

EDUCATION

- DOCTOR OF PHILOSOPHY** Expected Dec 2013
Northwestern University, Evanston, IL U.S.A. Cumulative G.P.A. 3.95
PHD Candidate in Electrical Engineering and Computer Science.
- MASTER OF SCIENCE** Dec 2010
Northwestern University, Evanston, IL U.S.A.
Major: Electrical Engineering and Computer Science, G.P.A. 3.96
Thesis: Perceiving Graphical and Pictorial Information via Touch and Hearing
- BACHELOR OF SCIENCE IN ENGINEERING, HONOURS** Nov 2006
University of Moratuwa, Colombo, Sri Lanka.
Major: Electronic and Telecommunication Engineering, G.P.A. 3.98
1st Class Honors, 8th in graduating class (of approx.600 graduates)
- HIGHER DIPLOMA IN INFORMATION TECHNOLOGY** June 2005
School of Computer Science, University of Colombo, Colombo, Sri Lanka

RESEARCH INTERESTS

- **Multimodal Interactive Displays:** Multimodal (visual, acoustic, tactile) perception and multimodal interfaces
- **Human Computer Interface:** Perceptual computing, virtual reality, immersive environments
- **Signal Processing:** Visual/acoustic/tactile signal processing - perceptual models and semantics extraction
- **Machine Learning:** Active learning, transfer learning, SVM, crowd sourcing, data mining, artificial intelligence

PROFESSIONAL EXPERIENCE

- Intel Corporation, Santa Clara, CA USA** May 2013 – Aug 2013
Graduate Intern, Perceptual Computing
 - Developed an multi-modal interactive display prototype using computer vision and augmented reality techniques
 - Invented ways to enhance user experience utilizing perceptual computing.
 - Worked with Intel Perceptual Computing SDK, Intel Threading Building Blocks, Immersion SDKs and Leap Motion
- Intel Corporation, Chandler, AZ USA** June 2012 – Oct 2012
Graduate Technical Intern
 - Implemented the infrastructure to convert unstructured technical documentation into structured DITA standard.
 - Developed software for automating the conversion of documents and updated existing tools.
 - Developed a plugin, to Adobe's server based shared PDF review system, which monitors comment and reply chains.
- Huawei Technologies Co., Ltd, Colombo, Sri Lanka** Nov 2006 – July 2008
Team Leader and Core Network Engineer
 - Held the responsibility for design and implementation of GSM, WCDMA and CDMA2000 (CS and PS) networks.
 - Led the technical team in deploying networks from initial hardware installation to commissioning.
 - Worked as a customer consultant in troubleshooting and maintenance of live networks.

RESEARCH EXPERIENCE

- Northwestern University, Evanston, IL USA** Sept 2008 to date
Research Assistant
 - Multi-modal Interactive display: sensory substitution, multimodal signal processing, and spatial sound processing
 - Adaptive user interfaces: design of a perceptual image editing tool using image processing and machine learning
 - Texture analysis/synthesis: study of texture contrast, roughness (visual and acoustic) and glossiness.
- Johns Hopkins University, Baltimore MD USA** Summer 2010 and 2011
Intern at James E. West's Acoustic Lab
 - Conducted research on techniques for conveying graphical and pictorial information via touch and hearing.
- Research and Development Unit, Sri Lanka Navy, Colombo, Sri Lanka** Feb 2006 - Oct 2006
Team Leader in the Collaborated Research with University of Moratuwa
 - Designed an Integrated Navigational System for SL Navy, to overcome several issues such as RADAR and communication jamming, target recognition, remote monitoring etc.
- Dialog Mobile Communication Research Laboratory, Colombo, Sri Lanka** Aug 2005 - July 2006
Content Developer and Research Assistant
 - Member of the project team to implement a nationwide e-Learning network for the Department of Education.

TEACHING EXPERIENCE

Teaching Assistant , Northwestern University, Evanston, IL	Spring 2009 – Spring 2010
➤ Digital Signal Processing; Fundamentals of Circuits; Signals and Systems; Programming for Engineers.	
Visiting Instructor , Kothelawela Defense University, Colombo, Sri Lanka.	June 2006 - Nov 2006
Instructor , University of Moratuwa, Colombo, Sri Lanka	Sept 2005 - Feb 2006

HONORS/AWARDS/GRANTS

Cabell Terminal Year Fellowship , Northwestern University	2013 - 2014
Morrison Scholarship , Northwestern University	Summer 2009
Walter P. Murphy Fellowship , Northwestern University	2008 - 2009
The gold medal for the Most Outstanding Graduate , University of Moratuwa, Sri Lanka.	2007
➤ Awarded at the General Convocation 2007, University of Moratuwa	
Representing Sri Lanka for ABU Robocon, Seoul, South Korea	Sept 2004
➤ Asia-Pacific robot competition, organized by Asian Broadcasting Union.	
Millennium IT Scholarship for the Best Performance in the field of study , University of Moratuwa	2004 – 2006
Mahapola Scholarship Award , Ministry of Higher Education, Sri Lanka	2002-2006
➤ Awarded by the Government of Sri Lanka based on Merits for period of the undergraduate study.	
Dean's List for all 7 Semesters , Faculty of Engineering, University of Moratuwa, Sri Lanka	2002 - 2006
➤ On the Bachelor of Science Degree program, based on distinctive academic performance.	
G.C.E. Advanced Level Examination , Department of Examinations, Sri Lanka	Aug 2001
➤ Ranked 6th in the country (among over 100,000 candidates) in the nationwide examination.	

PATENTS

- **Perceiving 2D/3D graphical and pictorial information via sound and touch**, Oct 2010 (applied)
- **Tac-tiles: a game of tactile perception**, June 2012 (application in process)

SELECTED PUBLICATIONS

- **Pubudu Madhawa Silva**, Thrasyvoulos N. Pappas, Joshua Atkins, James E. West, "Perceiving graphical and pictorial information via hearing and touch", IEEE Trans. on Multimedia (under review).
- **Pubudu Madhawa Silva**, Thrasyvoulos N. Pappas, Joshua Atkins, James E. West, "Acoustic-tactile rendering of visual information", Human Vision and Electronic Imaging 2012.
- **Pubudu Madhawa Silva**, Thrasyvoulos N. Pappas, Joshua Atkins, James E. West, "Perceiving graphical and pictorial information via touch and hearing", ICASSP 2011.
- Edward Scott, **Pubudu Madhawa Silva**, Bryan Pardo, Thrasyvoulos N. Pappas, "Adaptive user interfaces for relating high-level concepts to low-level photographic parameters", Human Vision and Electronic Imaging 2011.

SELECTED PROJECTS

Mobile Multi-modal Display , Northwestern University IL and Johns Hopkins University MD	2010-2011
➤ Implemented an interactive acoustic-tactile display in an iOS/Android to convey graphical information to the blind.	
Subjective & Objective Evaluation of Visual Texture Roughness , Northwestern University, IL.	Spring 2010
➤ Proposed an objective matrix for visual texture roughness and designed/conducted subjective experiments to validate.	
Automated Eye Detection and Tracking System , Northwestern University, IL.	Fall 2008
➤ Designed and implemented an algorithm to automatically track eye movement in a live or recorded video stream.	

TECHNICAL SKILLS

- **Technical Software**: Matlab, VHDL, digital system design, Open CV, Intel Perceptual Computing SDK, Intel TBB
- **Programming Languages**: C/C++, Objective C 2.0, Java, Perl, Pascal and Visual Basic.
- **Professional experience**: Telecommunication, Networking, Unix/Windows, iOS/Android, Qt, XML/JSON, DITA, MIF.

SELECTED ACTIVITIES AND COMMUNITY INVOLVEMENTS

➤ Cofounder, SLAO Foundation, a charity organization	2010 to date
➤ Secretary, International Conference on Information and Automation, IEEE Region 10	Dec 2006
➤ Member of the Faculty Board, Faculty of Engineering, University of Moratuwa, Sri Lanka.	2004 - 2005
➤ Secretary, Sinhala Cultural Association, University of Moratuwa, Sri Lanka.	2003 - 2004
➤ Event Chair of the musical workshop and concert, sponsored by The World Bank IRQUE project	Dec 2004
➤ Secretary, The inter university student movement for cultural and national activities, Sri Lanka	2004
➤ Field Representative, Dept. of Electronic and Telecommunication Engineering, University of Moratuwa.	2003 - 2004

REFERENCES

Prof. Thrasyvoulos N. Pappas

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