

Course syllabus

Den smarta stadens styrning: AI och etik i en spatial kontext

Smart City Governance: AI Ethics in a Spatial Context

VFTN75, 7,5 credits, A (Second Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED L

Date of Decision: 2023-02-10

General Information

Elective for: A5, C5, D5-mai, L4-fr, L4-gi

Language of instruction: The course will be given in English

Aim

Artificial intelligence (AI) is increasingly being used to change our cities and manage traffic and movement, meet the needs of commerce, combat crime, monitor individuals and improve our everyday lives. At the same time, legal, democratic and ethical interests need to be balanced against technical needs for optimization. How may individuals' privacy and rights to codetermination be balanced against development and employment of learning technologies (machine learning / AI) dependent on a lot of data? What is the main legal framework and what ethical guidelines should preferably be adhered to? What degree of explainability and transparency is reasonable towards citizens, and in what ways do expectations and perceived benefits differ in different parts of the world?

In line with the need for responsible design and ethical reflection on digitalisation, this course aims to give an understanding of the role of individuals' data and autonomous and self-learning technologies (artificial intelligence) in an urban and spatial context. By looking at concrete and mainly international cases of development and control of so-called smart cities, including applications such as facial recognition in public environments or how "the city as a platform" has had an impact in urban planning, knowledge can be gained about what interests need to be balanced and what level of governance is reasonable for managing individuals' data in an urban context.

The course will thus, in a general sense, provide insights into the importance of digitalisation and the societal significance of new technologies with a focus on legal and ethical challenges, with a specific focus on cities and spatial contexts. It includes phenomena such as data capture and collection of large individual-based data sets, the growth and importance of digital platforms, and autonomous and self-learning technologies in the AI field - and the forces operating therein between private and international as well as public and national actors. The course is thus intended to give technical students and engineers an in-depth knowledge of the consequences of how technology is applied in, and interacts with, society - with a focus on smart cities, governance and ethics.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to explain theoretical frameworks on digital platforms and smart cities
- master basic English terminology in critical social science research on artificial intelligence, focusing on the field of Fairness, Accountability and Transparency (FAT).
- demonstrate a basic understanding of digital and data-driven business models and their significance for design and technology development
- demonstrate a basic understanding of the most central legal considerations in urban data collection and the use of AI in a spatial context

Competences and skills

For a passing grade the student must

- be able to describe the basic content and importance of European data protection regulation for a spatial context
- be able to describe key benefits, but also conflict areas that a development towards so-called smart cities brings
- understand, analyze and describe urban planning challenges in the light of ethical and legal governance of smart cities in a global context
- be able to present their project work (thesis) orally and oppose another thesis.

Judgement and approach

For a passing grade the student must

- demonstrate a critical, independent and multidisciplinary approach to data collection and automation in urban environments.
- be able to make credible balances of interest between different interests in urban implemented artificial intelligence, with a particular focus on legal and ethical approaches.

Contents

The course is designed as a lecture and seminar series, as well as independent written work in a smaller group based on concrete development projects / cases where AI and data are central to urban planning. The course offers guest lectures from multidisciplinary as well as practical fields, where eg. city representatives present their work and their challenges with digitization and the use of autonomous and self-learning technologies.

The following steps are addressed:

- AI and machine learning, what does the field(s) mean and what does the application to urban environments look like;
- The basics of trustworthy artificial intelligence - transparency, fairness, accountability and explainability: what would a trusted use entail?

- Digital platforms and platformization: what does a data-driven organizational form mean in general, and for a spatial context in particular?
- The basics of European data protection, in general, and for a spatial context in particular
- AI governance - what are the regulatory ideas for the development and application of AI, both legally but also in the form of ethical guidelines
- International cases, as well as Swedish, on so-called smart cities and their development are presented and problematised.

Examination details

Grading scale: UG - (U,G) - (Fail, Pass)

Assessment: Compulsory participation in seminars and exercise classes, including notes/reports (a maximum of two exercises can be completed by make-up assignments). Mid-course, there is an individual oral exam based on lectures and literature from first half of course. Final written report and presentation in group at public seminar. At the closing presentation the students are expected to oppose and critically assess another essay / presentation. At the seminar, both the course director and external lecturer attend, to the extent possible, to comment on the presentation and essay.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Admission

Admission requirements:

- ASBF05 The Fundamentals of Urban Design or ASBF10 Sustainable Urban Design or ETSF25 The Business of Software or FMIF45 Sustainability and Resource Use with Perspectives on Information and Communication Technology or VFTE10 Real Property Formation

The number of participants is limited to: 28

Selection: The course has 7 places for applicants from each of the programs A, C, D and L. Selection within each program is based on the number of higher education credits achieved within the program. In case there are places left after regular selection, these are distributed, according to the same selection principle, to the remaining applicants.

Reading list

- High-Level Expert Group on AI: Ethics Guidelines for Trustworthy AI. EU Commission, 2019. Additional course material. 2019.
- Kitchin, R., Cardullo, P., and Di Felicianantonio, C.: Citizenship, Justice, and the Right to the Smart City. 2019.
- Schwarz, J. A., & Larsson, S.: A Platform Society. Fores, 2018.
- Brauneis, R., & Goodman, E. P.: Algorithmic transparency for the smart city. Yale JL & Tech, 2018.
- Barns, S.: City Bricolage: Imagining the City as a Platform. 2020.
- Cardullo, P., & Kitchin, R.: Being a 'citizen' in the smart city: up and down the scaffold of smart citizen participation in Dublin, Ireland. 2019.
- Goodman, E. P., & Powles, J.: Urbanism under google: Lessons from sidewalk Toronto. 2019.
- Kitchin, R., Cardullo, P., and Di Felicianantonio, C.: Citizenship, Justice, and the Right to the Smart City. 2019.

- Larsson, S. & Heintz, F.: Transparency in Artificial Intelligence. Internet Policy Review, 2020.
- Additional reading will be provided during the course.

Contact and other information

Course coordinator: Stefan Larsson, stefan.larsson@lth.lu.se

Course homepage: <http://www.lantm.lth.se>