

Leuven.AI

The KU Leuven Institute for AI

kick-off meeting
March 2, 2020

Luc De Raedt

What is AI ?

- Nobel prize winner - Herbert Simon :
 - machines that exhibit behaviors that would be regarded intelligent if they were exhibited by human beings.
- Many questions about AI (AI is interdisciplinary):
 - What is regarded as intelligent behaviour ?
 - How can we make such machines ? for general AI ? for specific applications ?
 - What are the limitations ?
 - What are the implications for our society ?
 - Should we make such machines ?
- A lot of attention in the media and in our society

Impact of AI

- Many recent breakthroughs in AI, mostly (but not only) in machine learning
- “AI is the new electricity” (Andrew Ng)
 - Much like the rise of electricity, which started about 100 years ago, AI will revolutionize every major industry. (Industry 4.0)
- There is a lot of hype; the expectations are often unrealistic, but AI is here to stay.
- There is a really high potential for “beneficial” AI, but also some caveats
- A broad and interdisciplinary view on AI is needed (AI \diamond Deep Learning, AI \diamond Everything)
- This is the momentum for AI

AI at KU Leuven

- KU Leuven has
 - one of the oldest and best-known master of AI programmes (since 1988, now 300 students)
 - research excellence in AI in almost all areas of AI, across different labs (e.g., 8 ERC projects, etc.)
 - vibrant students and research community
 - **(60 ZAP, 100s of PhD Students, 500 Master Students in AI)**
- but we could do more together and be more united !
- This is the right time for a KU Leuven Institute on AI
- The idea was launched about 2 years ago, now we are finally taking off ...

Mission

- **Unite AI** and its renowned **AI experts** at KU Leuven in an interdisciplinary institute of excellence.
- **Foster AI research** by providing a forum for exchanging ideas and for initiating projects and collaborations on AI.
- **Foster AI education** by offering courses and contributing to education programmes.
- **Offer expertise on all aspects of AI**, including on the possibilities and limitations of AI and its implications from a philosophical and ethical, legal and societal perspective (ELSI).
- **To promote and represent the Leuven AI community** both internally and to the outside world
- **To obtain sustainable funding** for organising and supporting all this.

Foster AI Research

- Research Lines :
 - What ?
 - areas with a critical mass and expertise in Leuven.AI,
 - a high potential for collaboration (if not already in place)
 - How ? bootstrapping via common seminar series ... (watch out leuvenainews and website)
 - Three standard research lines
 - Machine Learning and Data Science
 - Language, Vision and Speech
 - Reasoning, Acting & Decision Making (including robotics and hardware)
 - Two special ones
 - Applications of AI
 - Philosophical and Ethical, Legal, and Societal Implications of AI (ELSI)

Foster AI Research &

- Research Line:
 - **Philosophical and Ethical, Legal, and Societal Implications of AI (ELSI)**
 - Leuven.AI wants to actively participate in the AI debate and take position
 - Various initiatives are starting up:
 - Metaforum will prepare a vision text on AI
 - Discussions around policy documents by the HLEG Europe
 - (next one planned soon ...)
 - Interest in these topics by groups of visitors

Foster AI Research

- Research Line **Applications**
 - Three key areas identified:
 - bio-medical, engineering and education technology
 - Key research goal of Leuven.AI:
 - increase the number of applications of AI across KU Leuven,
 - key research task for the Leuven.AI post-doc
 - Information & networking session for applications of AI@KU Leuven planned
- Setting up phase of Leuven.AI: focus on foundations,
- Next phase will be to expand towards application areas (affiliated members)

Research Topics & Labels

APPLICATIONS OF AI

[SEE HERE](#)

AGENTS & AUTONOMOUS SYSTEMS

[SEE HERE](#)

BIOMEDICAL & HEALTH

[SEE HERE](#)

REASONING

[SEE HERE](#)

PHILOSOPHY OF AI

[SEE HERE](#)

MATHEMATICAL APPROACHES

[SEE HERE](#)

BAYESIAN, PROBABILISTIC AND STATISTICAL APPROACHES

[SEE HERE](#)

BIG DATA AND DATA SCIENCE

[SEE HERE](#)

COMPUTER VISION

[SEE HERE](#)

LANGUAGE AND SPEECH

[SEE HERE](#)

PRIVACY, DATA PROTECTION, AND AI

[SEE HERE](#)

EXPLAINABLE AI & TRUST

[SEE HERE](#)

HARDWARE & COMPUTER ARCHITECTURES

[SEE HERE](#)

ETHICS AND LEGAL

[SEE HERE](#)

MACHINE LEARNING

[SEE HERE](#)

Flemish Impulsprogram on AI

Three aspects

1. Strategic Basis Research

4 Grand Challenges

KU Leuven involved in 3

2. Technology Transfer and Industrial Applications

3. Supporting activities (awareness, training, ethics...)

Education: Graduate School, Continuing Education, Raising Awareness

Knowledge Centre for Data & Society

HELP TO **MAKE
COMPLEX DECISIONS**



**COMMUNICATE AND COLLABORATE
SEAMLESSLY** WITH HUMANS



**EXTRACT AND PROCESS
INFORMATION AT THE
EDGE**



more information : Bart DE MOOR

Foster AI Education

Junior Leuven.AI members:

- Phd- and Post-doc days in Leuven.AI context
- First planned after the summer holidays
- Synergies with Flemish Impulsprogram to be exploited

Many requests and initiatives are being taken

- Graduate school of the Flemish Impulsprogram
- UNA - 1EUROPE project with Data Science and AI as one of four focus areas
- Questions regarding education for industry, for the wide public, master programmes

...

Offer expertise on all of AI

- Leuven.AI as a contact point for channelling requests
- Two subgroups of Leuven.AI
 - PhELSI – Philosophical and Ethical, Legal and Societal Perspective
 - Research – requests for collaboration

The ambition is not to replace the activities of the individual labs and researchers, but rather to coordinate existing initiatives, create synergies, stimulate cross-fertilisation, and initiate novel, interdisciplinary AI activities at KU Leuven.

Promote & Represent AI @ KU Leuven

Main communication channels :

- Website : ai.kuleuven.be or leuven.ai (news and events also for the outside world)
- the **internal** newsgroup :
 - leuvenainews@ls.kuleuven.be daily digest of interesting news
 - subscription management via (only via kuleuven address, about 150 right now)
 - <https://ls.kuleuven.be/cgi-bin/wa?SUBED1=LEUVENAINEWS&A=1>
 - internal + external newsletter : first issue after kickoff meeting
 - other email addresses:
 - leuven.ai@cs.kuleuven.be (reach Stella, Wannes and myself)
 - LEUVENAI@LS.KULEUVEN.BE (all senior members of Leuven.AI)

Membership

All members of Leuven.AI are affiliated to KU Leuven. Membership is free.

Three types of members:

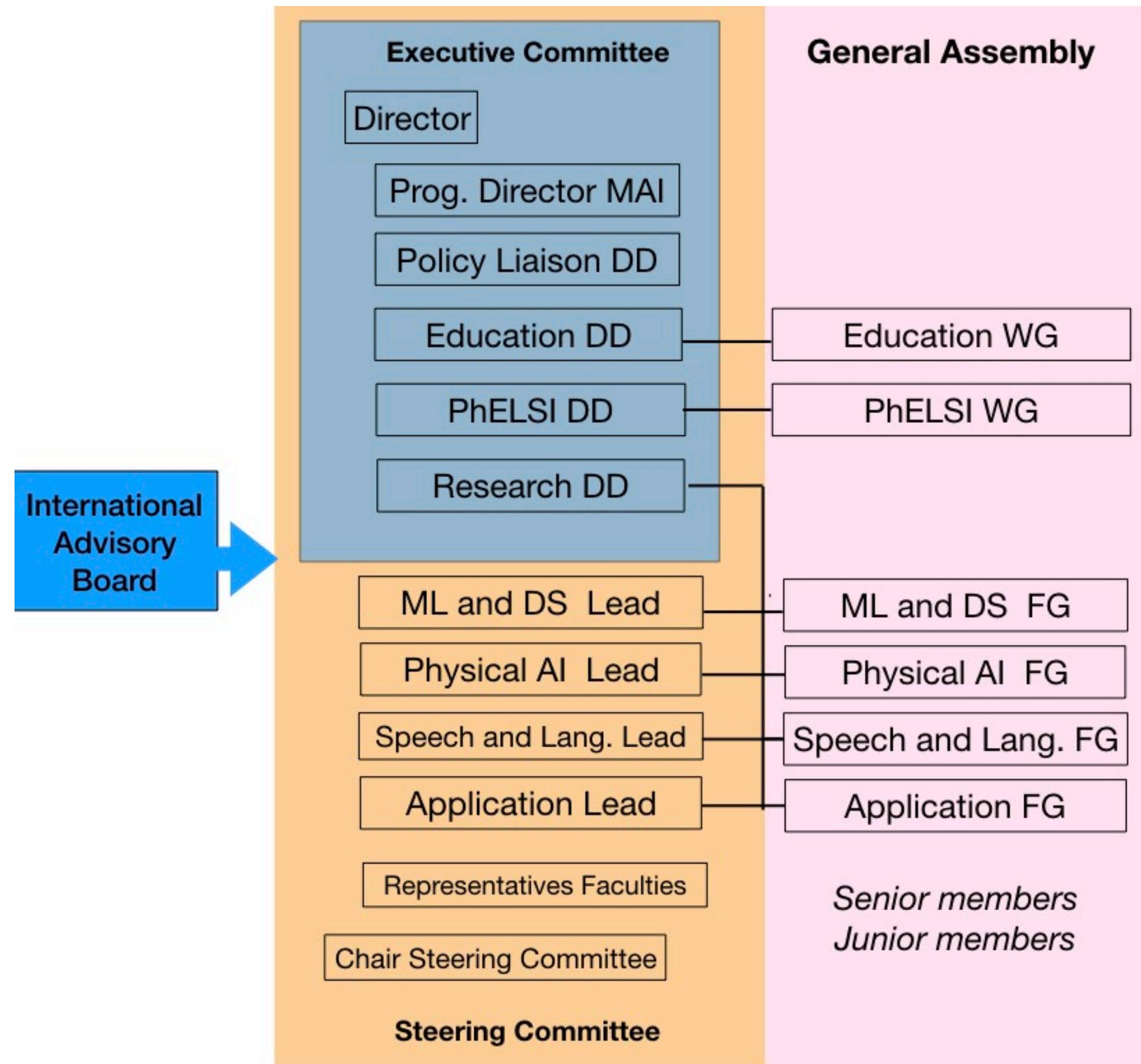
1. Senior members are active AI researchers or practitioners. They are senior research staff (either ZAP or Research Management Staff) (about **60 senior members right now**)
2. Junior members are active AI researchers or practitioners. They are post-docs or PhDs student.
3. Affiliated members are interested in artificial intelligence and its applications but have a different research focus.

Application for senior membership via providing a list of AI related activities to leuven.ai@kuleuven.be, and for junior and senior members, a commitment to contributing to Leuven.AI. (We plan to feature post-docs on the website.)

Expectation **to mention Leuven.AI in relevant AI publications** and presentations, as an additional affiliation or in the acknowledgements section, there is also a **special collection of publications available in LIRIAS for Leuven.AI** (as a virtual collection).

Information sessions for potential new members are planned after Easter, as well as an Open call for membership.

Governance



Executive Committee:

Director : Luc De Raedt
Deputy - Policy Liaison : Bart De Moor
Deputy - Research : Tinne Tuytelaars
Deputy - Education : Frank Van Eynde
Deputy - PhELSI : Peggy Valcke and Roger Vergauwen
POC Director : Johan Suykens

Research Lines LEADS :

PhELSI : Peggy Valcke / Roger Vergauwen
Machine Learning and Data Science :
Jesse Davis / Matthew Blaschko / Lieven De Lathauwer
Acting, decision making and reasoning :
Herman Bruyninckx / Marian Verhelst / Patrick De Causmaecker
Speech and Language : Frank Van Eynde, Luc Van Gool
Applications : Joost Vennekens / Marc Van Hulle / Alexander Bertrand

Education Committee :

Danny De Schreye, Frank Van Eynde, Lieven De Lathauwer,
Johan Suykens, Luc De Raedt, Piet Desmet, Bart De Moor

Closing

- This is the momentum of AI –
 - AI is viewed as the new electricity (Andrew Ng)
 - It is invading all aspects of our society
 - It is here to stay
- AI at KU Leuven
 - 30 years ago: visionary initiatives in AI (Master of AI program, various labs)
 - 2020: a very strong position in research, in education, and in PhELSI aspects
 - we need also bold decisions for the future !