
RESEARCH INTERESTS	Reinforcement Learning, Multi-Armed Bandits, Machine Learning Theory, Optimization	
EDUCATION	Indian Institute of Technology, Kharagpur Bachelor of Technology (Honors), Computer Science and Engineering CGPA: 8.88/10.0	July 2012 to May 2016
RESEARCH EXPERIENCE	Xerox Research Center India, Bangalore Budding Scientist Mentors: Theja Tulabandhula, Ph.D and Arun Rajkumar, Ph.D Machine Learning and Statistics group, Algorithms and Optimization group	June 2016 to June 2017
PUBLICATIONS	<ol style="list-style-type: none"> Sudeep Raja Putta, Theja Tulabandhula “Pure Exploration in Episodic Fixed-Horizon Markov Decision Processes”. <i>AAMAS 2017</i>. Sudeep Raja Putta, Theja Tulabandhula “Efficient Reinforcement Learning via Initial Pure Exploration”. <i>RLDM 2017</i>. 	
RESEARCH PROJECTS	<p>Euclidean Distance Matrix Completion Has No Spurious Local Minima Research Project, Xerox Research Center India Work in Progress</p> <ul style="list-style-type: none"> Trying to prove that the Euclidean Distance Matrix Completion Problem(EDMCP) has a property similar to Low Rank Matrix Completion and Matrix Sensing. If proven, simple algorithms like SGD are guaranteed to find the Global Optimum as all Local Minima are globally optimal. <p>Pure Exploration in Episodic Fixed-Horizon Markov Decision Processes Research Project, Xerox Research Center India</p> <ul style="list-style-type: none"> Proposed an algorithm based on PSRL and Pure Exploration Thompson Sampling for Pure Exploration in episodic fixed horizon MDPs. Empirically showed that our algorithm achieves good posterior distributions within a fixed budget and can be useful in a setting termed Reinforcement Learning with Practice. <p>Memory based Function Approximation Research Project, Xerox Research Center India July 2016 to Dec 2016</p> <ul style="list-style-type: none"> Proposed Q-value approximation heuristics using K-Nearest Neighbour regression and LRU memory. Implemented dynamic nearest neighbour searching using R-trees and Investigated the dependence of the performance of the agent on the LRU memory size using environments in OpenAI Gym. 	
RESEARCH INTERNSHIPS	<p>Tracking Idea Evolution in Discussion Forums Cognitive Solution Group, IBM Research Labs, Bangalore May 2015 to July 2015</p> <ul style="list-style-type: none"> Developed heuristics for identifying the Ideas proposed in a forum and for tracking their evolution in form of a tree using Latent Dirichlet Allocation. <p>Text Recognition using Bidirectional LSTMs Centre for Visual Information Technology, IIIT Hyderabad May 2014 to July 2014</p> <ul style="list-style-type: none"> Trained Bidirectional LSTM neural networks with a CTC layer for recognizing words from raw images of Indian language scripts. 	
WORKSHOPS ATTENDED	Reinforcement Learning Summer School, University of Montreal Machine Learning Winter School at XRCI	July 2017 December 2015
ONLINE CERTIFICATION	Machine Learning Engineer Nanodegree, Udacity	June 2016

AWARDS

Winner of Xerox Research Innovation Challenge 2015

For the work done on **Ambulance Response Time Optimization**
Runners up at Microsoft Code Fun Do 2015

For developing the mobile app **Artify**, similar to Prisma

TECHNICAL
EXPERIENCE

Programming
Packages

Python, C++, C, Java
Numpy, Scipy, Scikit-learn, Keras, Cvxpy

EXTRA
CURRICULAR
ACTIVITIES

Bloggng about mathematics, machine learning and algorithms

<http://sudeeppraja.github.io/blog/>

Recent Posts:

- Thompson Sampling vs Pure Exploration Thompson Sampling
- Bayesian Inference and the bliss of Conjugate Priors
- Multi Armed Bandits and Exploration Strategies
- Die rolls and Concentration Inequalities
- A Derivation of Backpropagation in Matrix Form