

KRISHNA ACHARYA

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EDUCATION

Ph.D. (Machine Learning), Georgia Institute of Technology | Advisor: Dr. Juba Ziani Sep 2021 - Dec 2025(expected)
Masters in Computer Science, École Normale Supérieure de Lyon, France Sep 2019 - Aug 2020
BE Computer Science, Birla Institute of Technology and Science Pilani, India Aug 2015 - Dec 2018

PROFICIENCY

Skills: Differential privacy, Recsys, Reinforcement learning, privacy attacks/defenses for LLMs, Algorithmic fairness
Programming Languages: Python, C++, Java, Matlab **ML:** PyTorch, Hugging Face, TensorFlow, Scikit-Learn, Ray, Pandas
Databases: MySQL, MongoDB **Misc:** Unix, Git

PAPERS

Personalized Differential Privacy for Ridge Regression Preprint, Code
K.Acharya, F.Boenisch, R.Naidu, J. Ziani also @ Privacy workshop ICLR 2024

Producers Equilibria and Dynamics in Engagement-Driven Recommender Systems Preprint, Code
K.Acharya, V.Vangala, J.Wang, J. Ziani

Oracle Efficient Algorithms for Groupwise Regret ICLR 2024, Code
K.Acharya, E. Arunachaleswaran, S.Kannan, A.Roth, J. Ziani also @ OPT workshop NeurIPS 2023

Wealth Dynamics Over Generations: Analysis and Interventions SaTML 2023, Code
K.Acharya, E. Arunachaleswaran, S.Kannan, A.Roth, J. Ziani

Master thesis: Online Reinforcement learning algorithms for fair ad auctions Master Thesis, Code
K. Acharya

QoE for Adaptive Video Streaming over Wireless Networks with User Abandonment Behavior WCNC 2019
R.El-Azouzi, K.Acharya, S.Poojary, A.Sunny, M.Haddad, E. Altman, D.Tsilimantos, S.Valentin

Approximation of the Banzhaf index and its application to voting games in the EU Manuscript
K. Acharya, H.Mukherjee, J.K. Sahoo

INTERSHIPS

Keysight Technologies Atlanta, USA
Machine Learning Intern May 2023 – Jul 2023

- Enhanced the **ML Testing toolbox** by adding **conformal prediction** functionality, supporting multi-class classification and regression tasks with both TensorFlow and Scikit-learn base models.
- Developed an end-to-end **Deep RL** pipeline for Wireless coordinated multipoint connections(CoMP).

LIG - Université Grenoble-Alpes Grenoble, France
Research Intern Feb 2020 – Jul 2020

- Derived an analytic expression for the optimal bidding strategy of a **fairness** constrained advertiser; solved the full information Markov decision process by value iteration.
- Applied online **reinforcement learning** algorithms when bid distributions for other advertisers are unknown. Proved sublinear regret bounds for discrete as well as continuous bid distributions.

LIA - Avignon Université Avignon, France
Research Intern Jun 2018 – Nov 2018

- Derived analytic expressions for various **Quality-of-Experience (QoE)** metrics of video streaming in wireless networks, with possibility of users abandoning the system on account of poor QoE.
- Validated that the QoE metrics obtained from simulations of the stochastic network were consistent with our analytic expressions.

PAST PROJECTS

Overparameterization and its effect on adversarial robustness of neural networks

- Studied the connections between overparameterization (wide CNNs) and adversarial accuracy (Project report). We show that overparameterized models have better adversarial accuracy even without adversarial training. When adversarially trained, overparameterized networks also require fewer projected gradient ascent steps to achieve a similar adversarial accuracy.

Data Mining in Social Networks

- Made significant code contributions to IRCLogParser, an application that accepts Internet relay chat(IRC) logfiles from different channels and parses them to analyse the principles of interaction between IRC users. See package release at Github-releasev1.1

NOTABLE EXPERIENCE, AWARDS

- Teaching Assistant** ISyE 4803 : Online Learning and Decision Making, ISyE 2027 Probability with Applications, ISyE 3133 Engineering Optimization. **Academic service:** Reviewer for AAAI.
- Kiplinger Fellowship** (Fall 2021), **University of Lyon Scholarship of Excellence** (Fall 2019, Spring 2020), **Merit Scholar BITS Pilani**(2015,2016)
- Represented ENS de Lyon in the **ACM ICPC regionals** at SWERC 2019-2020
- Relevant courses: **PhD:** High Dimensional probability, Convex optimization, Deep learning, Online learning, Machine learning theory
Masters and Undergrad: Probability theory, Linear algebra, Real analysis, Statistical Inference, Algorithm Design, Differential Eqns.
- Languages: English, French, Konkani, Hindi