

Nagacharan Teja Tangirala

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Google Scholar Page - <https://scholar.google.com/citations?user=L0P72OQAAAAJ>

RESEARCH INTERESTS

Simulations of Vehicular Mobility, Connected Vehicles, and Autonomous Fleet Management

EDUCATION

National University of Singapore, Singapore

Master of Science in Electrical and Computer Engineering

Thesis: Interactive navigation of mobile robots based on human's emotion

July 2015 — July 2016

Cumulative GPA: 3.75/5.00

SDM College of Engineering and Technology, Dharwad, India

Bachelor of Science: Electrical and Electronics Engineering

Thesis: Flexible AC transmission and study of TCSC

August 2009 — June 2013

Cumulative GPA: 8.94/10.0

RESEARCH EXPERIENCE

Technical University of Munich

Research Associate

Munich, Germany

May 2021 — May 2024

- Participated in a research-industry consortium titled CiLoCharging.
- Evaluated the impact of electrification on the delivery performance of industrial cargo trucks.
- Extended a traffic simulator called CityMoS with models for cargo trucks and depot management.
- Conducted feasibility analysis of Second-life battery and Vehicle-to-Grid operations.

TUMCREATE

Research Engineer

Singapore

Dec 2019 — May 2021

- Involved in studying electric mobility scenarios for Singapore using the microscopic mobility simulator CityMoS.
- Developed models for taxi behavior within CityMoS to evaluate electrification of the taxi fleet.
- Identified shortcomings in the operation of the taxi fleet for a defined charging infrastructure.
- Conducted comparative analysis of CityMoS with other mobility simulators MATSim, PTV VISSIM, and SimMobility.

Nanyang Technological University

Research Engineer

Singapore

Jul 2017 — Dec 2019

- Investigated truck platooning using a coupled simulator built with MATLAB, ns-3 and VISSIM.
- Developed a non-traffic light intersection control algorithm based on job-shop scheduling.
- Extended ns-3 to support parallel execution of wireless communication simulations.
- Evaluated pedestrian and electric scooter interactions through simulations.

PUBLICATIONS

Conference Proceedings

Published

- **Nagacharan Teja Tangirala**, Christoph Sommer, and Alois Knoll, "Simulating Data Flows of Very Large Scale Intelligent Transportation Systems", 38th ACM SIGSIM Conference on Principles of Advanced Discrete Simulation (SIGSIM PADS '24), June 24–26, 2024, Atlanta, GA, USA. ACM, New York, NY, USA, 10 pages.
- Doğa Yasa, **Nagacharan Teja Tangirala**, and Alois Knoll, "Analysis of Mixed Fleets with Autonomous and Human-driven Vehicles", 2024 IEEE 27th International Conference on Intelligent Transportation Systems (ITSC), IEEE, 2024.
- Ali, Muhammad Sajid, **Nagacharan Teja Tangirala**, Alois Knoll, and David Eckhoff. "Rebalancing Autonomous Electric Vehicles for Mobility-on-Demand by Data-Driven Model Predictive Control." In 2023 IEEE 26th International Conference on Intelligent Transportation Systems (ITSC), pp. 215-221. IEEE, 2023.
- Kuo, Jo-Yu, Abrar Sayeed, **Nagacharan Teja Tangirala**, Victoria Chua Yi Han, Justin Dauwels, and Marcel Philipp Mayer. "Pedestrians' acceptance of personal mobility devices on the shared path: A structural equation modelling approach", In 2019 IEEE Intelligent Transportation Systems Conference (ITSC), pp. 2349-2354. IEEE, 2019.
- Kuo, Jo-Yu, **Nagacharan Teja Tangirala**, Jeyakaran Murugesan, Abrar Sayeed, Yi Han Victoria Chua, Justin Dauwels, and Marcel Philipp Mayer. "Experimental analysis of pedestrians' discomfort zone for personal mobility devices on the footpath." In 2019 IEEE 90th Vehicular Technology Conference (VTC2019-Fall), pp. 1-5. IEEE, 2019.

- **Nagacharan Teja Tangirala**, Anuj Abraham, Apratim Choudhury, Pranjal Vyas, Rongkai Zhang, and Justin Dauwels, "Analysis of Packet drops and Channel Crowding in Vehicle Platooning using V2X communication", In 2018 IEEE Symposium Series on Computational Intelligence (SSCI), pp. 281-286. IEEE, 2018.
- Jiang, Rui, Shuzhi Sam Ge, **Nagacharan Teja Tangirala**, and Tong Heng Lee, "Interactive navigation of mobile robots based on human's emotion." In Social Robotics: 8th International Conference, ICSR 2016, Kansas City, MO, USA, November 1-3, 2016 Proceedings 8, pp. 243-252. Springer International Publishing, 2016.

Journals

Submitted

- Jakob Steimle, **Nagacharan Teja Tangirala**, Christoph Sommer, Alois Knoll, "SelecEval: Client Selection Evaluation for Federated Learning", ACM Transactions on Modeling and Performance Evaluation of Computing Systems, Special Issue on Performance Evaluation of Federated Learning Systems, 2024.

Published

- **Nagacharan Teja Tangirala**, Anuj Abraham, Pranjal Vyas, and Chetan Belagal Math. "Distributed implementation of network simulations for large-scale vehicle-to-everything applications." International Journal of Vehicle Autonomous Systems 16, 246-258, no. 2-4: 2022.
- Anuj Abraham, **Nagacharan Teja Tangirala**, Soumya Dasgupta, Apratim Choudhury, and Justin Dauwels. "An optimal controller synthesis for longitudinal control of platoons with communication scenarios in urban environments and highways." SAE International Journal of Connected and Automated Vehicles 4, no. 12-04-01-0007 (2021): 81-95.

OTHER TASKS

Thesis Supervision

Completed - 7, Ongoing - 4

Formulate and supervise student thesis topics related to the simulation studies in -

- Autonomous Fleet Management
- Connected Vehicles
- Federated Learning

Reviewer

IEEE Intelligent Transportation Systems Conference (ITSC)

2023

IEEE Intelligent Vehicles Symposium (IV)

2023, 2024

AWARDS

Vincent Bendix Automotive Electronics Engineering Award

2021

Awarded by SAE International for our submission at IJCAV

OTHER EXPERIENCES

Accenture

Bengaluru, India

Software Engineer

Nov 2013 — Jul 2015

- Automate repetitive tasks using C++, Excel VBA and Bash shell scripts.
- Support platform migration of Peoplesoft applications.

SKILLS

- **Programming:** C++, Rust, Python, Java
- **Simulators:** CityMoS, ns-3, SUMO, Eclipse MOSAIC, VISSIM