



The WASP Graduate School
Fredrik Heintz Graduate School Director
2nd Batch Kick-off, Lund, 2018-01-08



Graduate School Management group



Fredrik Heintz, Associate professor and Director of Studies at the Department of Computer Science at Linköping University. Research areas: AI, collaborative and intelligent autonomous systems, stream reasoning and computer science education. President of the Swedish AI Society.



Christian Berger, Associate Professor at the Department of Computer Science and Engineering at Chalmers and University of Gothenburg. Research area: Software engineering for cyber-physical systems like self-driving vehicles.



Bo Bernhardsson, Professor at the Department of Automatic Control, Lund University. Worked 2001-2010 at Ericsson as expert in mobile system design and optimization. Research interest covers all applications of control.



Patric Jensfelt, Professor of Computer Science, at the Centre for Autonomous Systems at KTH. Specialized in robotics and with main research interests in mapping, localization and spatial understanding.

The Goal – WASP

The goal is to educate PhDs with skills in **strategically important disciplines** of this program, together with a **broad knowledge of autonomous systems and software development.**

Goals – Students

- **You** should become knowledgeable **researchers** in the area of autonomous system and software.
- **You** should form a strong sense of **belonging** to WASP connecting you together.
You are WASP!
- **You** should get to know Swedish **industry**.
- **You** should form a strong and valuable **international** academic-industrial **network**.
- **You** should strive for **greatness**.

Goals – GSM

- **We** will organize **courses** and **activities** that **respect** the needs of a **heterogeneous** group of students spread out over Sweden
- **We** will organize **activities** to provide academic and industrial researchers and engineers with **state-of-the-art knowledge.**
- **We** will provide **added value** to your PhD education.
- **We** will provide **opportunities** to those that really want to **become great!**

Degree Outcomes

- **Knowledge and understanding**

- Demonstrate broad knowledge and systematic understanding of the interdisciplinary area of autonomous systems and software development for autonomous systems.
- Demonstrate advanced and up-to-date specialized knowledge in a limited area of this field.
- Demonstrate familiarity with research and engineering methodology in general.
- Demonstrate familiarity with the research and engineering methods of the specific field of research in particular.
- Demonstrate an understanding of the use of and requirements on autonomous systems in industry.

- **Competence and skills**

- Demonstrate the ability to collaborate in multi-disciplinary teams in both academic and industrial settings.
- Demonstrate hands on experience with some aspects of autonomous systems and software development for autonomous systems.
- Demonstrate the ability to communicate to wide audiences both technical and non-technical, including engineers, management and sales.
- Demonstrate the ability to quickly learn new things and develop new skills.

- **Judgement and approach**

- Demonstrate critical thinking, ethical judgement and the societal needs of autonomous systems.
- Demonstrate an understanding of handling intellectual property rights in both academia and industry, including patents and teacher exemption (lärarundantaget).

Activities

- WASP PhD-Student Winter Conference (Q1)
 - Present work for feedback
 - Demonstrate autonomous systems projects
- Core course (Q1-Q2)
- Summer school (Q2/Q3)
- Core course (Q3-Q4)
- Study trip (Q3/Q4)

Courses

- Autonomous Systems part I, 6hp
- Autonomous Systems part II, 6hp
- Software and Cloud Technologies, 6hp
- Autonomous Systems Project, 6hp

Autonomous Systems

- Autonomous Systems require the combination of knowledge and skills from many different subjects.
- Autonomous Systems is the integration of:
 - Sensing and Perception
 - Control and Decision making
 - Learning and Knowledge
 - Interaction and Collaboration
 - Software and Systems

Overview Course Schedule

	Batch 1	Batch 2	Batch 3	Spring	Fall
2016	Y1				Autonomous Systems I & II
2017	Y2			Software Engineering and Cloud Computing	Project course
2018	Y3	Y1		Autonomous Systems I	Autonomous Systems II
2019	Y4	Y2		Software and Cloud Technologies	Project course
2020	Y5	Y3	Y1	Autonomous Systems I	Autonomous Systems II
2021		Y4	Y2	Software and Cloud Technologies	Project course
2022		Y5	Y3	Autonomous Systems I	Autonomous Systems II
2023			Y4	Software and Cloud Technologies	Project course
2024			Y5		
2025					

**Take the opportunity
that WASP is
and strive to
become great!**