Sanjaya Wijeratne | Resume

Ph.D. Student in Computer Science – Kno.e.sis Center – Wright State University
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Career Objectives and Research Interests

To become a successful research scientist in the field of Computer Science who is capable of providing solutions to challenging problems using cutting edge technology and tools. Main research interests include Emoji Understanding, Emoji Sense Disambiguation, Word Sense Disambiguation, Text Mining, Natural Language Processing and Social Computing.

Education

Wright State University **Dayton, Ohio**
Ph.D. in Computer Science, GPA – 3.93/4.0 *September, 2011 – Present*
Thesis Advisor – Prof. Amit Sheth

University of Moratuwa **Katubedda, Sri Lanka**
B.Sc. in Information Technology, Top of the Class with First Class Honours *2005 – 2009*
Thesis Advisor – Dr. Ajith Madurapperuma

Mahanama College **Colombo, Sri Lanka**
G.C.E. A/L Examination, Mathematics Stream *2004*

Research Experience

Graduate Research Experience

Kno.e.sis Center – Wright State University **Dayton, Ohio**
Researcher/Graduate Research Assistant *September, 2011 – Present*
Working on research problems related to Emoji Understanding, Emoji Sense Disambiguation, Word Sense Disambiguation, Text Mining, Natural Language Processing and Social Computing.

- Selected Research Projects
  - **EmojiNet and Emoji Understanding**
    - Emoji is a contemporary, extremely popular way to enhance electronic communications. Without rigid semantics attached to them, an emoji symbol can take on different meanings based on the context of a message. Analogous to the word sense disambiguation task in natural language processing, machines also need to disambiguate the meaning of an emoji or 'sense' of an emoji. The goal of this project is to build tools and algorithms to improve machine understanbability of emoji.
      Technologies Used - EmojiNet, Emoji Sense Disambiguation, Natural Language Processing, BabelNet, J2SE
  - **Twitris 3.0 – Understanding Gang Activities in Social Media**
    - In this project, we try to understand how street gang members (self defined in their Twitter profiles) use social media. We try to develop algorithms to identify them automatically using the language they use in social media posts, using the profile descriptions or follower/followee networks.
      Technologies Used - Twitris Platform, Twitter APIs, Urban Dictionary API, WordNet, J2SE

Research Internship Experience

Institute for Infocomm Research (I2R) – A*Star **Fusionopolis, Singapore**
Research Intern *January, 2016 – 2016 April*
Successfully completed a 16 weeks internship program at the Institute for Infocomm Research (I2R) - A*Star, Singapore. Worked with the Text Analytics and Semantics Group at Data Analytics Department on entity linking in short text descriptions appear in private merchant datasets.

Insight Center for Data Analytics (Formerly DERI) – NUIG **Galway, Ireland**
Summer Research Intern *May, 2014 – August, 2014*
Successfully completed a fifteen weeks summer internship at Insight Center for Data Analytics (formerly known as Digital Enterprise Research Institute – DERI) at National University of Ireland – Galway. Worked with Digital Humanities and Journalism (HuJo) group on a sub module of RTÉ News360 project to filter noisy tweets collected by keywords-based tweet filtering methods using Word Sense Disambiguation.

- RTÉ News360 Project
  - Using Language Features and Word Sense Disambiguation to Filter Noisy Tweets
    - My contributions were on noise filtering on Twitter data. I developed an approach using Word Sense Disambiguation on data collection keywords present in the tweets to determine whether a given tweet is an interesting tweets to the user or not.
      Technologies Used - Word Sense Disambiguation, Natural Language Processing, BabelNet, WordNet

Undergraduate Research Experience

Faculty of Information Technology – University of Moratuwa **Katubedda, Sri Lanka**
Undergraduate Student *2005 – 2009*
Worked on a final year thesis project on finding patterns exist in shopping time and items purchased using data mining techniques. Also worked on several course related and industrial software engineering projects.

- Final Year Thesis Project
  - AgentSales – Automated Sales Assistant Agent
    - AgentSales is an effort to make the shopping activities more efficient by cutting down the time unnecessarily spent on shopping with the help of data mining techniques. It uses data mining and frequent pattern mining techniques to find patterns with shopping times and items purchased to decide which items a customer would buy in his next shopping visit.
      Technologies Used - Data Mining, Java, JSP/Servlets, MySQL, HTML, CSS, JavaScript, Apache Tomcat
- Selected Other Projects
  - GeoMoWiki – The Mobile Tour Guide
    - GeoMoWiki is a mobile tour guide application that runs on a traveller's hand held device which allows him to capture images of the places he visits and send it to a centralized server to get the information on the captured image.
      Technologies Used - Java, J2ME, JSP/Servlets, Java Advanced Imaging API, PHP, MySQL, Apache Tomcat, HTML, CSS, JavaScript

Teaching Experience

Dep. of Computer Science and Engineering, Wright State University **Dayton, Ohio**
Graduate Teaching Assistant *August, 2013 – Present*
Worked as a Teaching Assistant for CS 1150 – Introduction to Computer Science course while teaching all labs and selected classes, writing programming assignments and grading labs.

Software Engineering Experience

CodeGen International (Pvt) Ltd. **Colombo, Sri Lanka**
Software Engineer *November, 2009 – July, 2011*
Contributed to designing and development of cutting edge travel software, integrating third-party host to host systems for flight and cruise bookings. Integrated and worked with leading GDSes while engaging in customer requirement gathering sessions.
Technologies Used - J2SE, Web Services

Virtusa Corporation (Pvt) Ltd. **Colombo, Sri Lanka**
Trainee Software Engineer *October, 2007 – April, 2008*
Designed and developed self-describing on the fly GUI generation software to represent any given XML document and a tool to calculate the complexity of a XML document.
Technologies Used - J2SE, Web Services, Java Swing Framework, DOM and SAX Parsers for Java XML processing

Awards and Accomplishments

Graduate Studies

Graduate Council Fellowship Award **2011 – 2013**

College of Engineering and Computer Science, Wright State University *Dayton, Ohio*

Awarded the Graduate Council Fellowship by the College of Engineering and Computer Science of Wright State University beginning Fall 2011 up to two years which consists of a monthly stipend and a full tuition fellowship.

Undergraduate Studies

Gold Medal for the Best Overall GPA **June, 2010**

Faculty of Information Technology, University of Moratuwa *Katubedda, Sri Lanka*

Became the top of the class (equivalent to Valedictorian) out of 102 students and won the Gold Medal for the Information Technology Graduate who obtained the highest overall GPA at the B.Sc. in Information Technology Honours Degree Program conducted by the Faculty of Information Technology, University of Moratuwa, Sri Lanka.

Dean's List Award **2005 – 2009**

Faculty of Information Technology, University of Moratuwa *Katubedda, Sri Lanka*

Won a place in the Dean's List in five academic semesters for the outstanding academic performance by achieving a semester GPA above 3.80 at the B.Sc Information Technology Honours Degree Program conducted by the Faculty of Information Technology - University of Moratuwa, Sri Lanka.

Invited Talks

[1] **Sanjaya Wijeratne**, "Finding Street Gang Members on Twitter", Big Data Surveillance Analytics Mini Conference at Wright State University, Dayton, OH, USA. July, 2016.

Publications

Journal Papers

[1] R. Daniulaityte, R. Nahhas, **S. Wijeratne**, R. Carlson, F. Lamy, S. Martins, E. Boyer, G. Smith, and A. Sheth. "Time for dabs": Analyzing Twitter data on marijuana concentrates across the U.S., Drug and Alcohol Dependence, Volume 155, 1 October 2015, Pages 307-311, ISSN 0376-8716.

Conference Papers

[1] **Sanjaya Wijeratne**, Lakshika Balasuriya, Amit Sheth, Derek Doran. EmojiNet: Building a Machine Readable Sense Inventory for Emoji. In 8th International Conference on Social Informatics (SocInfo 2016). Bellevue, WA, USA; 2016.

[2] Lakshika Balasuriya, **Sanjaya Wijeratne**, Derek Doran, Amit Sheth. Finding Street Gang Members on Twitter, In The 2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM 2016). San Francisco, CA, USA; 2016.

[3] **Sanjaya Wijeratne**, Derek Doran, Amit Sheth and Jack L. Dustin. Analyzing the Social Media Footprint of Street Gangs. 2015 IEEE International Conference on Intelligence and Security Informatics (ISI). IEEE, 2015.

[4] **Sanjaya Wijeratne**, Bahareh R. Heravi, A Keyword Sense Disambiguation Based Approach for Noise Filtering in Twitter. The 1st Insight Student Conference, University College Dublin, Ireland, 2014.

[5] Kalpa Gunaratna, Krishnaprasad Thirunarayan, Prateek Jain, Amit Sheth, **Sanjaya Wijeratne**, A Statistical and Schema Independent Approach for Identifying Equivalent Properties on Linked Data. In: Proc. 9th International Conference on Semantic Systems (ACM 2013), Messe Graz, Austria, 2013.

Conference Posters

[1] R. Daniulaityte, R. Carlson, F. Golroo, **S. Wijeratne**, E. Boyer, S. Martins, R. Nahhas, A. Sheth, "Time for dabs": Analyzing Twitter data on butane hash oil use. The College on Problems of Drug Dependence CPDD 2015, Phoenix, Arizona, June 13-18, 2015.

Workshop Papers

[1] **Sanjaya Wijeratne**, Lakshika Balasuriya, Derek Doran, Amit Sheth. Word Embeddings to Enhance Twitter Gang Member Profile Identification. In IJCAI Workshop on Semantic Machine Learning (SML 2016). New York City, NY: CEUR-WS; 2016.

[2] Ajith Ranabahu, Amit Sheth, Maryam Panahiazar, **Sanjaya Wijeratne**, Semantic Annotation and Search for resources in the next Generation Web with SA-REST. W3C Workshop on Data and Services Integration, October 20-21 2011, Bedford, MA, USA.

Professional Activities and Services

External Reviewer – EKAW(2016, 2014), ISWC(2016), IJCAI(2016), IEEE BigData(2016), NLDB(2016), IJSWIS(2016), ICWSM(2015), WWW(2015), HICSS(2015), SAC(2015), Web Intelligence(2014, 2013), ESWC(2013)

Grant Writing

- **Project Safe Neighborhood:** Westwood Partnership to Prevent Juvenile Repeat Offenders (State funded, 2 Years) – **Status - Awarded, $∼500K** | Role - Significant Contribution
- **eDrugTrends:** Trending: Social media analysis to monitor cannabis and synthetic cannabinoid use (NIH funded R01, 3 Years) – **Status - Awarded, $∼1.5M** | Role - Limited Contribution
- **SyBz:** Catching the Synthetic Buzz through Innovative Epidemiologic Monitoring (NIH R01) – Status - Not Awarded | Role - Significant Contribution (Social Media Data Analysis)
- **ReCODe:** Real-time Computational Optimization of Deterrence (DoD) – Status - Not Awarded | Role - Limited Contribution (Social Media Data Analysis)

Computer Skills

- Programming Languages – *Java*
- Scripting and Mark-up Languages – *PHP, JSP, XML, JavaScript, HTML*
- Semantic Web Technologies – *RDF/RDFS, OWL, SPARQL*
- Databases – *MySQL, Oracle 10g(Basics), NoSQL/Cassandra(Basics)*
- Cloud Computing – *Hadoop/MapReduce(Basics), Storm(Basics)*
- Operating Systems – *Windows, Linux*
- IDEs – *Eclipse, Net Beans, IntelliJIdea*

Selected Graduate Level Course

- Information Retrieval
- Knowledge Representation
- Distributed Computing
- Data Mining
- Semantic Web
- Cloud Computing

References

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