



Some Reflections on Multidisciplinary Research Collaboration and Education

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WASP—HS

Experiences from:

1. Master program in Cognitive Science in Lund with students from Biology, Computer Science, Linguistics, Philosophy, Psychology.
2. Course collaboration between humanities and engineering
3. Supervision of interdisciplinary graduate students
4. Course development for the WASP-HS Research School
5. Interdisciplinary research collaborations
6. Research in Cognitive Science, Psychology, Neuroscience, Computer Science, Artificial Intelligence, Robotics, Electrical Engineering, Zoology, Linguistics, Philosophy.

Multidisciplinary

Interdisciplinary

Transdisciplinary

CHALLENGES WITH MULTIDISCIPLINARY RESEARCH

- Different languages
- Different research objectives
- Different methodologies and problem solving strategies
- Different types of data
- Different publication structure
- Different measures of success
- Lack of appreciation for other areas

*“Knowing each other at
a personal level is
crucial.”*

CHALLENGES WITH MULTIDISCIPLINARY RESEARCH

- Contributions from different groups often need to be at different levels, practically and theoretically
- One research area may contribute with practical work while the other contributes theoretically
- E.g. a computer scientists can contribute with useful work that is not considered research in their area
- Important to define and allow roles as both researchers and assistants and to select the right people for the role

CHALLENGES WITH MULTIDISCIPLINARY RESEARCH

- Organization
- Administration

RISKS WITH MULTIDISCIPLINARY RESEARCH

- Lack of common foundation
- Insufficient motivation
- Lack of appropriate publication outlets
- Lack of career opportunities
- Inappropriate evaluation

- The illusion of success
- "the double monte"

*“Interdisciplinary
research is an approach,
not an end.”*

BENEFITS OF MULTIDISCIPLINARY RESEARCH

- Critical for many of today's problems
- Complementary contributions
- Multiple perspectives
- Broader and more complete approach
- Confront questions that would not otherwise occur to you
- The right person for each job
- Creative
- Greater relevance and wider audience

BREADTH OR DEPTH?

- Aim for competence in a broad range of areas
- Aim for expert skills in one area

“T-shaped skills”

LUCS MASTER PROGRAM

- Introduction
- Animal cognition
- Cognitive neuroscience
- Cognition and communication
- Cognition, interaction and design
- Research methodology
- Project
- Neural modeling, cognitive robotics and agents
- Cognition, learning and advanced technology
- Theories and models in cognitive science

*“Having coffee together
was the best exercise.”*

WASP-HS GRADUATE SCHOOL

- The WASP-HS graduate school addresses challenges and consequences of autonomous systems and AI in society
- Train future researchers to the highest international standards
- Integrated training in philosophy, social science, policy research, organisational science, psychology, and other humanities and social science disciplines
- Provides a sound knowledge of the technical aspects of AI, software and autonomous systems

WASP-HS GRADUATE SCHOOL

- Build the foundation for future groundbreaking research and will establish a modern cutting edge basis for
 - studying the consequences of AI and autonomous systems
 - how humanities and social sciences can inform research in AI and autonomous systems
 - how AI techniques can be used to advance the humanities and social sciences
- A goal is to provide new forms of understanding of the relation between individuals as cultural beings and AI and autonomous systems.

WASP-HS GRADUATE SCHOOL

- Over 70 PhD degrees by 2028
- Highest scholarly quality
- International orientation
- Multi-disciplinary
- Open to WASP-HS students, to WASP (HS) faculty, and students associated to the program
- Academic PhDs and industrial PhDs
- Co-location and coordination with WASP graduate school
- Hosted by Lund University

ACTIVITIES

- Summer School
- Winter Conference
- Courses
- Site Visits and Study Tours
- Support for Supervisors

SUPERVISION

- Critical to the success of WASP-HS
- Establish a forum for discussing supervision throughout the project
- Joint supervision
- International co-supervisors
- Supervisors as resources that can be utilised between the projects where relevant, for example as external readers of manuscripts, for final seminars, thesis committees, etc.

SUMMER SCHOOL

- Develop thematic methodological competences
- Community building
- The first summer school will take place in the third week of August 2020
- Introduction to graduate school
- Project work on projects addressing real problems taking account of the individual, societal, and ethical implications.
- Collaboration with WASP-AI

WINTER CONFERENCE

- Workshop or scientific meeting
- Invited presentations
- Oral and poster presentations by the PhD students
- Focused on the research work conducted by the students
- Special track for supervisors

COURSES

- Explaining intelligence
 - Introduction to AI and autonomous systems
 - Human-AI interaction
 - Philosophy of AI
 - Methods for autonomous systems and AI
 - Ethics, law and policy making in the areas of AI and autonomous systems
 - Society and economics
 - Humanities, social sciences and AI
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- 3-4 course credits per course (ETCS)

The background is a solid blue color. On the left and right sides, there are decorative white line art elements consisting of several overlapping, curved lines that create a sense of movement and depth.

Thank you

WASP—HS

www.wasp-hs.org

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