5th AI lunch meeting - agenda

Time	Speaker	Group	Talk
12.00	Johan Lukkien	Dean M&CS	*Introduction, AI plans*
12.15	**Elena Mocanu**	CST, ME	*Is Deep Reinforcement Learning ready for applications?*
12.35	**Raymond Cuijpers**	HTI, IE&IS	*AI for social robots*
12.55	**George Fletcher / Nikolay Yakovets**	DB, M&CS	*Opportunities and challenges in knowledge graph management*
13.15	Wrap up		

Introduction, plans

- European trends
- TU/e 2030 cross-disciplinary research themes
- AI workshop

Recent European developments on AI

- EU member states sign a declaration “Cooperation on Artificial Intelligence” (2018-04-10)
- Communication from the EC “Artificial Intelligence for Europe” (2018-04-25)
- Creation by the EC of the European AI Alliance and the appointment of the High-Level Group on Artificial Intelligence (2018-06-14)
- Initiative to establish a European Lab for Learning & Intelligent Systems (ELLIS)
- Foundation of the Confederation of Laboratories for Artificial Intelligence Research in Europe (CLAIRE)
  - Joaquin Vanschoren is member
  - https://claire-ai.org

EU Declaration “Cooperation on Artificial Intelligence”

The participating Member States agree to cooperate on:

- Boosting Europe's technology and industrial capacity in AI and its uptake, including better access to public sector data;
- Addressing socio-economic challenges, including modernising Europe's education and training systems
- Ensuring an adequate legal and ethical framework, building on EU fundamental rights and values

In particular, the participating Member States agree to:

- Work towards a comprehensive and integrated European approach on AI to increase the EU’s competitiveness, attractiveness and excellence in R&D in AI

https://ec.europa.eu/digital-single-market/en/news/eu-member-states-sign-cooperate-artificial-intelligence

High-Level Expert Group on Artificial Intelligence

- Commission has appointed 52 experts to a new High-Level Expert Group on Artificial Intelligence, comprising representatives from academia, civil society, as well as industry.
- General objective: to support the implementation of the European strategy on AI

In particular:

- Advise the Commission on next steps addressing AI-related mid to long-term challenges and opportunities
- Propose to the Commission draft AI ethics guidelines
- Support the Commission on further engagement and outreach mechanisms to interact with a broader set of stakeholders in the context of the AI Alliance

https://ec.europa.eu/digital-single-market/en/high-level-group-artificial-intelligence

High-Level Expert Group on Artificial Intelligence

The HLG on AI has three Dutch members:

- Virginia Dignum (Associate Prof. on Social AI, Delft University of Technology)
- Catelijne Muller (Expert and Consultant on Artificial Intelligence & Society, Europees Economisch en Sociaal Comité (EESC))
- Aimee Van Wynsberghe (Assistant Prof. in Ethics and Technology, Delft University of Technology)

https://ec.europa.eu/digital-single-market/en/high-level-group-artificial-intelligence

European AI Alliance

Purpose of the AI Alliance:

- The platform encourages broad participation in the policy-making process of the European Commission.
- Broad multi-stakeholder platform: full mobilisation of a diverse set of participants, including businesses, consumer organisations, trade unions, and other representatives of civil society bodies
- Members of the European AI Alliance can interact with the experts of the High Level Group on Artificial Intelligence (AI HLG)
- Feedback of the EU AI Alliance will also be sought on specific (closed or open) questions
- Membership can be applied for

https://ec.europa.eu/digital-single-market/en/european-ai-alliance

Initiative to establish a European Lab for Learning & Intelligent Systems (ELLIS)

ELLIS Proposal:

- Found a European Lab for Learning & Intelligent Systems (“ELLIS”), involving the very best European academics while working together closely with basic researchers from industry.

The mission of ELLIS is to benefit Europe in two ways:

- we want the best basic research to be performed in Europe, to enable Europe to shape how machine learning and modern AI change the world, and
- we want to have economic impact and create jobs in Europe, and believe this is achieved by outstanding and free basic research, independent of industry interests.

Currently the list of supporters contains no member of TU/e

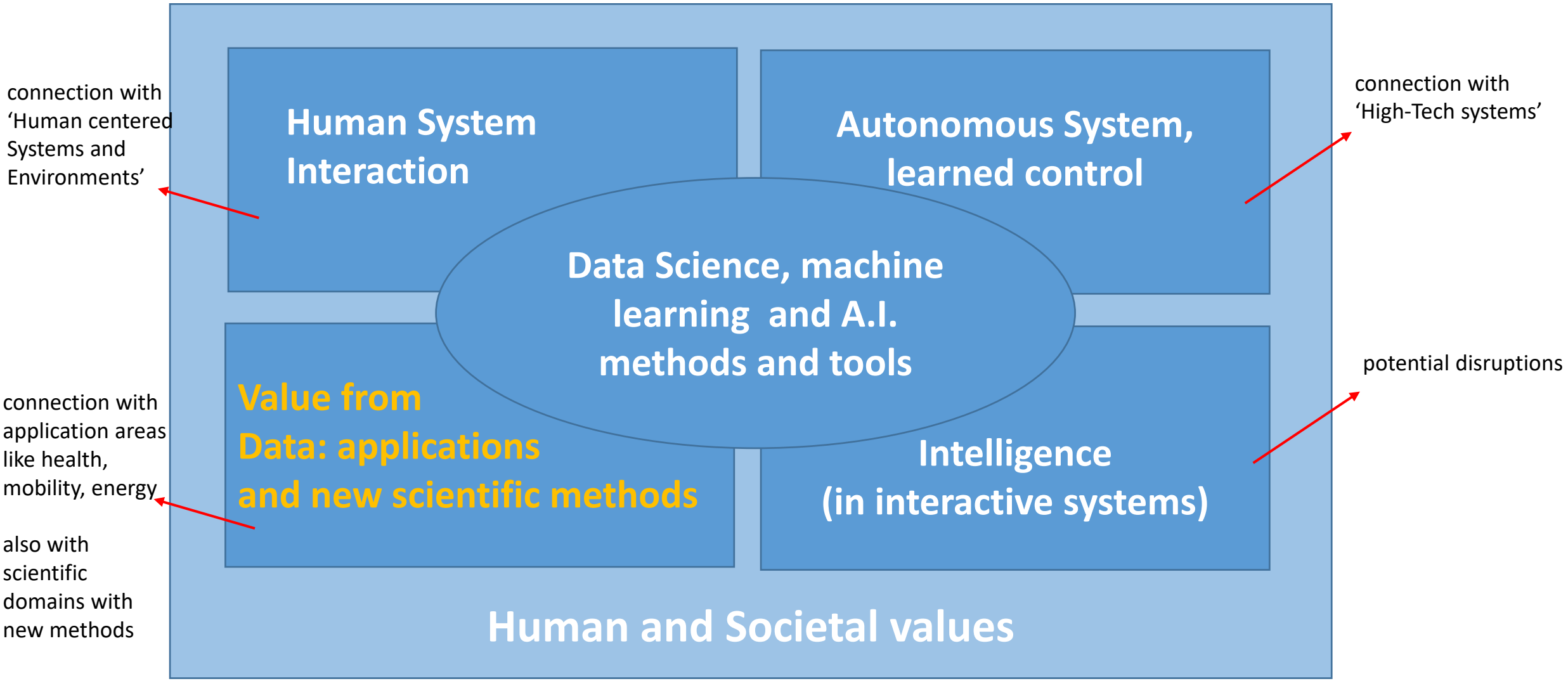
https://ellis-open-letter.eu

TU/e 2030: CRT

Cross-disciplinary research themes

- Smart materials and processes
- Complex High Tech systems
- Renewable Energy
- Engineering Health
- Human centered systems & environments
- Data driven intelligent systems

First sketch of CRT Data Driven Intelligent Systems



Requirements

- Lab facilities are required
  - for experiments with humans in the loop
  - for experimenting with ‘embedded’ intelligence and autonomy
- Computational support (possibly coming from the cloud)
  - enabling compute intensive tasks on very large data sets
  - tools, and knowledge about tools
- Data platform
  - data storage, management, access control (AAA) as a service
  - data protected and made available in compliance with laws and ethics
  - named policy classes as the basis for data sharing and collaboration around data
  - standardized legal and operational steps to facilitate brief procedures and effective collaboration
- For education
  - facilities mentioned above must also be available to students and part of their courses

Road ahead

- A roadmap (sketch of development) of the field
  - projection of technology development
  - Positioning of the TU/e community within
- Description of how the CRT is going to work
- Selection of actions / challenges to address
  - particular, challenging projects (‘moonshots’)
  - requiring infra structure and multidisciplinary cooperation
  - financial means
- Few people to drive it

Peter van Otterloo / Georgo Angelis / Mark Mietus

TU/e Technische Universiteit Eindhoven University of Technology
High Tech Systems Center

TU/e Technische Universiteit Eindhoven University of Technology
Data Science Center Eindhoven

TU/e Technische Universiteit Eindhoven University of Technology
Center for Humans & Technology

1st Workshop on AI@Tu/e – 2018-06-12

Workshop Research in AI at TU/e

12 June 2018, 13:30 – 17:30 PM

De Zwarte Doos, TU/e Campus

Workshop topics:

- Definition of a number of far-reaching research goals to realize through AI: “Dots on the horizon”.
- Which technical-scientific / technological results do we wish to achieve in AI?
- Which breakthroughs do we need in order to realize these results?

Workshop participation

Participating AI Researchers	Department	Group
Dr. Y. (Egor) Bondarau	EE	VCA
Dr. R.M. (Rui) Pires da Silva Castro	M&CS	STO
Dr. G. (Gijs) Dubbelman	EE	VCA
Dr. D.C. (Decebal) Mocanu	M&CS	DM
Dr. E. (Elena) Mocanu	ME	CST
Dr. S.R. (Sven) Nyholm	IE&IS	P&E
Prof. M. (Milan) Petkovic	M&CS	SEC
Dr. Y. (Yingqian) Zhang	IE&IS	IS

Steering Group AI@TU/e	Department	Group
Prof. J.J. (Johan) Lukkien	M&CS	SAN
Ir. M.J. (Mark) Mietus	DSC/e	
Dr. P.J. (Peter) van Otterloo	M&CS	PDO/EIRICT
Prof. M. (Maarten) Steinbuch (partly)	ME	CST
Prof. W.A. (Wijnand) IJsselsteijn	IE&IS	HTI

Further participants	Department	Group
Dr. G.Z. (Jorgo) Angelis	HTSC	
Dr. P.M.E. (Pieter) van Gorp	DSC/e	

Round of who is who

Goals that participants wish to achieve

- More external visibility for AI at TU/e, not only through AI research but also through AI education.
- Take human benefits and acceptability of AI applications into account → Human-centered AI
- Not only fundamental research, also create AI applications → AI Engineering; creation of (living) AI lab (e.g. for healthcare applications)

Focused Questions about Goals

1. Which multidisciplinary challenges in terms of advanced applications can ‘drive’ AI research?
2. Indicate roadblocks: technical, scientific, societal and how to address them
3. Ideas about cross-department collaboration: Is it working? How?
4. Ideas about sharing knowledge and tools in AI. Mention the tools that you use.
5. Ideas about education in AI. Mention courses you know.
6. Ideas about filling new positions, mention names

Questions for AI@TU/e overview

- What goes on: actual projects
- Expertise and people, application domains
  - flyers?