

# ARUN PALANIAPPAN THIAGARAJAN

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## EDUCATION

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PSG College of Technology, Coimbatore

July '16 - Present

MSc Data Science (Integrated five year program)

CGPA (upto 8<sup>th</sup> semester): 9.02/10

## RESEARCH EXPERIENCE

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**Data Driven Analysis of FCI's Operations and Recommendations**

May '20 - Ongoing

*Working paper with Shamshu Dharwez, Nehal Muthu*

- We collected available open data, studied operations of Food Corporation of India and found gaps in allotment and offtake of Indian states.
- We found factors which influence states proposals, efficient utilization of foodgrains, challenges in providing food security under the current system and suggested policy recommendations.

**TCS Research**

May '19 - October '19

*Research Intern under [Sharadha Ramanan](#)*

Chennai

- Studied dynamic pricing of interdependent and perishable product using reinforcement learning techniques.
- Proposed a Q-learning model which achieved a yield of 16% higher than passive pricing techniques in simulated environment.

## KEY PROJECTS

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**Intelligent Character Recognition using Tensorflow**

June 2020

- Used IAM dataset and augmented the dataset with noise added data points to build a robust convolutional natural network to recognize handwritten words.
- Performed gradient clipping, used  $l_\infty$ -norm loss and achieved an accuracy of 44%.

**Resume Parser**

Febraury 2020

- Extracted email-id, skill set, phone number, educational qualifications and experiences from a resume using regex based techniques with text preprocessing.
- Found relevance of resume to the position applied by using document similarity metrics.

**Budget Analyzer**

March 2019

- Built an application to keep track of users income and expenses using MongoDB for backend and PyQt for front end. The application gives prediction for future expenses using time-series analysis.

**Decoding Motor-movement from EEG signals**

October 2018

- Studied the use of support vector machines and explored mutliple kernel based support vector machines for decoding raw EEG signals into motor movements
- Used data from BCI Competition IV and achieved an accuracy of 60%.

## RELEVANT COURSES

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- **Computer Science** - Data Structures, Design and Analysis of Algorithms, Database Systems, Data Mining, Supervised and Unsupervised Learning, Reinforcement Learning.
- **Mathematics** - Calculus and its Applications, Theory of Probability, Applied Statistics, Graph Theory, Stochastic Models, Predictive Analytics, Linear Algebra, Network Science<sup>1</sup>, Game Theory<sup>1</sup>

## ACADEMIC INTERESTS

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Machine Learning, Economics, Network Science

## TECHNICAL SKILLS

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- **Strong** - Python, Rstudio
- **Familiar** - MATLAB, C/C++, MySQL
- **Tools** - Pytorch, Git, L<sup>A</sup>T<sub>E</sub>X

## ACADEMIC SERVICE

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- Led the development of [Machine Learning study group](#) at PSG College of Technology and organized weekly online meetings to discuss machine learning papers and concepts.
- Conducted Cricket and Statistics program and [Excel for Sports](#) at Mango Education for kids aged between 11 - 15.

## EXTRACURRICULARS AND ACHIEVEMENTS

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- Participated virtually in [Theory of Reinforcement Learning Boot Camp](#) organized by Simons Institute for Theory of Computing.
- A member of Coimbatore Toastmasters Club between 2017-2019 and served as Secretary of the club between July 2018-Dec 2018.
- Wrote my study notes on multi-arm bandits as blogs at <https://arunpalaniappan.github.io/>
- Secured Fifth rank in maths olympiad organized by Department of Mathematics, PSG College of Technology.
- Obtained Finisher medal in Amma marathon conducted by government of Tamil Nadu for cancer awareness at Coimbatore.

## REFERENCES

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- [Dr. Latha R](#), Assistant Professor, Department of Applied Mathematics and Computational Science, PSG College of Technology, Coimbatore. Contact: [rla.amcs@psgtech.ac.in](mailto:rla.amcs@psgtech.ac.in)
- [Dr. Sharadha Ramanan](#), Principal Scientist, TCS Research, Chennai. Contact: [sharadha.ramanan@tcs.com](mailto:sharadha.ramanan@tcs.com)

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<sup>1</sup>Courses currently undertaking