Raghavendra Kotikalapudi

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Summary

I go by Ragha. Software developer by the day, avid machine learning reader and tinkerer by the night. I usually spend my time trying to get a deeper understanding of machine learning, topology, and related research areas. I also indulge in building hobby hardware projects using Arduino from time to time.

Awards and Achievements

- Masters Thesis Chapter Media Coverage. Noteworthy sources include MSNBC, TIME, Forbes, Times of India, ACM TechNews, and Slashdot. Published NYTimes Op-ED
- Golden Volcano Award - Online Services Division Science Fair, Microsoft
- Best Social App Award - Microsoft Fargo Hackathon 2014.
- 2012 Microsoft Team Innovation Award
- Sebastian Thrun & Peter Norvig's Intro to AI Online Course - Cert of Accomplishment
- CS Academic Achievement Award - 2010 & 2011, Missouri S&T
- Scholarship for Academic Excellence, SMVD University, India

Work Experience

Dec 2014 – Present | Software Developer Engineer, **Amazon**, Seattle

Worked on building backend systems for Amazon Instant Video XRay feature.

- Built end-end Actor Identification workflow including face detection, clustering, recognition, and QA through mechanical turk.
- Implemented prototypes for continuous improvement using Deep Residual Networks with Triplet loss to leverage QA feedback from Mechanical turk.
- Worked on building scalable backend systems using Amazon DynamoDB, SWF, RDS, SQS for vending XRay data.
- Improved algorithms for automating scene boundary detection in videos.
- Prototyped cold start recommendations and automated genre identification using Word2Vec embeddings and Word Movers Distance and hierarchical clustering.

Sept 2011 – Nov 2014 | Software Developer Engineer, **Microsoft Corporation**, Fargo

Worked on lots of cool projects. General areas of experience include:

- Cross platform (iOS, Android and Windows Phone) mobile app development using HTML5/JS, knockout, cordova and nodejs.
- Developed Win8/Phone native apps using XAML and HTML5/JS
- Full stack development on GP Web Client, built UX and services to enable multi tenant/session management.
- Designed an algorithm to convert absolute UI layout into a relative layout.

Aug 2010 – Aug 2011 | Research Assistant, *Computational Intelligence Lab*, **Missouri S&T**

Thesis | Advisors: Dr. Sriram Chellappan, Dr. Donald Wunsch

Developed a novel non-intrusive method for identifying depression among college students using packet level network information through machine learning. Achieved ~70% accuracy in classifying depression and ~80% in estimating the relative change.

Sept 2010 – Dec 2010 | Research Assistant, *Virtual Reality Lab*, **Missouri S&T**

Advisors: Dr. Frank Liu, Dr. Ming Leu

- Coordinated/Led a team of 10 develop a low cost simulation environment for landmine detection training. Our research project was featured on US Army Lab Website
- Specifically worked on optimizing data communication between Nintendo Wiimote sensors and Simulation System for faster frame rates.

May 2010 – Aug 2010 | Programming Intern, **Advanced Military Equipments Inc**, Dixon
Supervisor: Greg Pierson

Developed an algorithm to improve the simulation frame rate of the *Virtual Landmine Training Detection Simulator* from 15 to 85 fps, effectively reducing the total cost of the final product by 20%.

Mar 2010 – May 2010 | Developer, *Software Engineering Lab*, **Missouri S&T**, Rolla
Supervisor: Dr. Frank Liu

Designed and developed a front end (Adobe Director) with MySQL database backing for the *Virtual Landmine Training Detection Simulator*.

Jan 2010 – May 2010 | Research Assistant, *Cognitive Studies Lab*, **Missouri S&T**, Rolla
Advisors: Dr. Sriram Chellappan, Dr. Jacqueline Bichsel

Report | Identified intervention strategies for reducing math anxiety and improving math performance by performing cluster analysis in conglomeration with various statistical methods.

Commercial Side Projects

Nov 2014 | **WatNow App** | http://www.watnowapp.com/

Bored? Need ideas on how to kill time? The app serves as a friendly companion that answers these questions by suggesting activities, restaurants, events, movies to watch, amongst others. Uses machine learning to figure out recommendations with emphasis on preserving diversity. This is still a work in progress.

Dec 07 – Apr 09 | **CAAMS Suite** | http://tinyurl.com/CAAMSReport

CAAMS is an integrated management suite for universities. I was primarily involved with the UX and architecture design. It was showcased during Sun Tech Days 2009 at Hyderabad, during Key Note speech by Joe Harley, VP, Sun MicroSystems Global education wing.

Sept 2008 – May 2009 | **Payroll & School Management System**

Developed a comprehensive payroll & school management system using Java and MySQL featuring a modular pay by feature design. Notiable unique features include: fraud detection, support for changing tax rules, automated backup/recovery.

Open Source Development

May 2016 | **latexcv** | https://github.com/raghakot/latexcv

This resume' template in LaTeXto save everyone else the pain, inception style.

Apr 2016 | **keras-resnet** | https://github.com/raghakot/keras-resnet

Deep residual neural network implementation in keras.

Nov 2015 | **tsne-visualization** | https://github.com/raghakot/tsne-visualization

Runs tSNE algorithm locally on a browser with provided data in real time with 2D/3D projections using three js.

Apr 2008 | **JNeuralNet** | https://github.com/raghakot/jneuralnet

Supervised Java neural network framework with APIs for implementing various architectures, training algorithms, and input/output preprocessors. Includes visualization GUI.

Jan 2010 | **JSimpleAI** | https://github.com/raghakot/jsimpleai

Java AI framework for solving puzzles using BFS, DFS, A* Search, Iterative Deepening. Implements samples for travelling salesman, graph bisection, & online puzzle frog leap.

Education

August 2011	Master of Science in Computer Science | Gpa: 3.9/4.0 **Missouri University of Science and Technology**, Rolla Thesis: "Depression Classification via Internet Usage Patterns" Technical Papers: Hybrid EA, COEA Pacman, HOOMT Metrics Advisors: Dr. Sriram Chellappan, Dr. Donald Wunsch
May 2009	Bachelors of Technology in Computer Science | Gpa: 8.11/10.0 **Shri Mata Vaishno Devi University**, India Major Project: "Neural Network based Weather Prediction System" Advisor: Dr. M.L. Garg

Technical Skills

Languages	Java, C# Javascript, C++, Python
Front end	HTML5, LESS/CSS, Silverlight, WPF, XAML, Swing
Mobile	Cordova, Android, WinRT, WinPhone8
AWS	DynamoDB, SQS, RDS, SWF, Mechanical Turk
Machine Learning	scipy, sklearn, Tensorflow, OpenCV, nltk/spacy, keras, Caffe

Journal Papers

1) V. Hongal, **R. Kotikalapudi** and M. Choi, "Design, Test, and Repair of MLUT (Memristor Look-Up Table) Based Asynchronous Nanowire Reconfigurable Crossbar Architecture," *in IEEE Journal on Emerging and Selected Topics in Circuits and Systems, vol. 4, no. 4, pp. 427-437, Dec. 2014.*

2) F. Montgomery, S. Chellappan, **R. Kotikalapudi**, D. Wunsch and K. Lutzen. "Monitoring Student Internet Patterns: Big Brother or Promoting Mental Health?," *Journal of Technology in Human Services, v.31, 2013.* Work resulted in **NSF Career Award**.

Conference Papers

1) **R. Kotikalapudi**, S. Chellappan, F. Montgomery, D. Wunsch and K. Lutzen, "Associating Internet Usage with Depressive Behavior Among College Students," *in IEEE Technology and Society Magazine, vol. 31, no. 4, pp. 73-80, winter 2012.*

2) V. A. Hongal, **R. Kotikalapudi**, Y. B. Kim and M. Choi, "A novel "divide and conquer" testing technique for memristor based lookup table," 2011 IEEE 54th International Midwest Symposium on Circuits and Systems (MWSCAS), Seoul, 2011.

3) Wenjuan Zhu, Ming C. Leu, Xiaoqing F. Liu, **Raghavendra Kotikalapudi**, Hui He, Sheela Surisetty, Jerry D. Plunkett, Greg Pierson, and Bradley M. Davis, "Low-Cost, High-Fidelity Virtual Landmine Detection Training System," *International Conference on Computer Graphics and Virtual Reality, 2011*

4) N. Dutta, **R. Kotikalapudi** and M. Bhonsle, "A formal analysis of protocol-independent security threats in VANETs," *Students' Technology Symposium (TechSym), 2011 IEEE, Kharagpur, 2011, pp. 103-108.*

5) N. Dutta, **R. Kotikalapudi**, A. Saxena and S. Chellappan, "A Multi-tiered Architecture for Content Retrieval in Mobile Peer-to-Peer Networks," *2011 IEEE 12th International Conference on Mobile Data Management, Lulea, 2011, pp. 104-109.*