Jayanth S

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Research Engineer with the current work focused on Reconfigurable Intelligent Surfaces and wireless communication systems. Research interests include Wireless Communication, Stochastic Optimization, and Reinforcement Learning.

Education

Indian Institute of Technology, Dharwad **2020 – 2022**
M.S(Research) in Electrical Engineering, CGPA = 9.17/10 *Dharwad, Karnataka*
Thesis supervisor: Rajshekhar V Bhat

PES Institute of Technology, Bangalore South Campus **2015 – 2019**
B.E. in Electronics and Communication Engineering, CGPA = 8.16/10 *Bangalore, Karnataka*

Technical Skills

Languages: Python, C,C++
Software Tools: Matlab, Latex
Packages/Frameworks used : Pytorch, Tensorflow, Keras, NumPy, Scikit-learn, Ray rllib
Courses: Wireless Communication, Convex Optimization, Linear Algebra, Probability and Stochastic Processes, Machine Learning, Reinforcement Learning

Experience

TCS Research **Feb 2023 -**
Research Engineer *Bangalore, Karnataka*

- Contributed to winning the **Depth Estimation using mmWave AI/ML challenge - 2023** organised by NIST(National Institute of Standards and Technology, USA) and ITU(International Telecommunication Unit) through algorithm implementation [**presentation link**].
- Developed algorithms for cascaded channel estimation for RIS(Reconfigurable Intelligent Surface) aided communication; published in IEEE ICC Workshop 2024.
- Implemented OFDM and OTFS modulation techniques to transfer data between USRP B210 software-defined radios.

Linköping University **October 2022 - December 2022**
Research Assistant, Department of Computer and Information Science *Linköping, Sweden*

- Explored using **Open-loop Stationary Randomized Policy** framework to solve the designed optimization problem involving **semantics and age of information** with Assoc. Prof. **Nikolaos Pappas**; published in WiOpt 2023.

TCS Research **May 2022 - August 2022**
Research Intern *Bangalore, Karnataka*

- Implemented **DDPG, TD3 and SAC** Deep Reinforcement Learning algorithms for Hybrid Beamforming in Single User - MIMO communication systems.

Projects and Paper Implementations

Implementation of the Paper - Model Free Training for End-to-End Communication Systems [code] **2022**

- Implemented the model-based and model-free **auto-encoder** based end-to-end communication system for AWGN and Rayleigh Block Fading(RBF) channels as given in the paper: Fayçal Ait Aoudia and Jakob Hoydis, "Model-Free Training of End-to-End Communication Systems."

Policy Gradient Algorithms for Atari Games [code] **2022**

- Applied the policy gradient algorithms, i.e., **A2C, A3C, TRPO, and PPO**, based on the *stablebaselines3* and *ray rllib* implementation of these algorithms for Pong, Breakout and Space-Invaders atari games.

Resource Allocation For Overlay Device To Device(D2D) Communication **2019**

- Implemented Largest Interference Aggregated First(LIFA) algorithm to utilize the resources available for effective device-to-device communication.

Publications

1. **Jayanth S**, Vishnu Karthikeya Gorty, A Anil Kumar, Tapas Chakravarty, Arpan Pal "RIBCE: RIS-BS virtual array based Channel Estimation for mmWave communication system," **IEEE ICC Workshop, 2024**.

2. **Jayanth S**, Nikolaos Pappas, Rajshekhar V Bhat, "Distortion Minimization with Age of Information and Cost Constraints," **WiOpt, 2023**.

3. **Jayanth S** and Rajshekhar V Bhat, "Age of Processed Information (AoPI) minimization with power constraint in fading multiple access channels," **IEEE ICC 2022** and the extended version is published in **IEEE Transactions on Wireless Communications(IEEE-TWC)** journal.

4. Gagan G B, **Jayanth S** and Rajshekhar V Bhat, "Age of Information Minimization with Power and Distortion Constraints in Multiple Access Channels," **WiOpt, 2021**.

Certified Courses

- Deep Learning Specialization- Coursera
- Reinforcement Learning Specialization - Coursera