

# Satya Sarvani Malladi

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## APPOINTMENTS

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**Postdoc in Management Science**

(Jun. 2018 – Oct. 2019)

**Department of Technology, Management and Economics  
Technical University of Denmark (DTU)**

**Project Title:** *Electric Urban Freight and Logistics (EUFAL)*

**Managers:** Prof. Allan Larsen, Prof. Dario Pacino

## EDUCATION

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***Doctor of Philosophy***

(Aug. 2013 – May 2018)

***Master of Science in Industrial Engineering***

**H. Milton Stewart School of Industrial and Systems Engineering  
Georgia Institute of Technology**

- ♦ Dissertation title: *Data-Driven Reconfigurable Supply Chain Design and Inventory Control*
- ♦ *Advisors:* Prof. Alan L. Erera and Prof. Chelsea C. White III
- ♦ Specialization: ***Supply Chain Engineering***, Minor: ***Machine Learning***
- ♦ Overall GPA: 3.71/4

***Bachelor of Technology in Civil Engineering***

(Aug. 2009 – Jul. 2013)

**Indian Institute of Technology (IIT) Madras**

- ♦ Thesis title: *Analysis of Route Choice Decisions in Mixed Traffic*
- ♦ *Advisor:* Prof. Karthik K. Srinivasan
- ♦ Minor: ***Systems Engineering***
- ♦ Overall GPA: 9.03/10 and Major GPA: 9.54/10
- ♦ Ranked 1<sup>st</sup> in the BTech civil engineering class of 2013

## AWARDS & ACHIEVEMENTS

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- ♦ Selected for a postdoctoral fellowship at Technical University of Denmark (DTU) for 2018-2020
- ♦ Johnson Fellowship Award (2013-15) for doctoral study at Georgia Tech
- ♦ L&T ECC Gold Medal for the best academic record in Civil Engineering (2009-13) at IIT Madras
- ♦ Nominated and selected for the INFORMS 2016 Doctoral Student Colloquium in Nashville, USA
- ♦ Received the SGA and COE-DSPD travel grants for the years 2015, 2016, and 2017 at Georgia Tech
- ♦ Visakhapatnam Steel Plant Merit Scholarship for undergraduate and high school study

## ACCEPTED PAPERS

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1. Malladi, S. S., Erera, A.L., & White III, C. C. (2019). "A dynamic mobile production capacity and inventory control problem," *IIE Transactions*.

## SUBMITTED PAPERS

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2. Malladi, S. S., Christensen, J. M., Ramirez-Marti, D., Larsen, A., & Pacino, D. (2019). "Stochastic fleet mix optimization: Evaluating electromobility in urban logistics", under review at *Networks*.

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3. Malladi, S. S., Erera, A.L., & White III, C. C. (2019). "Data-driven control of distributed reconfigurable production-inventory systems," under review at *European Journal of Operational Research*.
4. Malladi, S. S., Erera, A.L., & White III, C. C. (2019). "Inventory control with modulated demand and a partially observed modulation process," under review at *European Journal of Operational Research*.

### WORKING PAPERS

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5. Malladi, S. S., Christensen, J. M., Pacino, D., & Larsen, A. (2019). "A metaheuristic method for the blood sample collection problem with electric vehicles".
6. Malladi, S. S., Petrella, M. T., & Larsen, A. (2019). "Dynamic repositioning in electric car-sharing systems".
7. Malladi, S. S., Pors, M. H., & Larsen, A. (2019). "Managing autonomous shuttle service systems".

### CONFERENCE PROCEEDINGS

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1. Faugere, L., Malladi, S. S., Montreuil, B., & White III, C. C. (2018). "Smart locker based access hub network capacity deployment in hyperconnected parcel logistics," paper presented at *5<sup>th</sup> International Physical Internet Conference, Groningen, Netherlands, 2018*.

### BOOK CHAPTERS

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1. Malladi, S. S., Erera, A.L., & White III, C. C. (October 2019). "Value of production capacity mobility," in Mahdi Fathi, Marzieh Khakifirooz, and Panos M. Pardalos, editors, *Optimization in Large Scale Problems: Industry 4.0 and Society 5.0 Applications*, Springer Optimization and Its Applications Series, Springer International Publishing, pp. , 2019.

### CONFERENCE PRESENTATION TALKS

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#### Dynamic repositioning in electric car-sharing systems

1. INFORMS 2019 (22<sup>nd</sup> Oct. 2019)

#### Using Electric Vehicles for Commercial Urban Transports

2. EURO 2019 (23<sup>rd</sup> Jun. 2019)

#### A Partially Observed Inventory Control Problem

2. INFORMS Annual Meeting 2016, Nashville, TN (15<sup>th</sup> Nov. 2016)

#### Dynamic Mobile Capacity Logistics and Multilocation Inventory Control

4. INFORMS Annual Meeting 2015, Philadelphia, PA (*invited*) (1<sup>st</sup> Nov. 2015)
5. POMS 2016 Annual Conference, Orlando, FL (*invited*) (8<sup>th</sup> May 2016)
6. TSL Workshop 2016, Atlanta, GA (20<sup>th</sup> Jun. 2016)
7. INFORMS Annual Meeting 2016, Nashville, TN (*invited*) (13<sup>th</sup> Nov. 2016)
8. TSL Conference 2017, Chicago, IL (28<sup>th</sup> Jul. 2017)
9. INFORMS Annual Meeting 2017, Houston, TX (*invited*) (22<sup>nd</sup> Oct. 2017)

#### Dynamic Capacity Allocation and Inventory Control with Transshipment

10. POMS 2017 Annual Conference, Seattle, WA (*invited*) (5<sup>th</sup> May 2017)
11. INFORMS Annual Meeting 2017, Houston, TX (24<sup>th</sup> Oct. 2017)

#### Route Determination for Mitigating the Risk of Cargo Theft

12. The Food Defense Conference 2016, Minneapolis, MN (*poster*) (29<sup>th</sup> Jun. 2016)

### OTHER RESEARCH TALKS

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#### Using Electric Vehicles for Commercial Urban Transports

- DTU Master's Students Orientation (30<sup>th</sup> Jan. 2019)

## Satya Sarvani Malladi

Seminar at DTU Management, Technical University of Denmark	(5 <sup>th</sup> Sep. 2019)
<b>A Partially Observed Inventory Control Problem</b>	
Career, Research, and Innovation Development Conference, Georgia Tech ( <i>poster</i> )	(9 <sup>th</sup> Feb. 2017)
<b>Dynamic Mobile Capacity Logistics and Multilocation Inventory Control</b>	
Georgia Tech/ U Bergamo Optimization Workshop, Atlanta, GA	(28 <sup>th</sup> Aug. 2017)
Indian School of Business, Hyderabad, India ( <i>job talk</i> )	(16 <sup>th</sup> Jan. 2018)
<b>Dynamic Capacity Allocation and Inventory Control with Transshipment</b>	
Georgia Logistics Summit, Atlanta, GA ( <i>poster</i> )	(17 <sup>th</sup> May 2017)
Seminar at DTU Management, Technical University of Denmark	(20 <sup>th</sup> Sep. 2018)
Seminar at CORAL, Aarhus University, Denmark	(25 <sup>th</sup> Oct. 2018)
<b>Route Determination for Mitigating the Risk of Cargo Theft</b>	
The Food Defense Conference 2016, Minneapolis, MN ( <i>poster</i> )	(29 <sup>th</sup> Jun. 2016)

### RESEARCH TOPICS

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<b>Dynamic repositioning in car-sharing systems</b>	(2019 - )
♦ Dynamic fleet repositioning to better respond to uncertain demands	
<b>A blood sample collection problem with electric vehicles</b>	(2019 - )
♦ Optimizing the collection of blood samples from clinics for delivery at a central testing facility	
<b>Optimizing fleet mix for commercial electric mobility</b>	(2018 - 19)
♦ Determining strategic fleet size and mix decisions while accounting for the impact of electric mobility	
<b>Bi-level mobile storage capacity logistics</b>	(2018 - 19)
♦ Solving some logistics problems in mobile storage systems	
<b>Data-driven control of distributed reconfigurable production-inventory systems</b>	(2016 - 18)
♦ Optimized the logistics of inventory transshipment and capacity movement under partially observed Markov-modulated demands	
<b>A dynamic mobile production capacity and inventory control problem</b>	(2014 - 17)
♦ Developed scalable, well-performing heuristic methods for a multi-location joint capacity logistics and inventory control problem over a finite horizon	
<b>Inventory control with modulated demand and a partially observed modulation process</b>	(2015 - 16)
♦ Obtained an optimal policy a periodic review inventory control problem in which demand depends on a partially observed Markov-modulated process demand over an infinite horizon	
<b>Bachelor's Thesis, IIT Madras</b>	(2012 - 13)
♦ <i>Title: Analysis of Route Choice Decisions in Mixed Traffic</i>	
♦ Evaluated overall and class-wise performance of route choice set generation mechanisms	
♦ Identified explanatory factors, captured variation across vehicle classes in mixed traffic	

### TEACHING

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<b>Graduate Student Instructor, Georgia Tech</b>	
Supply Chain Modeling: Logistics (ISyE 3103)	(Summer, Fall 2017)
♦ Planned and taught the core undergraduate course, ISyE 3103, to a class of 34 students in Summer 2017 and 59 students in Fall 2017.	
♦ Teaching Effectiveness: 4.1/5 (Summer 2017), 4/5 (Fall 2017)	

## Satya Sarvani Malladi

### Graduate Teaching Assistant, Georgia Tech

Supply Chain Strategy (ISyE 4803 WHI)	(Fall 2015)
Supply Chain Strategy (ISyE 6338)	(Spring 2015, 2018)
Interconnected Supply Chain Systems (ISyE 6339)	(Spring 2015)
Transportation and Supply Chain Logistics (ISyE 6203A)	(Spring 2014)
Manufacturing (ISyE 6201A)	(Spring 2014)
Probability with Applications (ISyE 2027D)	(Fall 2013)

### STUDENT ADVISING

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#### Master's theses of

1. *David Ramirez-Marti*, on "Assessing the sustainability of electro-mobility for the routing of service technicians", co-advised with Prof. Allan Larsen, during Jun. - Dec. 2018, at DTU.
2. *Francesca Costanzo*, on "Efficiency improvements of warehousing operations through increased automation – Simulation study for DHL Supply Chain Denmark", co-advised with Prof. Allan Larsen, during Jan. - Jul. 2019, at DTU.
3. *Maria Teresa Petrella*, on "Dynamic fleet repositioning in carsharing systems", co-advised with Prof. Allan Larsen, during Jan. - Jul. 2019, at DTU.

#### Bachelor's theses of

1. *Oscar Kokholm Ungermann*, on "Dynamic routing of autonomous public transportation case study: DTU Lyngby campus", co-advised with Prof. Allan Larsen, during Sep. - Dec. 2018, at DTU.
2. *Marie Catharina Hartwell Pors*, on "Case study of autonomous shuttles using simulation at DTU's main campus", co-advised with Prof. Allan Larsen, during Sep. 2018 - Jan. 2019, at DTU.
3. *Johannes Emme Joergensen*, on "Simulation of fleet management for large companies", co-advised with Prof. Allan Larsen, during Sep. 2018 - Feb. 2019, at DTU.

#### Special topics course of

1. *Andrea Saretta*, on "Dynamic fleet repositioning in car sharing systems", co-advised with Prof. Allan Larsen, during Jan. 2019 - May 2019, at DTU.
2. *Guilhem Dupuis*, on "Developing an ALNs for a two-echelon vehicle routing problem", co-advised with Dr. Jonas Christensen and Prof. Dario Pacino (ERASMUS internship), during Apr. 2019 – Aug. 2019, at DTU.

### GRANT-WRITING

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- ♦ Assisted advisors in the preparation of a January 2017 NSF SMOR Proposal titled: *Reconfigurable Supply Chain Design: Logistics of Modular Decentralized Mobile Production Systems*.

### INDUSTRY/ PROJECT EXPERIENCE

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#### Postdoc, DTU

(Jun.'18 – present)

##### Electric Vehicle Logistics

- ♦ Project called Electric Urban Freight and Logistics (EUFAL), within a consortium that includes Institute for Transport Research (DLR, Europe)
- ♦ Collaborating with Copenhagen's Region Hovedstaden to enable efficient routing for blood samples collection from clinics of private physicians for testing
- ♦ Engaging actively with a construction services firm MT Hoejgaard to determine the electric fleet investment that maximizes its business competitiveness

## Satya Sarvani Malladi

### Graduate Research Assistant, Georgia Tech

**Impact of Panama Canal expansion on freight movement** (Mar. – May'14)

- ♦ Project with the Center for Quality Growth and Research Development, Georgia Tech
- ♦ Conducted scenario analysis of expansion's economic impact on freight movement in USA

**Mitigating the risk of food cargo theft on truck routes** (May'15 – Dec.'16)

- ♦ Project with Food Protection and Defense Institute, a DHS and University of Minnesota Center
- ♦ Modeled risk along a given physical route; routed cargo to minimize both cost and risk

**Summer Intern, LEA Associates South Asia Ltd., India** (May– Jun.'12)

- ♦ Traffic flow analysis of Hyderabad Metro road network towards Comprehensive Transport Study

**Summer Intern, Larsen and Toubro (L&T), India** (Jun. – Jul.'11)

- ♦ Modeled and structurally analyzed academic and IT Park buildings using a software called ETABS

### RELEVANT COURSEWORK

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*Supply Chain Engineering:* Logistics Systems Engineering, Warehousing, Production and Service Systems Engineering, Logistics and Distribution Management, Heuristics for Decision-Making, Economic Decision Analysis

*Machine Learning:* Regression Analysis, Machine Learning, Network Science, Uncertainty Quantification, Reinforcement Learning

*Optimization and Stochastics:* Linear Optimization, Discrete Optimization, Stochastic Optimization, Computational Methods in OR, Process Optimization, Transportation Network Analysis, Stochastic Processes I, Stochastic Modeling & the Theory of Queues

*Teaching:* Fundamentals of Teaching & Learning in Higher Education

### PROFESSIONAL SERVICE

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- Serving as a reviewer for Transportation Science
- Served as a reviewer for IEEE Transactions on Automatic Control
- Served as a judge in GT Undergraduate Research Symposium: Poster Session
- Served as an INFORMS volunteer at INFORMS Annual Meeting 2016
- Mentored a senior design team (undergrad) in Industrial Engineering in Spring 2016
- Member of INFORMS, IISE, and POMS