

# Karthik Babu Nattamai Kannan

Cox School of Business, Dallas, TX • [kartechbabu.com](http://kartechbabu.com) • [kbnk@smu.edu](mailto:kbnk@smu.edu)

## Employment

---

Southern Methodist University, Cox School of Business  
Assistant Professor of IT and Operations Management 08/2019 -current  
Instructor of IT and Operations Management 08/2018-07/2019  
Tata Consultancy Services 6/2002-12/2011  
Consulting: Telecom companies in the USA, The Home Depot, Johnson and Johnson, GE, Citigroup

## Education

---

Scheller College of Business, Georgia Institute of Technology, Atlanta, GA August 2018  
Ph.D. in Information Technology Management  
Thesis Committee: Yu Jeffrey Hu (co-chair), Sridhar Narasimhan (co-chair), Eric Overby, Saby Mitra, Chris Forman  
College of Engineering, Guindy - Anna University Chennai, India  
Bachelor of Engineering, Mechanical Engineering July 2002

## Refereed Journal Publications

---

1. Karthik Babu Nattamai Kannan, Eric Overby and Sri Narasimhan, “Can Improvements to Mobile Internet Service Help Reduce Digital Inequality? An Empirical Analysis of Education and Overall Data Consumption”. *Management Science*, Forthcoming.
  - Link: <https://doi.org/10.1287/mnsc.2022.03770>
  - The Federal Communications Commission invited us to present this paper and formally file it for use in the rulemaking process for **Proceeding #23-199: Data Caps in Consumer Broadband Plans**.<sup>†</sup>
  - Presentations: Federal Communications Commission (FCC), UT-Dallas, SMU Cox School of Business, City University of Hong Kong<sup>‡</sup>, George Mason University, University of Houston, Clemson University, Iowa State University, IDEaS Short Talks at Georgia Tech<sup>‡</sup>, Conference on the Digital Economy (ISB)<sup>‡</sup>, Conference on Information Systems and Technology, Statistical Challenges in Electronic Commerce Research<sup>‡</sup>.
  - Media coverage:
    - Social media promotion from *Management Science* highlighting how this paper addresses FCC’s policy debate on data caps (Forthcoming).
    - Article in Cox Today at SMU (Forthcoming).
    - <https://research.gatech.edu/new-research-shows-improving-mobile-internet-service-can-reduce-digital-inequality>
    - <https://news.gatech.edu/news/2024/06/20/new-research-shows-improving-mobile-internet-service-can-reduce-digital-inequality>
    - <https://phys.org/news/2024-06-mobile-internet-digital-inequality.html>

## Refereed Conference Proceedings

---

1. Karthik Babu Nattamai Kannan, and Wayne Taylor. “The Impact of Online Learning on Digital and Non-Digital Supplemental Learning Products: A Comparative Empirical Analysis.” *Proceedings of 2024 AMA Marketing and Public Policy Conference*.

---

<sup>†</sup> <https://docs.fcc.gov/public/attachments/FCC-24-106A2.pdf>

<sup>‡</sup> Presented by coauthor

2. Karthik Babu Nattamai Kannan, and Wayne Taylor. “The Impact of Online Learning on Digital and Non-Digital Supplemental Learning Products: A Comparative Empirical Analysis.” *Proceedings of 2024 Americas Conference on Information Systems*.

## Working Papers

---

1. Limits to the Adoption of Technology-Mediated Learning: A Comparative Empirical Analysis of Digital and Non-Digital Supplemental Learning Products with Wayne Taylor
  - SSRN link: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4173547](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4173547)
  - Under review at *Information Systems Research*. Previously rejected at *Management Science* after two rounds.
  - Presentations: AMCIS 2024, 2024 AMA Marketing and Public Policy Conference<sup>‡</sup>; 2023 Conference on Artificial Intelligence, Machine Learning, and Business Analytics, 2023 MISQ Author development workshop, 2022 Marketing Science annual conference.
2. Quantifying the Impact of GitHub Copilot Usage on Pull-Request Latency in Open-Source Projects with Narayan Ramasubbu
  - Manuscript preparation in progress.
  - Presentations: 2024 INFORMS Annual Meeting, Artificial Intelligence Cluster.
3. The Impact of Work from Home on Consumer Purchase Behavior: An Empirical Analysis of the Performing Arts Industry
  - Under revision, with planned submission to *Journal of Marketing*
  - SSRN link: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3970201](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3970201)
  - Grants: Received a grant of \$5,000 from the Marketing Science Institute (MSI) in December 2021. Data collection is supported by a special grant from the National Endowment for the Arts (NEA) to help performing arts organizations recover after the COVID-19 crisis.
  - Presentations: 2023 POMS Annual Conference; 2022 Research Computing Day at SMU, SMU Data Science Institute, Auburn University.
  - Media coverage: Webinar addressed to ~200 practitioners from arts organizations in the US (Feb 2022). SMU DataArts covered this in a series of blogs (~2500 page views as of Dec 2023)
    - <https://www.culturaldata.org/pages/attendance-prediction/>
    - <https://culturaldata.org/pages/attendance-prediction-june2022/>
    - <https://culturaldata.org/pages/attendance-prediction-spring2022/>
4. Leveraging Public Facilities to Improve Access to Performing Arts Facilities: An Empirical Analysis with Young Woong Park and Sridhar Narasimhan
  - Under revision, with planned submission to *Journal of Marketing*
  - SSRN link: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4335917](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4335917)
  - Presentations: COX ITOM brown bag seminar in May 2023, Marketing Science DSI conference @ SMU, March 2023; 2022 INFORMS annual conference. 2023 POMS Annual Conference. Preparing to submit to *Information Systems Research*.
5. Data-Driven Decision Making in US Non-Profit Sector: A quasi-experimental analysis
  - In this study, I assess the impact of the Bloomberg Philanthropies Arts Innovation and Management (AIM) program<sup>§</sup> that was launched in 2011 as part of American Cities Initiative. This AIM program has provided \$119 million to build the capacity of small and mid-sized nonprofit arts and cultural organizations. It was piloted with organizations in New York City from 2011-2013, and 13 more cities joined in 2018.
  - Under revision, with planned submission to *Information Systems Research*.
  - Presentations: Bloomberg Foundation (2023), POMS 2022.

---

<sup>§</sup> <https://www.bloomberg.org/arts/strengthening-local-arts-organizations/arts-innovation-and-management/>

## Work In Progress

---

1. How did Gen AI impact code design and quality? An empirical analysis with Narayan Ramasubbu
2. LLM for Non-Verbal Communication: Design of Generative AI based Augmentative and Alternative Communication (AAC) Application
3. How does Gen AI Impact Product Search in e-Commerce? An empirical analysis
4. Super Why: An Empirical Analysis of Digital and Non-Digital Literacy

## Research Interests

---

- Generative AI in software engineering, e-commerce.
- Digitization in education, cultural sectors, and e-commerce.

## Methodologies

---

- Computational policy analysis
- Econometrics, natural and field experiments
- Artificial Intelligence and Machine/Deep Learning

## Teaching

---

- “Python in Excel” presentation at the 2024 IT Teaching Innovation Workshop, UT-Austin.
- Nominated by students for the "Honoring Our Professors' Excellence" award in April 2023.
- C. Jackson Grayson Endowed Faculty Innovation Award (2021). Cox School of Business gives out this award to one tenure-track faculty each year to recognize excellence in teaching.

### Courses taught:

- MS Business Analytics: Database Design and Application Development (~100 students in 3 sections).
  - Design of vector databases and Retrieval-Augmented Generation (RAG)
  - Design of RDBMS database (SQL Server, MySQL)
  - Full stack analytics web application development with database integration using [R Shiny](#) and [Python Dash](#)
  - Cloud hosting and infrastructure management
- MBA Elective: Advanced Decision Modeling (~40 students in 1-2 section).
  - Python in Excel for data wrangling and optimization
  - VBA and Excel Solver for solving optimization problems
  - Linear and non-linear optimization, goal programming, genetic algorithm, location optimization, causal models
- Business Analytics - Developed and taught this new undergraduate course at Georgia Tech.
  - Data wrangling using R
  - Machine Learning
  - Web scraping using R
- Data Analytics for Business: Summer 2018 – Head TA for GT Online MS Analytics with about 500 students.
- Business Intelligence, Business Analytics, Business Programming, Introduction to MIS – Served as TA at Georgia Tech.

## Affiliations

---

Southern Methodist University, Cox School of Business	
Faculty Affiliate, Data Science Institute (DSI)	08/2023 -current
Faculty Affiliate, Center for Scientific Computation (CRC)	08/2019-08/2023
Donna Wilhelm Research Fellow - SMU DataArts	11/2019-05/2023
Maneframe III planning committee, CRC	04/2022-06/2022
IEEE	
Senior member	08/2024-current
National Telecommunications and Information Administration (NTIA)	
Merit Reviewer	10/2021-3/2022

## Awards and Honors

---

- Nominated by students for the "Honoring Our Professors' Excellence" award in April 2023.
- C. Jackson Grayson Endowed Faculty Innovation Award (2021). This was given by Cox School of Business to recognize excellence in teaching.
- Invited to present at the inaugural SMU Research Computing Day organized by Center for Scientific Computation.
- Donna Wilhelm Research Fellow - SMU DataArts from 2019-2023. This fellowship was awarded to study the impact of digitization and AI/ML in the U.S. cultural sector.
- 2021 ICIS Junior faculty consortium, Austin, TX.
- Received a grant of \$5,000 from Marketing Science Institute (MSI) in December 2021.
- Served as occupation expert for Occupational Information Network (O\*NET), U.S. Department of Labor (2021).
- Served as grant reviewer for President Joe Biden's broadband infrastructure development plan. As part of this process, I utilize my expertise in how internet connectivity impacts social and economic inequality to evaluate grant proposals for the National Telecommunications and Information Administration's (NTIA) different broadband connectivity programs: Tribal Broadband Connectivity Program and Connecting Minority Communities (CMC) Pilot Program. These programs aim to provide cost-effective, high-speed internet services to rural areas and underserved communities.
- Inducted into the Kappa chapter of Alpha Iota Delta, which is an International Honor Society in the Decision Sciences and Information Systems. This honorary society is dedicated to building and improving skills in the following areas: problem isolation ability, data analysis, modeling competence, information technology, and interpersonal skills.
- Scholarship to attend Esri's Leadership Workshop on Location Analytics in Business (2018).
- President/Dean's Fellowship at Georgia Tech (2012).
- Served as a judge for the American Society for Quality's International Team Excellence Award, Charlotte, NC (2009).
- American Society for Quality (ASQ) certified Six Sigma Black Belt (2005).
- Certified Reliability Professional (CRP) awarded by the Department of Information Technology, Ministry of Communications and Information Technology, Government of India (2006).
- Sun Certified Java Programmer (2005).

## Service

---

- Session chair:
  - 2017 INFORMS Annual conference for a session on social media analytics.
  - 2016 Conference on Information Systems and Technology (CIST).
- Committee:

- Program committee member for the 2024 Conference on Information Systems and Technology (CIST).
- Search committee for the DataArts Research Director (May 2024 – Aug 2024).
- Search committee for the DataArts Research Director (November 2022 – Jan 2023).
- Committee member representing the Meadows School of Arts for the Data Science Cluster Hire working group (Summer of 2022).
- Maneframe III planning committee, Center for Scientific Computation (CRC) – 2021-2022: This committee was instrumental in selecting the [NVIDIA DGX SuperPOD](#) which is a state of the art GPU system to run the latest Artificial Intelligence models.
- Program committee member for Pre-ICIS SIGBPS 2019 Workshop on Blockchain and Smart Contract.
- Served as an anonymous referee following journals and conferences:
  - Journals: MIS Quarterly, Management Science, Production and Operations Management, Information Systems Research, Journal of Database Management, Electronic Commerce Research.
  - Conferences: Conference on Information Systems and Technology (CIST), International Conference on Information Systems (ICIS).

## Technical Skills

---

Generative AI tools – OpenAI API, LangChain framework  
 Statistical packages and tools – Stata, R, SAS, Matlab  
 Programming languages – Python, Java, D3, SQL  
 Operating Systems – Mac OS, Unix, Windows  
 Big Data tools – Spark, Hadoop, Hive, Pig

## Professional Affiliations

---

Association of Information Systems (AIS),  
 Institute for Operations Research and the Management Sciences (INFORMS),  
 Institute of Electrical and Electronics Engineers (IEEE),  
 American Association for the Advancement of Science (AAAS).

## Conferences, Workshops, and Invited Presentations

---

AI, ML, and BI conference, Yale University (scheduled)	December 2024
Federal Communications Commission (FCC)	October 2024
2024 INFORMS Annual conference, Seattle, WA.	October 2024
AMCIS 2024 Salt Lake City, Utah.	August 2024
2024 AMA Marketing and Public Policy Conference, Washington, D.C.	June 2024
IT Teaching Innovation Workshop, UT-Austin	May 2024
BizAI Conference, UT Dallas	March 2024
AI, ML, and BI conference, Fox School of Business	December 2023
MISQ Reviewer development workshop	November 2023
MISQ Author development workshop	June 2023
Bloomberg Philanthropies	March 2023
Marketing Science DEI conference, SMU	March 2023
INFORMS Annual Conference	October 2022
Marketing Science Conference	June 2022
Production and Operations Management Conference, Virtual	April 2022
SMU Data Science Institute, university-wide seminar	March 2022
SMU Research Computing Day	March 2022
Workshop on Information Systems and Economics (WISE), Austin, TX	December 2021

ICIS Junior Faculty Consortium, Austin, TX	December 2021
Auburn University (invited seminar)	October 2021
Workshop on Information Systems and Economics (WISE), Virtual	December 2020
INFORMS Annual Meeting, Virtual	November 2020
University of Texas, Dallas (invited seminar)	February 2020
Workshop on Information Systems and Economics (WISE), SFO, CA	December 2018
Conference on Information Systems and Technology (CIST), Phoenix, AZ	October 2018
School of Business, George Mason University, Fairfax, VA	January 2018
C. T. Bauer College of Business, University of Houston, Houston, TX	January 2018
College of Business, Clemson University, Clemson, SC	January 2018
Cox School of Business, Southern Methodist University, Dallas, Texas	January 2018
Ivy College of Business, Iowa State University, Iowa	October 2018
Conference on Information Systems and Technology (CIST), Houston, TX	October 2017
INFORMS Annual Meeting, Houston, TX	October 2017
Workshop on Quantitative Marketing and Structural Econometrics, St. Louis, MO	July 2017
Deep Learning Workshop, Atlanta, GA	April 2017
Diversity and Inclusion Workshop, Atlanta, GA	March 2017
Workshop on Information Systems and Economics (WISE), Dublin, Ireland	December 2016
Conference on Information Systems and Technology (CIST), Nashville, TN	November 2016
INFORMS Annual Meeting, Nashville, TN	November 2016
Production and Operations Management Conference, Orlando, FL	May 2016
Winter Conference on Business Intelligence, Snowbird, Utah	March 2016
NBER workshop on Digitization, Stanford, CA	March 2016
ISMS Marketing Science, Baltimore, MD	July 2015
NBER workshop on Digitization, Stanford, CA	March 2015
Northwestern-Duke Causal Inference Workshop, Chicago, IL	July 2014
INFORMS Annual Meeting, San Francisco	November 2014
Winter Conference on Business Intelligence, Snowbird, Utah	March 2014