Tübingen-International & European Studies (T-IES)

Summer School June

TRACK B

What's the Buzz?

Society, Social Media, and Artificial Intelligence in Europe Today

May 31 – June 28, 2024

Course title:	AI and the EU – Artificial Intelligence in Europe Today
Date / Room:	June 17 – June 26, 2024 / Room tba
Language of instruction:	English
Lecturer:	Mani Hamidi
Contact hours:	32 (including group project work) + field work + study trip

COURSE DESCRIPTION

Recent developments in artificial intelligence (AI) seem to have caught both experts and laymen off guard. In particular, the uncanny performance of AI on our most singular and prized human possession, that is language, seems to have startled us in a way that no Chess-playing, or Go-playing algorithm ever did. What is it about this technology that simultaneously instills fear of extinction in some experts and incredulity among others? Do these algorithms do what brains do? Should they be feared for their intelligence or their intentions? In this course we take a step back and investigate foundational concepts such as computation, intelligence, and intentionality to help us take on a more nuanced perspective on such questions and the wider discourse.

COURSE SCHEDULE

	Date	Topic	Reading (tba)
1 **(= 90 minutes)**	Monday, June 17 10:30 – 12:00	**Motivation: What is at stake?**	*Superintelligence: Paths, Dangers, Strategies. Nick Bostrom (Chapter 1)* *The myth of artificial intelligence: Why Computers Can't Think the Way We Do Erik J. Larson (Chapter 1)*

2+3	Monday, June 17 13:30 – 16:30	**Foundations: Brains vs. Computers**	*Levels and Loops: Future of Artificial Intelligence and Neuroscience* *The Brain-Computer Metaphor Debate is Useless: A matter of semantics* *Brains as Computers: Metaphor, analogy, theory or fact?*
4	Tuesday, June 18 10:30 – 12:00	**Neural Networks & Deep Learning**	*The basic ideas in neural networks* *Deep Learning*
5+6	Tuesday, June 18 13:30 – 16:30	**The Problem of Interpretability: Hands-on exercise**	*Neural network playground* *The Building Blocks of Interpretability*
	Wednesday, June 19 All Day	**Study Trip** ***(separate schedule available)***	
7	Thursday, June 20 10:30 – 12:00	**Intelligence & Learning**	*How do we know how smart AI systems are? Mitchell 2023* *Why AI is harder than we think, Mitchell 2021*
8	Thursday, June 20 13:30 – 15:00	**Agency & Intentionality**	*Incomplete Nature, Chapter 4, Terrence Deacon* *AI, Biology and Intentional States, Bynum*
9	Monday, June 24 10:30 – 12:00	**Creativity & Insight**	*Why greatness can not be planned: The myth of the objective. Kenneth Stanley (Video Lecture).* *Relevance realization and the emerging framework in cognitive science John Vervaeke et al. 2009*
10+11	Monday, June 24 13:30 – 16:30	**Language, Reasoning & Understanding**	*What does it mean for AI to understand? Mitchell 2021* *On the measure of Intelligence*
12	Tuesday, June 25 8:30 – 10:00	**The Problem of Values & Alignment**	*What does it mean to align AI with human values? Mitchell 2022*

13	Tuesday, June 25 10:30 – 12:00	**Co-evolving with (psycho)-technologies**	*Intelligence, Rationality and Wisdom*, John Vervaeke
	Tuesday, June 25 Afternoon	**Field Work**	
14+15+16	Wednesday, June 26 10:30 – 16:30	**Group Project Work**	

LEARNING OBJECTIVES

The aim of this course is to familiarize the students with foundational ideas in cognitive science to enable a more nuanced engagement with the flood of (often conflicting) expert opinions on recent advances in AI and its consequences for mankind. The course mainly adopts a comparative methodology, contrasting our current understanding of human versus machine intelligence in order to better anticipate their coevolution in the coming decades. While philosophical questions surrounding intelligence, creativity, and agency comprise the core of the course, the students will be equipped with hands-on understanding of the underlying technologies and their underlying mechanics to better assess their wider impact.

PREREQUISITES

The course is designed for undergraduate students (in their first or second year) from the social sciences and / or humanities with basic EU knowledge and a strong general interest in Europe and the EU. A very good command of English and the willingness to actively participate in the course are required.

COURSE REQUIREMENTS & GRADING

Tba.

READING

Levels and Loops: the future of artificial intelligence and neuroscience, 1999 Anthony J. Bell.

The Brain-Computer Metaphor Debate is Useless: A matter of semantics. Richards, Lillicrap, 2022

Brains as Computers: Metaphor, analogy, theory or fact? Brette 2022

AI's Challenge of understanding the world, Mitchell 2023

How do we know how smart AI systems are? Mitchell 2023

What does it mean to align AI with human values? Mitchell 2022

What does it mean for AI to understand? Mitchell 2021

Why AI is harder than we think, Mitchell 2021

[Relevance realization and the emerging framework in cognitive science](#) John Vervaeke et al. 2009

Why greatness can not be planned: The myth of the objective. Kenneth Stanley (Book or [Video Lecture](#)).

[The building blocks of interpretability](#), Distill.pub

[The myth of artificial intelligence](#): Why Computers Can't Think the Way We Do Erik J. Larson

[Is your brain a computer?](#) Dan Falk 2021

INFORMATION ON THE LECTURER

Mani Hamidi is a PhD candidate at the University of Tübingen and studies how resource-limited agents explore the world to build useful representations that generalize in novel circumstances. Coming from a background in biophysics, Mani is interested in how biological agency and evolutionary learning contrasts with artificial agents and their learning mechanisms.