

# KRISHNA MURTHY GURUMURTHY

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## EDUCATION

### The University of Texas at Austin, USA

expected August 2020

Doctor of Philosophy in Civil Engineering (*Transportation Engineering*)

GPA: 4.00 / 4.00

*Courses* 'Dynamic Traffic Assignment' and 'Bayesian Statistical Methods'

### The University of Texas at Austin, USA

December 2017

Master of Science in Civil Engineering (*Transportation Engineering*)

GPA: 3.81 / 4.00

*Thesis* Perceptions and Preferences of Autonomous and Shared Autonomous Vehicles: A Focus on Dynamic Ride-Sharing

*Courses* 'Statistical Modeling I', 'Advanced Theory of Traffic Flow', 'Optimization I', 'Design and Evaluation of Ground-based Transportation Systems', 'Sensors and Signal Interpretation', 'Transportation Network Analysis', 'Urban Transportation Planning' and 'Linear Regression and Discrete Choice Methods'

### National Institute of Technology Karnataka (NITK), India

May 2016

Bachelor of Technology in Civil Engineering

GPA: 8.92 / 10.00

*Courses* 'Highway and Traffic Engineering', 'Railways, Tunnels, Harbors and Airports' and 'Traffic Engineering and Management'.

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## EXPERIENCE

### Graduate Research Assistant

Supervisor: Dr. Kara Kockelman

Fall 2016 – Present

Responsible for an ANL project focusing on transportation planning/forecasting for autonomous vehicles *UT Austin*

### Research Aide – Technical

Supervisor: Dr. Joshua Auld

Summer 2018

Tasked with developing algorithms for the control of shared-automated vehicle fleets and implementing the control & optimization algorithms in ANL's POLARIS *Argonne National Laboratory*

### Graduate Teaching Assistant

Course Instructor: Dr. Kara Kockelman & Ms. Heidi Ross\*

Spring 2017 & 2018\*

Responsible for students' performance, grading, lab lectures (on MicroStation and GEOPAK) and final design-project outcome in a capstone course for transportation engineering *UT Austin*

### Project Research Intern

Supervisors: Drs. Tom V Mathew & Gowri Asaithambi

Spring 2016 – Summer 2016

Tasked with devising incorporating traffic models into existing simulation software *IIT Bombay*

### Summer Research Intern

Supervisor: Dr. Tom V Mathew

Summer 2015

Tasked with devising and programming microscopic traffic model and simulation software in MATLAB *IIT Bombay*

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## PAPERS & PRESENTATIONS (selected)

- **Gurumurthy, K.M.**, Kockelman, K. and Simoni, M.D. 2018. Benefits & Costs of Ride-Sharing in Shared Automated Vehicles Across Austin, Texas: Opportunities for Congestion Pricing. Accepted for presentation at the 98th Annual Meeting of the Transportation Research Board and under review for publication in *Transportation Research Record*.
- Mahmoud, J., Auld, J., and **Gurumurthy, K.M.** 2018. Intra-Household Fully Automated Vehicles Assignment Problem: Model Development and Case Study. Under review for presentation at the 98th Annual Meeting of the Transportation Research Board.
- Simoni, Michele D., Kockelman, K., **Gurumurthy, K.M.** and Bischoff, J. 2018. Congestion Pricing in a World of Self-Driving Vehicles: An Analysis of Different Strategies in Alternative Future Scenarios. Under review for publication in *Transportation Research Part C: Emerging Technologies*.
- Becker, H., Becker, F., Abe, R., Bekhor, S., Belgiawan, P.F., Compostella, J., Frazzoli, E., Fulton, L.M., Garrick, N., Bicuda, D.G., **Gurumurthy, K.M.**, Hensher, D.A., Joubert, J.W., Kockelman, K.M., *et al.* 2018. Impact of Vehicle Automation and Electric Propulsion on Production Costs for Mobility Services Worldwide. *Working Paper*.
- **Gurumurthy, K.M.** and Kockelman, K. 2018. Modeling Americans' Autonomous Vehicle Preferences: A Focus on Dynamic Ride-Sharing, Privacy & Long-Distance Mode Choices. Accepted for presentation at the 98th Annual Meeting of the Transportation Research Board and under review for publication in *Transportation Research Part A: Policy & Practice*.
- **Gurumurthy, K.M.** and Kockelman, K. 2018. Analyzing the Dynamic Ride-Sharing Potential for Shared Autonomous Vehicle Fleets using Cellphone Data from Orlando, Florida. *Computers, Environment and Urban Systems* 71: 177-185.

- Invited Speaker, at the Machine Intelligence in Autonomous Vehicles Summit held in San Francisco, presentation titled “Anticipating a World of Shared Fully-Automated Vehicles” on behalf of Dr. Kara Kockelman, 23-24 March, 2017.

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## BOOK CHAPTERS & TECHNICAL REPORTS

- Co-author of Chapter 18 in “Smart Transport for Cities & Nations: The Rise of Self-Driving & Connected Vehicles”. 2018. Kara Kockelman and Stephen Boyles (Eds). Published by CreateSpace on Amazon.com, August 2018. ISBN-10:0692121501, ISBN-13: 978-0692121504.
- Kockelman, K., Boyles, S., Sturgeon, P., Claudel, C., ... **Gurumurthy, K.M.**, He, D., ... and Yarmohammadisatri, S. "Phase 2 - Bringing Smart Transport to Texans: Ensuring the Benefits of a Connected and Autonomous Transport System in Texas - Final Report". Technical Report FHWA/TX-18/0-6838-3, TxDOT, CTR, UT Austin, TX, July 2018.
- Kockelman, K., Loftus-Otway, L., Stewart, D., Nichols, A., Wagner, W., Boyles, S., Levin, M., Liu, J., Perrine, K., Kilgore, S., and **Gurumurthy, K.M.** "Best Practices for Modifying Transportation Design, Planning, and Project Evaluation in Texas." Technical Report 0-6847-P1, TxDOT, CTR, UT Austin, TX, March 2017.

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## SOFTWARE SKILLS

MATLAB • TransCAD • Java • Microsoft Office Suite • R • ArcGIS • C# • C++ • Python

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## SELECT RESEARCH PROJECTS

**Implementing Shared Autonomous Vehicles in POLARIS and Assessing the Impact of Dynamic Ride-Sharing in Chicago** Fall 2018 – Present  
 Supervisor: Dr. Kara Kockelman (Sponsored by Argonne National Laboratory) UT Austin

POLARIS, an agent-based discrete event simulator developed by the Argonne National Laboratory, is being enhanced to simulate shared autonomous vehicles with dynamic ride-sharing capabilities. Policies such as geofencing the service, pre-determined pick-up and drop-off spots, and congestion pricing are being analyzed to understand the future of mobility.

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## CO-CURRICULARS & VOLUNTEERING

<b>Member &amp; Ex-Officer</b> , Women’s Transportation Seminars, UT Austin Student Chapter	Fall 2017 – Present
<b>Member &amp; Past President</b> , Institute of Transportation Engineers, UT Austin Student Chapter	Fall 2016 – Present
<b>Member &amp; Ex-Officer</b> , Intelligent Transportation Society of America, UT Austin Student Chapter	Fall 2016 – Present
<b>Mentor</b> , Graduates Linked with Undergraduates in Engineering ( <u>GLUE</u> )	Fall 2017
<b>Lead Event Organizer</b> , Texas Student Leadership Summit	Fall 2017
<b>Core Team Member</b> , UT Austin Traffic Bowl Team	Spring 2017 – Summer 2017

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## PEER REVIEWER - JOURNALS

*Transportation Research – Part B, Part C • Computers, Environment and Urban Systems • Transport Policy • Transportation • Transportation Research Record: Journal of the Transportation Research Board*

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## AWARDS & ACHIEVEMENTS

- Awarded the Graduate Research Award by the Airport Cooperative Research Program for the period 2018-19
- Awarded the CAS-ITE and ITS Texas scholarships in 2017.
- Awarded the Texas district ITE fellowship in 2017.
- Part of the UT Austin Traffic Bowl Team that won the Texas district championship in Spring 2017 and came second in the International championships in Summer 2017

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## MENTEES

Hyungseung (Jeffrey) Hahm • Evelyn Reyes (GLUE)

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