

Meghanath Macha

INFO

EMAIL: mmacha@cmu.edu

SCHOLAR: [Google Scholar](#) , [Justia Patents](#), [Git](#)

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BIO

I am a 5th year Ph.D. student majoring in Information Systems at Carnegie Mellon University. I am fortunate to be advised by [Prof. Beibei Li](#).

I develop interpretable machine learning and data mining methods to study consumer behavior from geo-location data. My current research investigates consumer privacy concerns, lifestyle choices, and their long term health impacts. Earlier, I developed interpretable models to explain and detect anomalies and outliers with [Prof. Leman Akoglu](#).

Before joining CMU, I worked at Adobe Digital Marketing Research Labs, where I developed machine learning methods for marketing attribution, click-stream purchase prediction. During my Ph.D., I spent two summers at Adobe working on click fraud detection, identifying critical events in the consumer purchase funnel, and summer at Amazon developing active learning methods for record linkage.

EDUCATION

AUGUST 2016 - 2021 Doctor of Philosophy in INFORMATION SYSTEMS AND MANAGEMENT
Carnegie Mellon University, Pittsburgh.

COURSES Machine Learning, Statistics, Convex Optimization, Data mining, Econometrics

AUGUST 2009 - 2014 Masters and Bachelors of Science in MATHEMATICS AND COMPUTING
Indian Institute of Technology, Kharagpur , India
INSTITUTE SILVER MEDALIST

AWARDS

1. **Best Paper Award** Workshop on Information Technologies and Systems (WITS) 2019.
2. **Suresh Konda Award** for best first research paper at Heinz, CMU.
3. **PwC Presidential Fellowship** for outstanding research and academic performance at CMU.
4. **Institute Silver Medal** for holding the highest GPA in my department during 2009-14.
5. **Professor K.L. Chopra award** for the best demonstrable Master's project at IIT Kharagpur.
6. **Best poster award** for the Machine Learning course project titled 'Detecting Fraudulent Reviews'.

PROFESSIONAL EXPERIENCE

MAY 2019 - AUGUST 2019	DATA SCIENCE INTERN, Data Science Lab, Adobe, San Jose. Worked on semi-supervised identification and summarization of marketing segments and critical event detection in online web sessions. Two patents filed and paper published at WWW'20.
MAY 2018 - AUGUST 2018	APPLIED SCIENTIST INTERN, AWS AI Labs, Amazon, Seattle. Worked on developing active learning techniques for the record linkage problem.
MAY 2017 - AUGUST 2017	DATA SCIENCE INTERN, Data Science Lab, Adobe, San Jose. Worked on click-fraud detection which involved identifying fraudulent publishers and users. Paper published in ECML PKDD 2018.
JUNE 2014 - JULY 2016	MEMBER OF RESEARCH STAFF, Digital Marketing Research, Adobe, India. Developed predictive, descriptive tools for marketers to efficiently target and evaluate marketing campaigns. Published three conference papers and six patents.

RESEARCH PUBLICATIONS AND PATENTS

WORKING PAPERS:

1. **Meghanath Macha**, Beibei Li and Natasha Zhang Foutz, "Moving Health Forward: Understanding Consumer Healthcare Risk from Location Trajectories". (*paper and patent draft under preparation, presented at [SCECR 2020](#)*)
2. Natasha Zhang Foutz, Baohong Sun, **Meghanath Macha**, "Consumer Mobility Data and Research Opportunities on Location-Smart Retailing." (*paper under preparation, presented at [Marketing Science](#) Conference 2020*)
3. Anindya Ghose¹, Beibei Li, **Meghanath Macha**, Chenshuo Sun, and Natasha Zhang Foutz, "Trading Privacy for the Greater Social Good: How Did America React During COVID-19?". (*Under review*)
4. **Meghanath Macha**, Beibei Li, Natasha Zhang Foutz, and Anindya Ghose, "Perils of Location Tracking? Personalized and Interpretable Privacy Preservation in Consumer Trajectories". (*working paper, under review, [WITS 2019 Best Paper](#), presented at [ICIS 2019](#), [Marketing Science](#) Conference 2020, [NYU/ABA NextGen Antitrust Conference 2020](#)*)

JOURNAL PUBLICATIONS:

1. **Meghanath Macha**, and Leman Akoglu, "X-PACS: Explaining Anomalies by Characterizing Subspaces." Data Mining and Knowledge Discovery Special Issue, 2018. ([website](#))

CONFERENCE PUBLICATIONS:

1. **Meghanath Macha**, Beibei Li and Natasha Zhang Foutz, "Geo-Targeting, Privacy, and the Rise of Consumer Location Trajectories" Proceedings of ICIS 2019 ([paper](#))
2. **Meghanath Macha**, Deepak Pai and Leman Akoglu, "ConOut : Contextual Outlier Detection : An Application to Ad Fraud" Proceedings of ECML PKDD 2018 ([website](#))
3. **Meghanath Macha**, Shiv Kumar Saini, and Ritwik Sinha, "Non-parametric Approach to the Multi-channel Attribution Problem" International Conference on Web Information Systems Engineering, 2015. ([paper](#))
4. Pai, Deepak, Abhijit Sharang, **Meghanath Macha**, and Shradha Agrawal, "Modelling Visit Similarity Using Click-stream Data: A Supervised Approach." International Conference on Web Information Systems Engineering, 2014. ([paper](#))

WORKSHOP PAPERS:

1. **Meghanath Macha**, Shankar Venkitachalam and Deepak Pai, "CrEOS: Identifying Critical Events in Online Sessions" WWW'20 Companion: Companion Proceedings of the Web Conference, 2020 ([paper](#))
2. **Meghanath Macha**, Beibei Li, Natasha Zhang Foutz and Anindya Ghose "Perils of Location Tracking? Personalized and Interpretable Privacy Preservation in Consumer Trajectories" *Best Paper Award* WITS, 2019. ([paper](#))
3. Atanu Sinha, **Meghanath Macha**, Pranav Manirekar, Sopan Khosla, Avani Samdhariya and Navjot Singh, "Anti-Ad Blocking Strategy: Measuring its True Impact". Proceedings of the AdKDD and TargetAd Workshop, 2017. ([paper](#))

PATENTS:

1. **Meghanath Macha**, Deepak Pai. "User Segment Generation and Summarization"
2. **Meghanath Macha**, Shankar Venkitachalam and Deepak Pai, "A method to identify stages in the path to online e-commerce"
3. **Meghanath Macha**, Shiv Kumar Saini, Ritwik Sinha, "Value Function-based Estimation of Multi-channel Attributions"
4. **Meghanath Macha**, Ritesh Noothigattu, Shivam Garg, Abhishek Kandoi, Dr. Atanu Sinha, "Buying Stage Determination in a Digital Medium Environment."
5. **Meghanath Macha**, Ritwik Sinha, Shiv Kumar Saini, "Simulation-based Evaluation of a Marketing Channel Attribution Model."
6. Deepak Pai, Abhijit Sharang, **Meghanath Macha**, Shradha Agrawal, "Visitor Session Classification Based on Clickstreams"
7. Atanu Sinha, Sopan Khosla, Pranav Ravindra Maneriker, **Meghanath Macha**, Avani Samdhariya and Navjot Singh, "A Method to Quantify True Effectiveness of Site-Wide Actions Using a Control Group Mechanism."
8. **Meghanath Macha**, Moumita Sinha, Kokil Jaidka, "Conversational Index for Email Marketing Campaigns."

¹Equal author contributions.

TEACHING

TEACHING ASSISTANT, Geographic Information Systems Summer 2020, (Kristen Kurland, CMU).

TEACHING ASSISTANT, Data Structures and Algorithms course Spring & Fall 2019, Fall 2018, (Michael McCarthy, CMU).

TEACHING ASSISTANT, Decision Making under Uncertainty & Fall 2019, Fall 2018, (David Choi, Alexandre Jacquillat and Jonathan Caulkins, CMU).

TEACHING ASSISTANT, Advanced Business Analytics & Spring 2019, Spring 2020, (Beibei Li, CMU).

INTERNSHIP MENTOR, Digital Marketing Research, Adobe, India.

SKILLS AND COURSEWORK

PROGRAMMING LANGUAGES

Python , R , Scala, C++ , Matlab

ML FRAMEWORKS

Tensorflow , PyTorch, Keras, Caret, Super learner

COURSE PROJECTS

Detecting Fraudulent Reviews (Machine Learning)

Portrayal of a fraudster (Data Mining)

Recommending Bundles in Consumer-Product Networks
(Convex Optimization)