

# Madhav Kumar

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Massachusetts Institute of Technology,  
E62-465, Sloan School of Management,  
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## Academic Appointments

MIT Sloan School of Management  
Post-Doctoral Associate, [Initiative on the Digital Economy](#) Cambridge  
Jun 2022 –

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## Education

[Massachusetts Institute of Technology](#) Cambridge  
Ph.D. Quantitative Marketing 2022  
MSI Alden G. Clayton Dissertation Proposal Competition, 2021  
MIT Sloan Doctoral Forum Dissertation Award, 2022  
Focus: recommendation systems, bundling, algorithmic pricing,  
causal inference, experiment design, machine learning

[Indira Gandhi Institute of Development Research](#) Mumbai  
M.Sc. Economics 2011

[Hindu College, University of Delhi](#) New Delhi  
B.Sc. (Honors) Physics 2008

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## Publications

[Identity Effects in Social Media](#), with S. Taylor, L. Muchnik, and S. Aral  
Nature Human Behavior, 2022

[How Do Successful Scholars Get their Best Research Ideas? An Exploration](#)  
Marketing Letters, 2019  
with C. Cao, X. Cao, M. Cashman, A. Timoshenko, J. Yang, S. Yu, J. Zhang, Y. Zhu, and B. Wernerfelt

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## Working Papers

Scalable Bundling via Dense Product Embeddings, with D. Eckles and S. Aral  
R&R Management Science  
*Best paper nomination, WISE 2019*  
*2022 ASA Statistics in Marketing Doctoral Research Award Finalist*

Algorithmic Pricing and Consumer Sensitivity to Price Volatility, with D. Aparicio and D. Eckles  
Under review  
*Best paper nomination, CIST 2021*

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## Work in Progress

Narrative Arcs and Engaging Content in Video Advertisements, with J. Hauser  
Efficient Treatment Effects Estimation for Long-Term Outcomes, with D. Eckles

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## Teaching & Advising

[Analytics Lab](#), Prof. Sinan Aral MBA, MBAn, Exec. MBA  
TA (Evaluation: 6.5/7) Fall 2020, Summer 2020, Summer 2019  
MBAn: Masters in Business Analytics

[Marketing Analytics](#), Prof. Dean Eckles MBA, MBAn  
TA (Evaluation: 6.5/7) Spring 2021, Spring 2020, Spring 2019

[Global Startup and Teaching Labs](#) Exec., Masters, High School  
Course Developer and Instructor Winter 2019 (Uruguay), Summer 2017 (Germany), Winter 2016 (Israel)  
Designed and taught hands-on deep learning course to promote AI-based entrepreneurship.  
Led a technology incubator for company executives, graduate researchers, and high-school students.

<a href="#">MicroMasters Program in Statistics and Data Science</a>	Masters
Masters thesis co-advisor - 3 students	<i>Spring 2021 (Uruguay)</i>
<a href="#">Analytics Lab Project Mentor</a>	MBA, MBAn, Exec. MBA
Mentored group of 3-4 students for company sponsored projects	<i>Fall 2017, Fall 2018, Fall 2019</i>
<a href="#">Undergraduate Research Mentor</a>	UG
Supervised data collection and annotation, and survey design	<i>Spring 2021, Fall 2020</i>
Corporate Training	Analysts, Mid-level Managers
Course Developer and Instructor	<i>2016, 2017, 2018</i>
Data Science and Machine Learning training for one of the largest insurance providers in the US.	

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## Conferences & Seminars

### Algorithmic Pricing and Consumer Sensitivity to Price Volatility

- **2022:** Delhi School of Economics Winter School, Dec 2022
- **2021:** [CIST, LA, Oct 2021](#) (*Best paper nomination*); University of Chicago, Sep 2021; Boston College, Sep 2021; National University Singapore, Aug 2021; [ZEW ICT Conference](#), Jun 2021; [ISMS Marketing Science Conference](#), Jun 2021; [Theory + Practice in Marketing](#), Jun 2021
- **2020:** Marketing Research Seminar, MIT, May 2021; Social Analytics Lab, MIT, Apr 2021; CODE, MIT, Nov 2020

### Scalable Bundling via Dense Product Embeddings

- **2022:** JSM, Aug 2022, [ASA Statistics in Marketing Doctoral Research Award Finalist](#); Cornell University, Mar 2022
  - **2021:** Emory University, Dec 2021; Wharton School, University of Pennsylvania, Dec 2021; University of Cambridge, Nov 2021; University College London, Nov 2021; Northeastern University, Oct 2021; University of Chile, Oct 2021; New York University, Oct 2021; Imperial College London, Oct 2021; [WISE, Munich, Dec 2019](#), *Best paper nomination*
  - **2020:** Guest Lecture, Analytics Lab, MIT, Nov 2020; Guest Lecture, Marketing Analytics, MIT, Mar 2020
  - **2019:** Social Analytics Lab, MIT, Nov 2019; [AFE, University of Chicago](#), Sep 2019; [ZEW ICT Conference, Mannheim](#), Jun 2019; [Marketing Science](#), Jun 2019; [Transatlantic Doctoral Conference, LBS](#), May 2019; Guest Lecture, Marketing Analytics, MIT, Mar 2019
  - **2018:** CODE, MIT, Oct 2018
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## Honors

<a href="#">INFORMS Marketing Science Doctoral Consortium Fellow</a>	<i>Jun 2021</i>
<a href="#">AMA-Sheth Foundation Doctoral Consortium Fellow</a>	<i>Jun 2020</i>
Best paper nomination, WISE	<i>Dec 2019</i>
<a href="#">INFORMS Marketing Science Doctoral Consortium Fellow</a>	<i>Jun 2019</i>
NBER Digital Tutorial Fellow, Stanford	<i>Mar 2019</i>
NBER Economics of AI, Fellow, Toronto	<i>Sep 2018</i>
MIT Graduate Fellowship	<i>2016 - 2022</i>

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## Work Experience

<a href="#">Microsoft Research</a>	Remote
Ph.D. Summer Research Intern	<i>May 2021 – Aug 2021</i>
<a href="#">Stitch Fix, Algorithms Team</a>	Remote
Research Consultant	<i>Nov 2020 – Present</i>
<a href="#">Stitch Fix, Algorithms Team</a>	Remote
Ph.D. Summer Research Intern	<i>Jun 2020 – Aug 2020</i>
<a href="#">Centre for Advanced Financial Research and Learning (CAFRAL), Reserve Bank of India</a>	Mumbai
Research Associate	<i>Sep 2014 – Jun 2016</i>
<a href="#">Fractal Analytics</a>	New York/Mumbai
Data Scientist	<i>Jun 2011 – Mar 2014</i>

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## Pre-Ph.D. Research

[Customer Churn Dynamics: Identifying Drivers of Customer Churn to Predict Subscription Renewals](#), with H. Hariharan, T. Chakravarty, and G. Dixit

Wharton Customer Analytics Initiative

[Rapid Spatial Aggregation](#), with M. Loecher

Communications in Computer and Information Science, Volume 499, Springer, 2015

[Predicting Usefulness of Online Reviews](#), with S. Upadhyay

Proceedings of the 11<sup>th</sup> Australasian Data Mining Conference, CRPIT, 2013

[Crime Analyses using R](#), with A. Sengupta and S. Upadhyay

Data Mining Applications with R, Elsevier, 2013

Ensemble of Machine Learners to Predict US Census Mail Return Rates, with S. Godbole and S. Upadhyay

3<sup>rd</sup> IIMA International Conference on Advanced Data Analysis, Business Analytics and Intelligence, 2013

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## Software

[RapidPolygonLookup](#), with M. Loecher

Efficient nearest neighbors search for fast allocation of geo-tagged points to spatial polygons

R package

2014

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## Social Good

Selected as one of the 1000 global leaders by [UNLEASH](#) to develop high-impact solutions for the UN Sustainable Development Goals Aug 2017

Analyzed 30 years of human rights violation data and [identified severe cases](#) using machine learning for Amnesty International Nov 2013

Examined the difference between living wage and minimum wage for food industry employees; with New York Communities for Change Sep 2013

Promoted non-formal education among school dropouts in rural areas of Jammu region with Shantineketan Bal Bhawan Aug – Dec 2008

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## Data Mining Competitions

Liberty Mutual – Fire Peril Loss Cost, [rank: 9/634](#) 2014

See Click Predict Fix, [rank: 5/532](#) 2013

See Click Predict Fix – Hackathon, [rank: 2/80](#) 2013

Yelp Challenge, [rank: 3/350](#) 2013

U.S. Census Return Rate Challenge, [rank: 7/243](#) 2012

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## Skills & Interests

**Areas:** Machine Learning, Causal Inference, Econometrics, NLP, Computer Vision, Computational Social Science

**Tools:** R, Python, Tensorflow, PyTorch, SAS, STATA, SQL, Git,  $\LaTeX$

**Languages:** Hindi (native), English (fluent), Deutsch (beginner)

**Personal:** [Blogging on R & ML](#), Recreational data mining, Playing the violin, Hiking, Aimless wanderings

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## References

Sinan Aral

David Austin Professor of Management  
Professor, Information Technology and Marketing  
MIT Sloan School of Management  
[sinan@mit.edu](mailto:sinan@mit.edu)

Dean Eckles

Mitsubishi Career Development Professor  
Associate Professor, Marketing  
MIT Sloan School of Management  
[eckles@mit.edu](mailto:eckles@mit.edu)

John Hauser

Kirin Professor of Marketing  
Professor, Marketing  
MIT Sloan School of Management  
[hauser@mit.edu](mailto:hauser@mit.edu)