

Barathi Ganesh HB

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Career Objective

Practicing Artificial Intelligence to become a Cognitive Scientist associated with Natural Language Processing, Computer Vision, Speech Processing, Distributed and Parallel Computation.

Career Synopsis

- Cognitive Science Practitioner and Research Scholar (PhD) with good theoretical – practical experience in Linear algebra, Optimization, Probabilistic Graphical Models, Machine Learning, Deep Learning and Dimensionality Reduction Methods.
- Specialized in the field of NLP, Text Mining, Data Mining, Image Processing, Speech Processing and Distributional frame works.
- 2+ years of total experience as Data Science and Cognitive Science Practitioner.
- 19 research papers publication in the field of Natural Language Processing, Speech Processing and Apache Spark.
- Programming Languages: Python, MATLAB, R, Java (beginner)
- Hands on Experience:
 - Python: NLTK, Scikit Learn, Gensim, Nimfa, Pandas, Rasa NLU, Rasa Core, TextBlob, Keras, TensorFlow and Django.
 - Java: Stanford Core NLP, ARRIA NLG and MALLET.
 - Matlab: LibSVM, Matlab NLP-Master, Gurls, Machine Learning, Deep Learning timeSeries, SVD and other Machine Learning Packages
 - R:
- Operating System: Linux, Windows.
- Frame work: WEKA, Apache Hadoop and Apache Spark.
- Documentation Tool: LibreOffice, Microsoft Office and Latex.

Skills

- Machine Learning
- Deep Learning
- Natural Language Processing
- Data Mining
- Text Mining
- Optimization
- Dimensionality Reduction
- Distributed Frameworks

Professional Experience

Amrita Vishwa Vidyapeetham

August 2017 – Present

Concepts – Entity Recognition, Information Extraction, Computer Vision, Text Classification, Machine Learning and Deep Learning

Cognitive Science Practitioner –Research Scholar

- Information Extraction and Retrieval in Legal Documents, Health Documents
- Health Suite for health texts– Frame work similar to Stanford core NLP
- Author Profiling for targeted Internet Advertising
- Personalized Medicine from Health Text Mining

Accenture - Artificial Intelligence, Innovation Center

December 2016 – July 2017

Cognitive Science Practitioner – Research Scientist Analyst

Concepts – Entity Recognition, Information Extraction, Machine Learning and Text Classification.

- Text classification, Entity Recognition, Relation Extraction
- Unsupervised – Supervised information extraction

Tata Consultancy Services - Artificial Intelligence Practice

September 2015 – December 2016

Cognitive Science Practitioner – Assistant System Engineer

Concepts – Co-Reference Resolution, Dimensionality Reduction, Entity Recognition Information Extraction, Language Modeling, Machine Learning and Topic Modeling.

- Virtual Agent and Personal Assistance systems architecture design and development
- Large scale text classification
- Unsupervised – Supervised information extraction
- Contextual Interpreter – Replacement of Stanford CoreNLP
- Concept Drift identification – Topic modeling on Twitter

Tata Consultancy Services - Artificial Intelligence Practice

June 2015 – August 2015

Cognitive Science Practitioner – Intern

Concepts – Dimensionality Reduction and Sequential Modeling.

- Co-Reference Resolution, Information Extraction and Sentence Simplification.

Education

Amrita Vishwa Vidyapeetham

August 2015 – Present

Cognitive Science – Pursuing Doctor of Philosophy (PhD)

- Contextual representation of text and image
- Author Profiling, Author Identification, Information Retrieval and Para-Phrase Identification
- Distributional and Distributed vector representation of the small texts from its context

Amrita Vishwa Vidyapeetham, Coimbatore.

July 2013 – July 2015

Master of Technology in Computational Engineering and Networks with 79%

- Sequential Modeling for Spell Correction, Language Identification, POS Tagging and Named Entity Recognition
- Machine Learning based Text Classification, Image Classification, Speech and Speaker Recognition
- Social Media Text Analysis based on Semanticity of Streaming and Batch Data

CSI College of Engineering, Ketti, Ooty, The Nilgiris.

September 2009 – April 2013

Bachelor of Engineering in Electronic and Communications Engineering with 73%

- 1-D signals and 2-D image de-noising
- Energy harvesting from Electro Magnetic waves

Research

Publications in International Conferences

- **Named Entity Recognition for Indian Languages using Rich Features**, *Forum for Information Retrieval Evaluation*. Bangalore, Karnataka.
- **Author Identification based on Word Distribution in Word Space**, *Advances in Computing, Communications and Informatics (ICACCI)*. Kochi, Kerala
- **Identification and Linking of Twitter Entities**, *#Microposts2015 Making Sense of Microposts: Big things come in small packages*. Florence, Italy.
- **Semantics Relation from Word Embeddings in Higher Dimension**, *SemEval-2016*. San Diego, California.
- **Statistical Semantics in Context Space: Author Profiling**, *PAN CLEF 2016*, Evora, Portugal.
- **Distributional Semantic Representation in Health Care Text Classification**, *FIRE 2016*, Kolkata, India.
- **Conditional Random Fields for Code Mixed Entity Extraction**, *FIRE 2016*, Kolkata, India.
- **Distributional Semantic Representation for Text Classification and Information Extraction**, *FIRE 2016*, Kolkata, India.
- **Vector Space Models to Vector Space Models of Semantics**, *arXiv*.
- **Deep Health Care Text Classification**, *arXiv*.
- **Health Care Text Classification through Class Embeddings**, *American Medical Informatics Association 2017*, Washington, D.C.
- **Representation of Target Classes for Text Classification**, *Rusprofiling, FIRE 2017*.
- **Distributed Representation in Information Retrieval**, *IRLeD, FIRE 2017*.
- **Overview of the INLI PAN at FIRE-2017 Track on Indian Native Language Identification**, *FIRE 2017*.

Publications in International Journals

- **Supervised Methods for Domain Classification of Tamil Documents**, *ARPN Journal of Engineering*.
- **Apache Spark a Big Data Analytics Platform for Smart Grid**, *Procedia Technology, Science Direct*.
- **Conditional Monitoring of a Valve in a Reciprocating Compressor using Machine Learning Approaches**, *International Journal of Applied Engineering Research*.

Publications in Book Chapter

- **Wavelet Based RTL-SDR Real Time Signal Denoising in GNU Radio**, *Advanced Computing, Networking and Informatics*.

Publications in Industry Conferences

- **Social Media Analysis through Cognitive Semantics - Author Profiling: Life Time Learning Method**, *TACTICS*. Tata Consultancy Services, Mumbai, Maharashtra.

International Shared Tasks Participation

- Forum for Information Retrieval and Evaluation (**FIRE-2014**): NER - Named Entity Recognition Indian Languages
- Named Entity rEcognition and Linking (**#Micropost2015 NEEL**) : Named Entity Recognition and Linking
- Semantic Evaluation Exercises (**SemEval-2016**) : Semantic Textual Similarity - A Unified Framework for Semantic Processing and Evaluation
- PAN @ Conference and Labs of Evaluation Forum (**PAN-2016**) : Author Profiling
- Forum for Information Retrieval and Evaluation (**FIRE-2016**): Mixed Script Information Retrieval (**MSIR**), Consumer Health Information Search (**CHIS**) and Code Mixed Entity Extraction – Indian Languages (**CMEE – IL**)
- PAN @ Conference and Labs of Evaluation Forum (**PAN-2017**) : Author Profiling
- Forum for Information Retrieval and Evaluation (**FIRE-2017**): Information Retrieval from Legal Documents (**IRLED**), Gender Identification in Russian Texts (**RusProfiling**)
- Cyber security Data mining Competition (**CDMC 2017**)
- 2nd Social Media Mining for Health Applications shared tasks at AMIA 2017 (**SMM4H**)
- Sentiment Analysis for Indian Languages (**SAIL 2017**)

Invited Talks and Honors

- Topic: "**Recent Trends in Text Analytics**", TEQIP sponsored Faculty Development Program on "Research Directions in Data and Text Mining", organized by Government Engineering College, Idukki on January 2016.
- Topic: "**Advanced Analytics in Text Mining and Data Mining**", Tata Consultancy Services sponsored Faculty Development Program on "Text and Data Mining" held at Tata Consultancy Services centre, Kochi on April 2016.
- Topic: "**Computation differs, not Optimization**", TEQIP Sponsored Faculty Development Program on "Contemporary Developments in Optimization Techniques and its Applications", organized by TKM College of Engineering, Kollam on May 2016.
- Topic: "**Web Mining through Data and Text Mining**", Association Inauguration "ORBIT 2K16" conducted by Viswa Jyothi College of Engineering and Technology, Vazhakulam on August 2016.
- Advisory Committee member of International Shared Task "**Detecting Paraphrases in Indian Languages (DPIL)**", Conducted as a part of Forum for Information Retrieval and Evaluation – 2016 by Amrita Vishwa Vidyapeetham University.
- Technical Committee member of International Shared Task "**Machine Translation in Indian Languages (MTIL)**", Conducted by Amrita Vishwa Vidyapeetham University.

- Session chair member of International Shared Task “**Indian Native Language Identification (INLI 2017)**”, Conducted by Amrita Vishwa Vidyapeetham University at FIRE 2017 conference.

Certifications and Courses

- “**Neural Networks and Deep Learning**” acquired from deeplearning.ai through coursera.
- “**Deep Learning Prerequisites: The Numpy Stack in Python**” from udemy.
- “**Deep Learning for Natural Language Processing**” course instructed by Richard Socher.
- “**Machine Learning Foundation**” acquired from Tata Consultancy Services.
- “**A Gentle Introduction to Deep Learning using Keras**” from udemy.
- “**Statistics and R**” acquired from Harvard through edx.
- “**High-Dimensional Data Analysis**” acquired from Harvard through edx.
- “**Maxima and Minima Concepts: Applications of Derivatives**” from udemy.
- “**Data Mining with Weka**” acquired from University of Waikato.
- “**Hadoop Fundamentals**” and “**Spark Fundamentals**” acquired from IBM.
- “**The Top 5 Machine Learning Libraries in Python**” from udemy.

References

- Dr. K.P Soman – Amrita Vishwa Vidyapeetham, <https://www.amrita.edu/faculty/soman>
- Dr. Anand Kumar M – Amrita Vishwa Vidyapeetham, <https://www.amrita.edu/faculty/anand-kumar>