

Pankayaraj . P BSc Computer Engineering

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Employment History

- 2022-Incoming 📌 **Research Engineer** Singapore Management University (SMU)
- Working on human robot collaboration
- Focused on expert RL agents creating scenarios to teach non expert agent.
- 2020-Present - 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

- 2015-2020 📌 **B.Sc. Computer Engineering University of Peradeniya, Sri Lanka** 3.5 out of 4 GPA
- 2002-2014 📌 **Sri Koneshwara Hindu College Trincomalee.**
- English Proficiency 📌 **TOFEL: 112, Reading: 29, Listening: 30, Writing: 26, Speaking: 27**

Research Publications

Conference Proceedings

- 1 **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*,
- 2 **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*.
- 3 Jayatilaka, G., Weligampola, H., Sritharan, S., **Pankayaraj Pathmanathan**, Ragel, R., &], I. N. [(2019). Non-contact infant sleep apnea detection [**Presented**], In *ICIIS 2019 Sri Lanka*.


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>
- 2018  **SitnShop– An Advertising platform for shops** An advertising platform for any kind 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/1ZcsJkFPDCJhvh8k0yt0LjnxBkJ1cAgaB>
-  **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

Projects (continued)

- **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 ■ Django
- 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
- **IEEEExtreme 10.0 Programming competition**(24 hour Global Programming competition
Country Rank: 38th
World Rank: 330th

References

Dr Natalia Díaz-Rodríguez

Assistant Professor

ENSTA Paris - École Nationale Supérieure de Techniques Avancées, Institut Polytechnique Paris, France.

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