Pankayaraj . P - BSc Computer Engineering

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Employment History

2022-Current — **Teaching Assistant** (CMSC320: Introduction to Data Science)Department of Computer Science, University of Maryland, USA

2022-2022 - 7 months — **Research Engineer** Singapore Management University (SMU)
- Working on Constraint Reinforcement Learning in Hierarchical Settings

2020-2021 - 14 months — **Collaborator** Flowers Laboratory, ENSTA Paris.
- Working on the ways to improve continual offline reinforcement learning with artificial curiosity (Manuscript Under Finalization)

2020-2021 - 12 months — **Research Assistant** SLTC, QBITS Lab.
- Working on task specialization in the context of multi agent multi goal reinforcement learning
- Continual Offline Reinforcement Learning

2019-2019 - 5 months — **Research Assistant Intern** SLTC, QBITS Lab.
- Worked on devising communication strategies for multi agent multi arm bandit problems in both normal and delayed reward settings.

Education

2022-2027 — **PhD, Department of Computer Science, University of Maryland, USA.**

2015-2020 — **B.Sc. Computer Engineering University of Peradeniya, Sri Lanka** 3.5 out of 4 GPA

2002-2014 — **Sri Koneshwara Hindu Colleage Trincomalee**.

English Proficiency — **TOFEL**: **112**, Reading: **29**, Listening: **30**, Writing: **26**, Speaking: **27**

Research Publications

Conference Proceedings

1. **Pankayaraj P**, & Varakantham, P. (2022). Constrained reinforcement learning in hard exploration problems [**Accepted**], In ***37th AAAI Conference on Artificial Intelligence*** *Washington, D.C. USA* ***Acceptance rate : 19.6 %***.
2. **Pankayaraj. P**, & Maithripala, D. H. S. (2020). A decentralized communication policy for multi agent multi armed bandit problems [**Presented**], In ***European Control Conference 2020***, *Saint Petersburg, Russia* ***Acceptance rate : 58%***.
3. **Pankayaraj P**, Maithripala, D. H. S., & Berg, J. M. (2020). A decentralized policy with logarithmic regret for a class of multi-agent multi-armed bandit problems with option unavailability constraints

and stochastic communication protocols [**Presented**], In ***59th IEEE Conference on Decision and Control**, Jeju Island, Republic of Korea **Acceptance rate : 52.7%**.*

4 Jayatilaka, G., Weligampola, H., Sritharan, S., **Pankayraj Pathmanathan**, Ragel, R., &], I. N. [(2019). Non-contact infant sleep apnea detection [**Presented**], In ***ICIIS 2019** Sri Lanka*.

Under Review

1 **Pankayraj Pathmanathan**, Rodríguez, N. D., & Ser, J. D. (2022). *Using curiosity for an even representation of tasks in continual offline reinforcement learning*.

Symposiums

1 **Pankayaraj P**, Sumanasekera, Y., Samarasinghe, C., Elkaduwe, D., Jayasinghe, U., & Maithripala, D. H. S. (2020). *Multi-agent reinforcement learning in sparsely connected cooperative environments[**Presented**, awarded the **Best Research Paper**], in **ESCaPe 2020**, Sri Lanka*.

Preprints

1 **Pankayaraj P**, Sumanasekera, Y., & Samarasinghe, C. (2019). *A review on reinforcement learning based autonomous quadcopter control*.

Academic Volunteering

2020 **Peer Reviewer : Journal** IEEE Transactions on Communications
- Impact Factor : 5.69 (2018)
- Done during the undergraduate period

Projects

2020 **Multi-Agent Reinforcement Learning in Sparsely Connected Cooperative Environments** Dealing with the sparse connectivity in multi agent settings.
Report `https://drive.google.com/drive/folders/1Jtl88fSC-4xC1kBv4ZEm2rQhojSanBDz`

2019 **Reinforcement Learning Based Autonomous Quadcopter Control**
Using Reinforcement Learning algorithms to make Quadcopter control decisions on an AirSim simulated environment

REPORT: `https://drive.google.com/drive/folders/16Ej8XL4SRrtHl58FsMMnYDaD5WYWruF9`

2018 **A user recommendation method using Bayesian Reinforcement Learning**
Github Link : `https://github.com/punk95/sitnshop/tree/BackEndAlgorithm`
REPORT : `https://drive.google.com/drive/folders/19Sq1UExeANUWQGGVf8EXBCrPRntAFvaF`

2017 **Creating a python based library with a Tensor flow back end for Bayesian Optimization and Multi Arm Bandit Problem**
GitHub Link : `https://github.com/punk95/Multi-Arm-Bandit-Library`
PyPi link : `https://pypi.python.org/pypi/mabandit/1.3`
REPORT:`https://drive.google.com/drive/folders/1H2Pcbfj825LPbYjo3rnKlY0lgRQCFwXb`

Projects (continued)

2018 **SitnShop– An Advertising platform for shops** An advertising platform for anykind of shop and it also helps the customers of the shops to easily find related shops.
Github Link : `https://github.com/punk95/sitnshop/`
REPORT : `https://drive.google.com/drive/folders/1ZcsJkFPDCJhvh8kOyt0LjnxBkJ1cAgaB`

Infant Sleep Apnea detection system : A portable device that can detect Sleep Apnea condition in infants using techniques such as Optical flow, Edge detection, Fourier analysis with python, Raspberry pi.
Github Link : `https://github.com/punk95/Sleep_Apnea_Detection`
REPORT:`https://drive.google.com/drive/folders/17fLXhj1uxl5MuqNqEM46_tYuRsWoXC2Z`

Making a central server for the sleep apnea problem
Technologies : Python, Django, Django rest framework, HTML/CSS,JS
Github Link: `https://github.com/punk95/Django_Server_Sleep_Apnea`

2017 **ExpertMiner :**
Earth resource location prediction using Hyper Spectral Images from satellites Techniques : Pattern Recognition, Correlation Mapping
Github Link : `https://github.com/punk95/HSI_Project`

Skills

Languages	English (**TOFEL**: **112**, Reading: **29**, Listening: **30**, Writing: **26**, Speaking: **27**), Tamil(Native).
Coding	Python , Java, , LaTeX, C++, C, Matlab
Libraries	Tensorflow, Pytorch, Kivy, Numpy, Scipy
Web Dev	Dijango
Intrested Fields	Reinforcement Learning, Deep Learning, Machine Learning, Statistics and Probability, Bayesian Models, Numerical Computation, Algorithmic Problem Solving, Web and GUI development
Misc.	Academic research

Miscellaneous Experience

Awards and Achievements

2017 **ACES Hackathon 2017(Intra university hackathon)** : Project:Expert miner: Softwaresection winners, Best idea of the competition

2016 **ACES Coders v6.0** (Inter university programming competition):Country Rank : 4th

IEEExtreme 10.0 Programming competition(24 hour Global Programming competition
Country Rank: 38th
World Rank: 330th

References

Prof Pradeep Varakantham
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