Prasanna Maddila

PhD Candidate · Generalist Engineer

10 Allée des Sciences Appliqueés, 31400 Toulouse

(+33) 07 80 83 59 82 https://prasanna.maddila.cc PrasannaMaddila Prasanna Maddila Prasanna Maddila

0000-0003-0049-1746

Education

University of Toulouse | Lab MIAT, INRAE — Toulouse, France

PhD Candidate — Oct 2023 - Present

- Working on the Complexity of Nash Equilibrium Computation in Games of Teams vs. Independent Adversaries.
- Implemented GPU-compatible solvers in JAX for these games.
- Project funded by the French-German ANR Project CHIP-GT.

CentraleSupélec — Paris, France

Masters in Engineering (Computer Science) — August 2021 - 2023

- Specialisation in Theoretical Computer Science, and part of the Research Track (*Filière de Recherche*).
- Student in the Accelerated Engineering Degree Programme.

Mahindra University — Hyderabad, India

Bachelors' in Technology. Mechanical Engineering — August 2017 - 2021

- Bachelor Student in Mechanical Engineering (CGPA 9.27/10).
- Recipient of the University's Student Scholarship for Academic Excellence for 3 years.

Experience

End-of-Studies Internship — Toulouse, France

MIAT, INRAE — Apr - Sept 2023

- Modelled Anti-Poaching as a Partially Observable Stochastic Game.
- Implemented a simulator using PettingZoo, with various MARL algorithms using RLlib and PyTorch.

M2 Project — Paris, France

MICS, CentraleSupélec — Nov 2022 - Apr 2023

- Worked on the Roommate Matching problem under Rank-Envy-Free matching constraints.
- Established complexity results for such matchings, and studied their relation to existing notions.

M1 Internship — Paris, France

MICS, CentraleSupélec — May - July 2022

- Worked on Epidemiological models to model the evolution of COVID Variants.
- Implemented numerical schemes and calibrated models using real-world data.

Visiting Student — Shantou, China

University of Shantou — May - July 2018

- Developed approaches based on genetic algorithms for modelling of Li-ion batteries in Electric Vehicles.
- Worked on data analysis and Experimental Design to minimise physical testing.

Teaching

Deep Learning — Toulouse, France

University of Toulouse — November 2024 - December 2025

- Created and taught a 12 hour course in Deep Learning (Years 2024-25 and 2025-26).
- Course offered to final-year Masters' students in Mathematical Modelling of Ecological Systems.
- Course projects: Auto-Encoders for Image Segmentation and training CNN Classifiers for real-world datasets.

Skills

Programming Languages	Python, C, C++17, HTML/CSS/SCSS (Basics)
Libraries	JAX, PyTorch, Ray/RLlib, NumPy, SciPy, Pandas, Matplotlib, Pytest, Sphinx
Other Software/Skills	LaTeX, Make, CMake, Bash, Git, CI/CD, Docker (Basics)
Spoken Languages	English (C1/C2), French (B2), Hindi, Telugu

Software

Multi-Adversarial Team Games

MIAT, INRAE

- Reference implementation of the solver for Multi-Adversarial Team Games (MIT License).
- JAX-based implementation is GPU-compatible, and follows Python packaging guidelines.

Anti-Poaching Environment

MIAT, INRAE

- Reference implementation of the Anti-Poaching Environment (MIT License), implemented using PettingZoo.
- Follows a formal Partially Observable Stochastic Game (POSG) model.
- Benchmark MARL algorithms have been implemented using the RLlib suite.

Deep Learning Course (French)

University of Toulouse

- Slides and project material for Teaching course offered to Masters' students (CC-BY-4.0 License).
- Course introduces Perceptrons, Dense Networks, CNNs and RNNs.

Publications

[1] P. Maddila, R. Sabbadin, and M. Vinyals, "Efficiently Computing Approximate Nash Equilibria in Multi-Adversarial Team Games," in *The 25th International Conference on Autonomous Agents and Multi-Agent Systems*, 2026. [Online]. Available: https://hal.science/view/index/docid/5450199

[2] P. Maddila, C. Eric, P. Chabrier, R. Sabbadin, and M. Vinyals, "APE: An Anti-poaching Multi-Agent Reinforcement Learning Benchmark," in *Seventeenth European Workshop on Reinforcement Learning*, 2024. [Online]. Available: https://openreview.net/forum?id=JSWRnHC93W

[3] P. Maddila, R. Sabbadin, and M. Vinyals, "Learning in Competitive-Cooperative Games for Anti-Poaching," in *Workshop on Learning in Games*, 2024.

[4] B. Coutance, P. Maddila, and A. Wilczynski, "Rank-Envy-Freeness in roommate matchings," in *26th European Conference on Artificial Intelligence (ECAI 2023)*, 2023.

[5] A. Agrawal, P. Maddila, C. Zhang, B. Perabathini, and S. Lasaulce, "Cooperative energy efficient resource allocation in fast fading interference networks," in *2019 International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob)*, 2019, pp. 276–281.

[6] S. K. C. Bulusu, P. Maddila, H. Shaiek, and D. Roviras, "HPA linearization for FBMC-OQAM signals with fast convergence-digital predistortion," in *2019 16th International Symposium on Wireless Communication Systems (ISWCS)*, 2019, pp. 133–138.

[7] L. Yun *et al.*, "An integrated framework for minimization of inter lithium-ion cell temperature differences and the total volume of the cell of battery pack for electric vehicles," *Energy Storage*, vol. 1, no. 2, p. e41, 2019.

[8] L. Yun *et al.*, "Maximization of extraction of Cadmium and Zinc during recycling of spent battery mix: An application of combined genetic programming and simulated annealing approach," *Journal of Cleaner Production*, vol. 218, pp. 130–140, 2019.