

# Daria Madjidian – Curriculum Vitae

daria@control.lth.se

+46 739 847490

www.control.lth.se/Staff/DariaMadjidian

## EDUCATION

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**Ph.D. Automatic Control**, Lund University June 2014

Thesis: Low-Rank Distributed Control with Application to Wind Energy. Advisor: Anders Rantzer.

**M.Sc. Electrical Engineering**, Lund University June 2005

Specialized in Automatic Control. GPA 4.5/5.0. Spent one year as an exchange student at Concordia University, Montreal, Canada.

## ACADEMIC RESEARCH EXPERIENCE

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**Post-Doctoral Researcher** June 2014 - Present

*Department of Automatic Control, Lund University* Lund, Sweden

Research in the area of distributed control. Working to extend the results from my Ph.D. thesis in several directions.

**Doctoral Student** August 2008 - June 2014

*Department of Automatic Control, Lund University* Lund, Sweden

Research in the area of distributed control and wind energy. The main topic was to study a class of large scale coordination problems that appear in wind farm applications. The main contribution was to decompose the problem and show that the solution has a diagonal plus low-rank structure. The result offers complete insight into the optimal coordination policy and has several benefits in terms of scalability. A total of 11 peer-reviewed publications were produced.

**M.Sc. Thesis Project** August 2004 - June 2005

*Department of Automatic Control, Lund University* Lund, Sweden

Modeled and simulated a large scale train system and developed a control strategy to stabilize it. The main achievement was to derive a decentralized criterion that guarantees global stability.

## RELEVANT INDUSTRIAL EXPERIENCE

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**Logic and Efficiency Analyst** May 2007 - April 2008

*Caxem Inc.* Montreal, Canada

R&D position aimed at improving key processes for Caxem's brand names: Caiman.com and Tower.com. Developed solutions for inventory control for product flow of about 1 MSEK/day, product purchase and pricing strategies, and product ranking procedures.

**Project Engineer** January 2006 - December 2006

*Solvina AB* Gothenburg, Sweden

Consultant for a multi-disciplinary engineering firm specialized in the process and energy industry. Worked on projects in mining, steam net, pulp and paper, and nuclear power. Task included dynamic modeling and simulation, process control, system studies, and technical writing.

## TEACHING EXPERIENCE

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**M.Sc. Thesis Advisor** September 2010 - Present

*Department of Automatic Control, Lund University* Lund, Sweden

I have been the main thesis advisor in four M.Sc. thesis projects. The topics were related to distributed control, wind energy, system identification and spectral estimation.

**Teaching Assistant**

August 2008 - December 2012

*Department of Automatic Control**Lund, Sweden*

During my Ph.D. studies I supervised weekly tutorials and lab work, and designed and corrected exams in the following courses:

Automatic Control, Basic Course – *Five times, including twice at Zhejiang University, China*

Multivariable Control – *Fall 2012*

Nonlinear Control and Servo Systems – *Spring 2011 and Spring 2012*

System Identification – *Spring 2010*

Process Control – *Fall 2008*

**Teaching Assistant**

September 2001 - December 2005

*Faculty of Engineering, Lund University**Lund, Sweden*

Position reserved for high-achieving students. During my M.Sc. studies, I supervised tutorials and lab work, and corrected lab reports, hand-in assignments and exams in the following courses:

Electronics, Basic Course – *Fall 2001 and Fall 2002*

Programming, Basic Course – *Fall 2001, Spring 2002 and Fall 2002*

Automatic Control, Basic Course – *Spring 2004 and Fall 2005*

**RELEVANT COURSES**

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Matrix Theory (7.5 ETCS), Convex Optimization (7.5 ETCS), Linear Systems (9 ETCS), Linear Functional Analysis (15 ETCS), Integration Theory (15 ETCS), Robust Control (9 ETCS), Distributed Control (3 ETCS), Stochastic Control (7.5 ETCS), Topics of Functional Analysis in System Theory (9 ETCS), Power Systems (6 ETCS), Technical Writing for Publication (6 ETCS)

**INVITED TALKS**

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Distributed Control with Low Rank Coordination, *Symposium on Control of Network Systems*, October 26-27, 2014, Boston University

Addressing wake effects in wind farms, *Workshop on modeling and simulation of modern electricity networks*, November 30, 2011 at Dong Energy, Denmark

A turbine interaction model for choosing operating points in wind farms, *Wind turbine control symposium*, November 28-29, 2011 at Aalborg University, Denmark

Addressing wake effects in wind farms, *Workshop on modeling and simulation of modern electricity networks*, September 22, 2011 at Lund University, Sweden

Optimal Power Distribution in Wind Farms, *Improved Control of Wind Farms – Advanced Control for Offshore Wind-farms to Reduce Failures and Maintenance Costs*, May 25-26, 2011 at Industrial Systems and Control, Glasgow, Scotland

**SELECTED PUBLICATIONS**

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Daria Madjidian and Leonid Mirkin, "Distributed Control with Low-Rank Coordination, *IEEE Transactions on Control of Network Systems*, **1:1**, pp. 53-63, 2014

Daria Madjidian, Leonid Mirkin and Anders Rantzer, "Optimal Coordination of Homogeneous Agents Subjects to Delayed Information Exchange", To appear in *Proceedings of the 53rd IEEE CDC*, 2014.

*References are available upon request.*