

RUWAN D. NAWARATHNA

Senior Lecturer in Computer Science

Department of Statistics and Computer Science, University of Peradeniya,
Peradeniya, Sri Lanka

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EDUCATION

University of North Texas, Denton, TX

Ph.D., Computer Science

August 2013

Dissertation: Detection of temporal events and abnormal images for quality analysis in Endoscopy Videos

M.Sc., Computer Science

December 2011

GPA : 4.00/4.00

University of Peradeniya, Peradeniya, Sri Lanka

B.Sc. (Special), Computer Science

May 2005

GPA : 3.84/4.00

University Award for Academic Excellence 2005

AWARDS AND HONOURS

UNT scholarship from University of North Texas

2009-2012

Texas public education grant (TPEG)

2009-2011

General academic scholarship from University of North Texas

2008-2010

University Award for Academic Excellence from University of Peradeniya

2005

RESEARCH EXPERIENCE

Major Research Projects and Grants

Opinion Mining on Various Aspects of Health through Social Media Analytics

May 2016-Date

Funded by University Research Grant Year 2016 New Project – Grant No.

URG/2016/82/S

Sri Lanka Crime Investigation Decision Support System (SL-CIDSS) - A

September 2014- Date

Comprehensive crime data storage and analysis software

Funded by The National Research Council (NRC), Sri Lanka - Grant No. 11-

071

Graduate Research Assistant

2008 – 2014

Multimedia Information Laboratory, University of North Texas, Denton, TX,
USA

- Member of the development team of a SDK and a middleware for real time medical video content processing. This is a collaborative work involving University of North Texas (TX, USA), Iowa State University (Iowa, IA), Mayo Clinic (Rochester, MN, USA) and EndoMetric, LLC, USA.
- Worked on real-time temporal event detection and abnormal image detection in endoscopy videos
- Worked on the following NSF/NIH funded projects on colonoscopy and wireless capsule endoscopy video analysis : Video Analysis Techniques for Computer-Aided Quality Control for Colonoscopy, and Computer-aided Diagnosis for gastrointestinal Bleeding using Wireless Capsule Endoscopy

TEACHING EXPERIENCE

Senior Lecturer

Department of Statistics and Computer Science, University of Peradeniya

Courses Taught:

Artificial Intelligence and Expert Systems

Artificial Neural Networks and Fuzzy Logic

Computer Vision

Computer Graphics

Digital Image Processing

Object Oriented Analysis and Design

Design and Analysis of Algorithms

September 2014 - Date

Peradeniya, Sri Lanka

4th Year

4th Year

4th Year

3rd Year

3rd Year

3rd Year

3rd Year

Senior Lecturer (Visiting)

Post Graduate Institute of Science, University of Peradeniya

Courses Taught:

MT 517 Topics in Computer Science (Database Management Systems)

SC 549 Artificial Neural Networks

SC 539 Advanced Topics in Computer Graphics

ESR 503 Database Management Systems

September 2014 - Date

Graduate Teaching Assistant

Department of Computer Science and Engineering, University of North

Texas, Denton, TX, USA

Conducted tutorial discussions, lab classes, occasional lectures for:

Multimedia Computing

Multimedia Databases

Analysis of Algorithms

Foundations of Computing

2009 – 2010 and 2013

Postgraduate (5000 Level)

Postgraduate (6000 Level)

Postgraduate (5000 Level)

Undergraduate (2000 Level)

Lecturer (Probationary)

Courses Taught:

Computer Graphics Programming

Server-side Web Programming

Computer Architecture

Programming in Database Management Systems

Introduction to Computer Science

2007-2014

3rd Year

3rd Year

2nd Year

2nd Year

1st Year

Assistant Lecturer

Department of Statistics and Computer Science, University of Peradeniya,

Peradeniya, Sri Lanka

Courses Taught:

Computer Architecture

Programming in Database Management Systems

Introduction to Computer Science

2005-2007

2nd Year

2nd Year

1st Year

Visiting Demonstrator

Post Graduate Institute of Science, University of Peradeniya

Conducted lab classes for:

Web programming

Programming in Database Management Systems

Introduction to Programming

2005-2008

M.Sc., Computer Science

M.Sc., Geological Information Systems

M.Sc., Science Education

POSITIONS HELD

Secretary of Board of Study in Statistics and Computer Science, Postgraduate Institute of Science, University of Peradeniya	April 2017 - Date
Member of the Board of Study in Statistics and Computer Science, Postgraduate Institute of Science, University of Peradeniya	May 2016 - Date
Co-coordinator of the M.Sc. program in Computer Science, Postgraduate Institute of Science, University of Peradeniya	May 2016 - Date
Assistant Secretary of the University of Peradeniya Science Teachers' Association (UP-STA)	May 2016 - Date
Senior Treasurer of Computer Society of University of Peradeniya (CSUP)	May 2015 - Date
Member of the Curriculum Development Committee of Faculty of Science, University of Peradeniya	May 2016 - Date

RESEARCH SUPERVISION

- Mr. M.A.P Chamikara (2015), MPhil
- Mr. A. Galapaththi, MPhil (Continuing)
- Mr. T.J. Selvarajah, MPhil (Continuing)
- Mr. A.S. Amarasinghe (2016), MSc
- Ms. D.M.P. Abahayawardhana, MSc (2017)
- Mr. G.S.T. Bandara, MSc (2017)
- Ms. L.N. Wanninayake, MSc (Continuing)
- Ms. A.M.S.K. Wijewardana, MSc (Continuing)
- K. Aniththithan, MSc (Continuing)
- G. Herath, MSc (Continuing)

MAJOR PROGRAMMING PROJECTS

- Role based access control system (Java, SQL Server)
- Simulation of a flood evacuation (Cellular automata, Java)
- Point of sales system (Java)
- Author identification system (Natural Language Processing, PERL)
- Patient information management system (Visual basic and SQL Server)

PUBLICATIONS

Patents

1. Chamikara, M.A.P., Glappaththi, A., Yapa, Y.P.R.D., Nawarathna, R.D., Kodituwakku, S.R., Gunatilake, A.A.J.K., SL-CIDSS: A Software Solution for Crime Recording and Investigation in Sri Lanka Police Department. Sri Lanka Patent. LK/P/1/18278. 2015. [Pending].

Journals

2. M.A.P. Chamikara , A. Galapaththi, R.D. Yapa, R.D. Nawarathna, S.R. Kodituwakku, J. Gunatilake, A.A.C.A. Jayathilake, L. Liyanage (2016) Fuzzy based binary feature profiling for modus operandi analysis. PeerJ Computer Science 2:e65
3. R.D. Nawarathna, J. Oh, J. Muthukudage, W. Tavanapong, J. Wong, P. C. de Groen, S. J. Tang "Abnormal image detection in Endoscopy videos using a filter bank and local binary patterns, Neurocomputing, 70-91 (2014).
4. S. Stanek, W. Tavanapong, J. Wong, J. Oh, R. Nawarathna, J. Muthukudage, P.C. de Groen, "SAPPHIRE: A toolkit for building efficient stream programs for medical video analysis", Computer Methods and Programs in Biomedicine 112(3), 407-421 (2013).
5. R.D. Nawarathna (2013). Detection of temporal events and abnormal images for quality analysis in endoscopy videos. Ph.D. Thesis, University of North Texas
6. R. Nawarathna, S.R. Kodituwakku, "Applying Fuzzy Logic for Adaptive Role Based Access Control for Database Security" Ceylon Science Journal of Applied Sciences, 2006.

Peer Reviewed Conference Papers

7. D. Mahendran and R.D. Nawarathna, "An Automated Method to Extract Information in the Biomedical Literature about Interactions between Drugs", International Conference on Advances in ICT for Emerging Regions (ICTer), Colombo, 2016, pp 155-161.
8. M.N.F. Fajila and R.D. Nawarathna. 2016. New Feature Selection Method for High Dimensional Gene Data. Symposium on Statistical & Computational Modelling with Applications (SymSCMA – 2016),p 66-69.
9. J. Muthukudage, J. Oh, R. Nawarathna, W. Tavanapong, J. Wong, P. C. de Groen, "Fast Object Detection using Color Features for Colonoscopy Quality Measurements", Abdomen and Thoracic Imaging: An Engineering & Clinical Perspective (Ed. A.S. El-Baz, L. Saba, J. Suri),365-388, Springer (2014).
10. R. Nawarathna, J. Oh, W. Tavanapong, J. Wong, P. C. de Groen, "Detection of Temporal Events in Colonoscopy Videos Using Motion Vector Templates", Proc. of the 2013 IEEE Conference on Nuclear Science Symposium and Medical Imaging (NCC/MIC 2013), Seoul, South Korea, October (2013).
<http://www.nss-mic.org/2013/program/ListProgramDB.asp?session=M18>
11. R. Nawarathna, J. Oh, J. Muthukudage, W. Tavanapong, J. Wong and P. C. de Groen. Real-time Phase Boundary Detection for Colonoscopy Videos using Motion Vector Templates. Proc. of the MICCAI Workshop on Computational Abdominal Imaging, Nice, France. pp. 116-125, 2012.
12. S. Stanek, W. Tavanapong, J. Wong, J. Oh, R. Nawarathna, J. Muthukudage and P. C. de Groen, "SAPPHIRE Middleware and Software Development Kit for Medical Video Analysis", Proc. of the 24th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2011), pp 1 – 6, Bristol, UK, June 2011.
13. S. Stanek, W. Tavanapong, J. Wong, J. Oh, R. Nawarathna, J. Muthukudage and P. C. de Groen, "SAPPHIRE: Toolkit for Stream Programming on Multi-Core Multi-CPU Systems", NSF Net-Centric Industry Meeting, Grapevine, TX 2013.
14. R. Nawarathna, J. Oh, X. Yuan, J. Lee, S. J. Tang, "Abnormal Image Detection Using Texton Method in Wireless Capsule Endoscopy Videos", Proc of 2010 International Conference on Medical Biometrics (ICMB 2010), Hong Kong, June 2010.
15. R. Nawarathna, S.R. Kodithuwakku, "Fuzzy Role Based Access Control Model for Database Security" IEEE International Conference on Information and Automation (ICIA'2005), Colombo, Sri Lanka, December 2005.

PROGRAMMING LANGUAGES and SOFTWARE PACKAGES

Languages

General Purpose - Java, C/C++, Python, Client Side – HTML, JavaScript, Server-Side – PHP, JSP, Servlets, XML

Software Packages

Research: Matlab, Weka, Rapid Miner, **Office:** Microsoft Office Package, IDEs : Net Beans, Visual Studio, **DBMS** – MySQL, SQL Server, **Servers** – IIS, Tomcat, Apache, **Other:** Macromedia (Adobe) Dreamweaver

PROFESSIONAL AND STUDENT ORGANIZATIONS

- Member of Alpha Chi honor society
- Member of Phi Kappa Phi honor society
- Member of Golden Key honor society
- Member of Alumni Association of University of Peradeniya

PERSONAL DETAILS

Sex: Male

Civil Status: Married

Citizenship: Sri Lankan

I hereby agree that the information above furnished by me is true and accurate.

Signature: Ruwan Nawarathna

Date : 2017/04/30