Monisha J
Indian Institute of Technology Madras

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Education

2015-20	**Completed 4th Year - Dual Degree in Computer Science and Engineering**,	
	Indian Institute of Technology Madras, Chennai,	CGPA : 8.52.
2014-15	**XII** - **Karnataka Board**, *KLE Society's Independent PU College, Bangalore,*	97.3 %.
2012-13	**X** - **ICSE**, *B P Indian Public School, Bangalore,*	96.33%.

Professional Experience

May - July 2019 — **Spelling Autocorrect in Google Docs**.
*Summer Internship, **Google India, Bangalore***
- Developed a new feature comprising of UI behaviour and user actions for existing Autocorrect Operations
- Working on the introduction of a new kind of Autocorrect that corrects misspellings

May - July 2018 — **Text to Scene Conversion in Augmented Reality**.
*Summer Internship, **Adobe Research Labs, Bangalore***
- Worked on the problem of converting natural language textual descriptions to 3D scenes in Augmented Reality
- Proposed and developed a novel system for the same using NLP and ML based techniques that demonstrated major performance improvements over previous systems.
- Developed a mobile application to showcase the applicability of the system developed
- A patent on Text to Scene Generation in AR through 3D Models has been filed (US PTO, Application No. xxxxxxx)

Major Projects

August - December 2018 — **Leveraging Ontological Knowledge for Neural Language Models**.
Indian Institute of Technology Madras, Guide : Prof. Sutanu Chakraborti
- Applied Weight Initialization using the WordNet Ontology in learning word embeddings for a task specific to the architecture domain, resulting in a faster convergence rate
- Proposed models that induce hierarchy in word embeddings for domain transfer
- A publication and poster on the same were presented at *ACM CODS-COMAD Young Researchers' Symposium 2019*

July 2018 - March 2019 — **Multimodal Dialogue Generation**.
Indian Institute of Technology Madras, Guide : Prof. Mitesh Khapra
- Implemented a model for proof of concept that integrating domain-relevant features improves the performance of image retrieval in multimodal dialogue systems in the fashion domain with the MMD dataset
- Explored the performance of attention and memory based models for multimodal dialogue with domain knowledge integration
- Explored the Graph Convolutional Networks for modeling multimodal dialogue systems

March - April 2019 — **Risk-Sensitivity in Multi-Armed Bandits**.
Indian Institute of Technology Madras, Guide : Prof. L.A. Prashant
- Empirical of survey the existing methods for risk-sensitivity in stochastic bandit problems, spanning risk measures like Variance, Value at Risk (VaR) and conditional Value at Risk (cVaR)
- Implemented multiple risk-sensitive algorithms for each and performed a qualitative and quantitative analysis
- Introduced modifications of Explore-Then-Commit algorithm for VaR and CVaR measures - both showing performance competitive with existing risk-sensitive algorithms

October - November 2018 — **Risk-Sensitive Reinforcement Learning**.
Indian Institute of Technology Madras, Guide : Prof. L.A. Prashant
- Empirically analysed the existing methods for risk-sensitive RL various spanning risk measures like variance bounds and probabilty of risk bounds; incorporating them in algorithms like Q-learning and SARSA
- Bench-marking on a Gridworld with error states, introduced a new risk measure that maximizes distance from them (Min-max setup)

May - July 2017 — **Cognitive Approach to Natural Language Processing**.
Summer Internship, Indian Institute of Science (IISc), Guide : Prof. Veni Madhavan
- Worked on a cognitive approach to Natural Language Processing, which combines syntactic and semantic approaches
- Developed a cognitive parser which processes textual data into cognitive structure representation
- Output was a software which would be used as a feature extractor for various NLP tasks

Skills

Languages	C, C++, C#, Java, Python, HTML, CSS, Javascript
Tools	Unity, ARCore, Android Studio, Stanford CoreNLP, git, Bootstrap, jQuery, AngularJS
	NLTK, django, scipy, pandas, sklearn, gensim, keras, tensorflow
Operating Systems	Windows, Linux(Ubuntu), ChromeOS

Courses

Learning	Deep Learning, Machine Learning, Natural Language Processing
	Reinforcement Learning, Multi-Armed Bandits, Probabilistic Graphical Models
Core	Computer Networks, Database Systems, Operating Systems, Data Structures and Algorithms, Object Oriented Programming
Mathematics	Probability-Statistics-Stochastic Processes, Discrete Mathematics, Graph Theory

Scholastic Achievements

- First runner up in the **AWS Deep Learning Hackathon** held in Shaastra 2018, IIT Madras : Implemented a prototype of a proposed idea involving recognition and translation of English text on signboards and posters into user's vernacular language
- **State Rank 17** in Karnataka Common Entrance Test for Engineering, 2015, out of approximately 1.2 lakh students
- Topped respective academic institutions, in both **Class X and Class XII** board exams

Positions of Responsibility

June 2019	**Organizer, Management Team**, *Tech Intern Connect, Banglore*, Google India.
	○ Was part of the managing commitee that organized the event
2016-17	**Technical Operations Coordinator**, *Shaastra 2017*, Indian Institute of Technology Madras.
	○ Web Operations (Front end) Coordinators
	○ Work involved development of major websites and portals for the technical fest of IIT Madras

Extra Curricular Activities

Sports	Part of NSO (Sports at IIT Madras) Basketball during first year of engineering (2015-16)
Cultural	Trained in the classical dance form of Bharatanatyam, for six years