Period: 02/01/2011 – 08/01/2011
Funding: \$21,000
Description: This is a pilot program that aims to design imaging technology to identify individuals and determine their intent at a distance

- **Instrumentation Grant for iPhone Class**
Role: Co-Investigator
Sponsors: The Faculty Development Initiative Program (FDIP) - University of Houston
Performance Period: 08/15/2009 – 08/15/2010
Funding: \$25,000
Description: The grant supports the establishment of an iMac/iPhone lab in support of iPhone programming instruction in the Ubiquitous Computing course
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HONORS

- **Finalist for Piper Teaching Award** – UHCL, Fall 2013
 - **Nominated for Piper Teaching Award** – UHCL, Fall 2012
 - **Best PhD Award** – *Department of Computer Science*, Houston, TX, May 2010
 - **Best Teaching Assistant Award** – for assistance in courses “Fundamentals of Software Engineering (COSC 4351)” and “Infrared Imaging (COSC 6397)”, *Department of Computer Science, University of Houston*, Houston, TX, 2005
 - **Outstanding Paper Award** – for the paper “Physiology-based face recognition” at the *3rd International Summer school for Advanced Studies on Biometrics for Secure Authentication*, Alghero, Italy, June 2006
 - **2nd Place in Poster Competition** – for the poster “NEAT-o-Games” at *Department of Computer Science Open House Poster Competition*, Houston, TX, October 2007
 - **Graduate Computer/Computational Sciences and Math Honorable Mention** – for the poster “Physiology-based face recognition in the thermal infrared spectrum”, *Sigma Xi Poster Competition*, Houston, TX, February 2006
 - **Certificate of Merit** – for securing Second Rank in B. Tech examinations, *Jawaharlal Nehru Technological University*, Hyderabad, India, May 2002
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REFERENCES

Available on request