Pawan Poojary

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EDUCATION

Northwestern University Evanston, IL
Ph.D. in Electrical Engineering, Advisor: Dr. Randall Berry Sept 2018 - Present
M.S. in Electrical Engineering, GPA: 3.59/4.0 Sept 2018 - Aug 2020
Courses: Stochastic Processes, Game Theory, Inference/Estimation in Network Processes, RL

Indian Institute of Technology (IIT) Madras Chennai, India
M.S. (Research) in Electrical Engineering, GPA: 8.63/10.0 July 2015 - Aug 2018
Advisors: Dr. Krishna Jagannathan, Dr. Sharayu Moharir (IIT Bombay)
Thesis: Caching Policies under Content Freshness Constraints
Courses: Real Analysis, Optimization, Adaptive Filtering, Wireless & Cellular Comm.

Vidyalankar Institute of Technology Mumbai, India
B.E. in Electronics Engineering, Percentage: 77.33 July 2010 - May 2014
University of Mumbai

RESEARCH INTERESTS

Sequential Multi-agent learning, Stochastic modeling, Network Economics & Games, Comm. Networks, RL

PUBLICATIONS

Impact of Fake Agents on Information Cascades Feb 2025
with Randall Berry, link
in IEEE Transactions on Network Science & Engineering (TNSE)

Do More Bad Choices Benefit Social Learning? Dec 2024
with Randall Berry, Milan, Italy
in 63rd IEEE Conference on Decision and Control (CDC)

The Benefit of More Bad Choices in Observational Learning July 2024
with Randall Berry, link Athens, Greece
in IEEE International Symposium on Information Theory (ISIT)

Observational Learning in Mean-Field Games with Imperfect Observations
with Randall Berry, link Sept 2023
in 59th Annual Allerton Conference on Communication, Control, & Computing Monticello, IL

Welfare effects of ex-ante bias and tie-breaking rules
on Observational Learning with Fake Agents
Best Student Paper Award | press release
with Randall Berry, link Aug 2023
in 21st Intl. Symposium on Modeling & Optimization in Mobile, Ad hoc, & Wireless Networks (WiOpt) Singapore

Observational learning with negative externalities
with Randall Berry, link July 2022
in IEEE International Symposium on Information Theory (ISIT) Helsinki, Finland

A Coupon Collector based approximation for LRU cache hits under Zipf requests
with S. Moharir and K. Jagannathan, link Oct 2021
in 19th Intl. Symposium on Modeling & Optimization in Mobile, Ad hoc, & Wireless Networks (WiOpt)

Observational learning with Fake Agents
with Randall Berry, link July 2020
in IEEE International Symposium on Information Theory (ISIT) Los Angeles, CA

Caching policies under content freshness constraints

Best Poster Paper Award | [press release](#)

with S. Moharir and K. Jagannathan, [link](#)   Jan 2018

in 10th International Conference on Communication Systems and Networks (COMSNETS)   Bengaluru, India

POSTERS

Bayesian learning in Mean-Field Games with observational noise

– in Midwest Workshop on Control and Game Theory (MWCGT) | [poster link](#)   April 2024

– in Midwest Machine Learning Symposium (MMLS)   May 2023

– in the annual meeting of Institute for Data, Econometrics, Algorithms, and Learning (IDEAL)   June 2023

Caching policies under content freshness constraints

– 10th International Conference on Communication Systems and Networks (COMSNETS) | [poster link](#)   Jan 2018

TECHNICAL SKILLS

– **Programming Languages and Frameworks:** Python (Numpy, TensorFlow, PyTorch), Jupyter Notebook, MATLAB, R, LaTeX.

– **Reinforcement Learning** (Deep Q-learning, Policy Gradient methods) and **Neural Networks.**

– Experienced in predictive modeling, data mining and data analysis

– Experienced in abstracting out simple mathematical models from complex socio-technological systems and analysing these models to offer key insights into such systems.

– **Projects:**

  • Developing contextual bandit algorithm for personalized joke recommendations.

  • Training a Deep-Q network to learn to play MS Pacman game.

  • Learning to play Cartpole and PingPong games using Policy Gradient methods.

  • Efficient Value/Policy iteration algorithms for fast convergence to near-optimal DP solutions.

PROFESSIONAL EXPERIENCE

Graduate Research Assistant at Northwestern University   Sept 2018 - Present

Teaching Assistant (TA) for courses:

  • ECE 495: Game Theory & Networked Systems - Winter 2025

  • ECE 422: Random Processes in Communications & Control - Winter 2020, 2021, 2024

  • GEN ENG 205: Engineering Analysis 1 - Fall 2021

Graduate Research Assistant at IIT Madras   July 2015 - Aug 2018

Teaching Assistant for courses:

  • EE5110 Probability foundations (computational) - Winter 2016

  • EE5110 Probability foundations (measure-theoretic) - Fall 2016, Fall 2017

  • EE5121 Convex Optimization - Winter 2017, Winter 2018

TA work included delivering few lectures, conducting tutorial classes and doubt-solving sessions, setting up weekly assignments and grading assignments and examinations.

Reviewer:

  • Transactions on Networking (ToN)   2021

  • Intl. Symposium on Information Theory (ISIT)   2021, 2024, 2025

  • Journal on Selected Areas in Communication (JSAC)   2017

  • Mobile AdHoc Networking and Computing (ACM MobiHoc)   2017

  • National Conference on Communications, India (NCC)   2017, 2018

  • IEEE Intl. Conference on Signal Processing and Communications (SPCOM)   2018

Internships

Research Intern at Toyota Technological Institute at Chicago
June 2024 - Present
MENTOR: Dr. Avrim Blum
Chicago, IL

- Started research in topics related to "Trustworthy and Reliable Machine Learning/Data Science" and "Algorithmic Interventions to mitigate Pessimism Traps."

Research Intern at Futurewei Technologies
June - Aug 2020
PROJECT: *eXtended Reality (XR) traffic model for Split-Computing architecture*
Rolling Meadows, IL
MENTORS: Zhigang Rong, Weimin Xiao

- Delivered talks and presentations to a diverse audience which required efficient summarization of key insights to make them easy-to-understand.
- We proposed an XR traffic model for XR delivery to cellphones that combines the salient features of both video-streaming traffic and interactive web-browsing traffic.
- We applied this traffic model to a 5G link to better understand the trade-offs between the number of XR users supported and the Quality of Experience (QoE) of the delivered XR service.

Fellowships and Research Grants

Northwestern Graduate Student Fellowship	Sept 2018 - Aug 2019
McCormick School of Engineering Teaching Assistantship	Winter 2020, 2021, Fall 2021
Indian Institute of Technology Madras Fellowship	July 2015 - Aug 2018

WiFiUS: Collaborative Research
Ultra-low latency and High Reliability for Wireless IoT, *National Science Foundation (NSF)*   CNS-1701921

Complex Networked Systems (CNS): Collaborative Research
The Interplay of Markets and Security in 5G Shared Spectrum Services, *NSF*   CNS-1908807

Computing and Communication Foundations (CCF)
Institute for Data, Econometrics, Algorithms and Learning (IDEAL), *NSF*   CCF-1934931

Electrical, Communication & Cyber Systems (ECCS)
Institute for Data, Econometrics, Algorithms and Learning (IDEAL), *NSF*   ECCS-2216970

Course work

- Probability and Stochastic processes
- Game theory & Mechanism Design
- Inference and Estimation of Network Processes
- Wireless & Cellular Communication
- Martingales & Concentration Measures
- Detection & Estimation Theory
- Neural Networks & Deep Learning
- Reinforcement Learning
- Convex/Distributed optimization
- Real Analysis
- Adaptive Filtering
- Feedback Systems

References

Dr. Randall Berry,

Chair and Professor,
Dept. of Electrical & Computer Engineering,
Robert R. McCormick School of Engineering,
Northwestern University, Evanston, IL-60208.

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Dr. Michael Honig,

Professor,
Dept. of Electrical & Computer Engineering,
Robert R. McCormick School of Engineering,
Northwestern University, Evanston, IL-60208.

Phone: +1 (847) 491-7803
E-mail: mhonig@ece.northwestern.edu

Dr. Ermin Wei,

Associate Professor,
Dept. of Electrical & Computer Engineering,
Robert R. McCormick School of Engineering,
Northwestern University, Evanston, IL-60208.

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