

# Gustav Nilsson

Ph.D. Student

Department of Automatic Control  
Lund University  
Box 118  
SE-221 00 Lund  
Sweden

Phone: +46 46 222 08 48  
Email: [gustav.nilsson@control.lth.se](mailto:gustav.nilsson@control.lth.se)  
Homepage: <http://control.lth.se/GustavNilsson>

Date of birth: June 9th, 1989  
Nationality: Swedish

## Education

Ph.D. in Automatic Control, Lund University, sep 2013 – jan 2019 (expected).

*Supervisor:* Giacomo Como.

M.Sc. in Engineering Physics, Lund University, sep 2008 – aug 2013.

Specialized in Mathematics and Automatic Control.

*GPA:* 4.8/5.

## Research Interests

Modeling and control of flows in networks; traffic control.

## Publications

### *Peer-Reviewed Conference Publications*

1. G. Nilsson, P. Hosseini, G. Como, and K. Savla, "Entropy-like Lyapunov Functions for the Stability Analysis of Adaptive Traffic Signal Controls," (INVITED) in Proc. of IEEE Control Decision Conference, (Osaka, Japan), December 15-18, 2015.
2. G. Nilsson, G. Como, and E. Lovisari, "On Resilience of Multicommodity Dynamical Flow Networks", in Proc. of 2014 Control Decision Conference, (Los Angeles, CA, USA), December 15-17, 2014.
3. G. Nilsson and G. Como, "On Generalized Proportional Allocation Policies for Traffic Signal Control". (INVITED) accepted for publication at IFAC World Congress 2017, Toulouse, France.

### *In Preparation*

4. G. Nilsson, M. Chong, G. Como, "Proportional Scheduling with Dynamic Cycle Lengths in Single Hop Networks"

## Thesis

1. Master's thesis: "A multi-commodity dynamical model for traffic networks", 2013.

*Supervisors:* Giacomo Como and Enrico Lovisari.

## Research Visits

October and December 2016: Dipartimento di Scienze Matematiche "Giuseppe Luigi Lagrange", Politecnico di Torino

September - October 2015: Institute for Pure & Applied Mathematics, UCLA

May 2014: Grenoble Traffic Lab, INRIA Grenoble – Rhone-Alpes.

## Reviews

Reviewer for IEEE Transactions on Intelligent Transportation Systems, IEEE Conference on Decision and Control (2015, 2016, 2017), American Control Conference (2017), IFAC World Congress (2017).

## Teaching Experience

During my Ph.D. studies:

Network Dynamics – Teaching assistant and involved in the development of the course.

Physiological Models and Computations – Teaching assistant and involved in the development of the course.

Automatic Control, Basic Course – Teaching assistant four times.

Automatic Control, Basic Course in China – Lecturer for one third of the course and teaching assistant.

During my M.Sc. studies:

Calculus in One Variable – Teaching assistant one time.

Calculus in Several Variables – Teaching assistant two times.

Linear Algebra – Teaching assistant three times.

## Supervision

### *Master's thesis*

1. Christian Rosdahl, "Distributed Control of Dynamic Flows in Traffic Networks", 2017, co-supervisor.
2. Joakim Guth, "On Distributed Maximization of Influence in Social Networks", 2017, co-supervisor.
3. Rasmus Stålberg, "Robustness of Equilibria in Transportation Networks" (tentative title), 2017, co-supervisor.

## Pedagogical Training

Over five weeks of pedagogical courses including:

Introduction to teaching and learning in higher education.

Communicating science.

## Miscellaneous

*Languages:* **Swedish** native; **English** fluent; **German** basic.

*Programming Languages:* Matlab, C, Python, Java, PHP, SQL,  $\text{\LaTeX}$ .