Umesh Kumar Singla

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SUMMARY

AI researcher with 2+ years of experience in cognitive science, statistics, and deep learning seeking positions in research.

EDUCATION

2020 - present	**University of California, San Diego (UCSD)** M.S., Computer Science (GPA: 3.96/4.0) Advisor: Dr Marcelo Mattar • Exploration and planning in biological and artificial agents.
2014 - 2018	**IIIT Hyderabad** B.S., Computer Science & Engineering (GPA: 8.50/10.0) Advisor: Dr Bapi S Raju

RESEARCH

2021 - present	**Neural Computation and Reinforcement Learning Lab,** UC San Diego Advisor: Dr Marcelo Mattar Position: Graduate Student Researcher • Studying exploration and planning in sequential settings in artificial agents and animals. We are investigating how animals deviate from optimality in such decisions by analyzing naturalistic behavior data, and fitting and comparing computational models. • Study various exploration algorithms from Reinforcement Learning to test their generalizability over environments outside the domains they were originally developed for. • Analysis and modeling of rodent behavior data from 2AFC and temporal discounting experiments in Bayesian inference framework (Stan).
2018 - 2019	**Cognition Science Group,** IIIT Hyderabad Advisor: Dr Vinoo Alluri, Position: Undergraduate Research Program • Investigation of long-term effects of cannabis on hippocampus subfields by analyzing structural MRI scans in FreeSurfer. • Replicate a previous study on cocaine addiction-related alteration in resting-state functional connectivity by analyzing fMRI scans in AFNI.
Fall 2016	**Brain, Cognition and Computation Lab,** IIIT Hyderabad Advisor: Dr Bapi S Raju, Position: Undergraduate Research Program • Conducted a serial reaction time experiment in Psychtoolbox to study implicit learning of auditory sequences and any presence of motor learning.

INDUSTRY

2018 - 2020	Machine Learning Engineer, **Joveo, Inc.**	*Hyderabad, India*
	• Design, code, troubleshoot, and support scalable big data pipelines. • Collaborated on building a data-driven media planner to recommend the best platforms, bid, and budget to advertise a job. • Built and deployed a machine translation system for non-english job descriptions.	
Summer 2017	Research Engineering Intern, **Samsung Research**	*Bangalore, India*
	• Anomaly detection on time-series data from CPU usage and network logs. • Study fault localization methods to detect faulty operations at runtime in cloud systems.	

PUBLICATIONS

2020	Arun Garimella, Sourabh Rajguru*, **Umesh Singla***, and Vinoo Alluri. Marijuana and the hippocampus: A longitudinal study on the effects of marijuana on hippocampal subfields. *Progress in Neuro-Psychopharmacology and Biological Psychiatry.*

Posters

2018	**Umesh Singla**, Pramod Kaushik, Eduardo A. Garza-Villarreal and Vinoo Alluri.
	Replicating impaired resting state functional connectivity in chronic cocaine users. *5th Annual Conference of Cognitive Science (ACCS). IIT Guwahati, India.*
2017	**Umesh Singla**, Anuj K. Shukla and Bapi S Raju.
	Implicit sequence learning in auditory domain. *IIIT Hyderabad Undergraduate R&D Showcase.*

Teaching Assistant

UC San Diego

Fall 2021	CSE250A: Principles of AI: Probabilistic Reasoning and Decision-Making
Fall 2022	DSC180A: Data Science Senior Capstone Project
Spring 2022	DSC190: Intro to Machine Learning: Representation Learning
Summer 2022	CSE8A: Intro to Programming in Python
Winter 2022	DSC102: Systems for Scalable Analytics
Summer 2021	CSE141: Intro to Computer Architecture
Spring 2021	CSE142L: Computer Architecture: Software Perspective
Winter 2021	DSC102: Systems for Scalable Analytics

IIIT Hyderabad

Spring 2018	Computer Networks
Spring 2017	Basic Electronic Circuits

Mentoring

Fall 2022	Jacobs Undergraduate Mentoring Program (JUMP) graduate mentor, UCSD.
Fall 2021	Out in STEM (oSTEM) Qtorship graduate mentor, UCSD.
Summer 2019	Google Summer of Code (GSoC) mentor for open source organization, MacPorts.

Relevant coursework

ML	Probabilistic Learning and Decision-Making; Statistical Methods in AI Deep Generative Models; Search and Optimization; Structured Prediction for NLP Recommender Systems; Information Retrieval and Extraction
CogSci	Intro to Cognitive Science; Neuronal Dynamics; Modeling & Simulations; Data Analytics
Textbooks	Pattern Recognition & Machine Learning, Reinforcement Learning, Theoretical Neuroscience

Awards

2014 - 15	IIITH Dean's List
2014	INSPIRE scholarship, Government of India

Skills

Programming	Python (PyTorch, PyStan, scikit-learn, Numpy, Pyplot), MATLAB, SQL, JavaScript, HTML
Tools/Libraries	Amazon Web Services, AFNI, Git, Docker, Linux, LaTeX

November 1, 2022