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Co-funded by the Erasmus+ Programme of the European Union

Summer School on Human-Centered Machine Learning

TECHNISCHE UNIVERSITÄT DARMSTADT | Aalto University | GRENOBLE INP UGA | KTH | Politecnico di Torino | U LISBOA UNIVERSIDADE DE LISBOA | UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

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Human-Centered Machine Learning

- 8-19 August, 2022 at Aalto University campus, Finland
- Two intensive weeks of lectures, project work and social programme
- 3 ECTS
- Free of charge for BSc students from Unite! Universities

Read more and apply!

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Learn the essentials of machine learning systems

Human-Centered Machine Learning is an innovative and hands-on bachelor's level course on the main components and combinations of current machine learning systems. The two-week course will teach you some of the most widely used machine learning (ML) techniques. The focus will be on human-centered applications of ML methods that require high levels of privacy protection and transparency.

The course includes lectures that teach basic principles of human-centered ML and its applications (such as elderly care). You will learn to implement privacy-preserving and transparent ML methods by using a few lines of Python during exercise sessions.

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Learning outcomes

- Basic Workflow of Model Training, Validation and Selection
- Basic techniques for Privacy Preservation
- Apply methods in Python (scikit-learn)
- Support vector machines
- Privacy preserving data processing

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Faculty

Alexander Jung

Nitin Sawhney

Aalto University

Alexander Jung, Assistant Professor in ML and Teacher of the Year 2018. Author of "Machine Learning. The Basics. He leads the “Machine Learning for Big Data” group, is associate editor for IEEE Signal Processing Letters and chair of the IEEE Finland Jt. Chapter on Signal Processing and Circuits and Systems.

Prof. Nitin Sawhney leads the CRAI-CIS (CRitical AI and Crisis Interrogatives) research group in Aalto. Working at the intersection of Human Computer Interaction (HCI), ethical AI, and participatory design research, he examines the critical role of technology, civic agency, and social justice in society and crisis contexts

Universitat Politècnica de Catalunya (UPC)

Cecilo Angulo, Professor of Artificial Intelligence and Robotics at UPC, is founder and first director of the Intelligent Data Science and Artificial Intelligence Research Centre (IDEAI)m and President of the Catalan Association of Artificial Intelligence (ACIA). His research focuses on cognitive social robots working closely with humans in several domains.

Cecilio Angulo

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Faculty

Luca Vassio

Politecnico di Torino

Luca Vassio, Assistant Professor of SmartData in the area of Telecommunication and Networking. He has worked for Bell Labs, MIT, UFMG, EPFL and GE Aviation and is an expert in the creation of analytical and data-driven models, and in optimizing performances in applicative scenarios, including social networks and transportation.

Technische Universitat Darmstadt

Kristian Kersting, Professor for Machine Learning at the CS Department of the TU Darmstadt University. He heads the machine learning lab, is co-director of the Hessian Center for AI (hessian.AI), and a member of the Centre for Cognitive Science.

Kristian Kersting

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Preliminary schedule

Week 1: August 8-12					
	Monday	Tuesday	Wednesday	Thursday	Friday
Morning slot 9-12	Welcome to Aalto	Regression	Classification	Model Validation and Selection	Generalization
Noon			Lunch break		
Afternoon slot 13-16	Three Components of ML			Support vector Machines (SVM)	

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Preliminary schedule

Week 2: August 15-19					
	Monday	Tuesday	Wednesday	Thursday	Friday
Morning slot 9-12	Regularization	Deep Learning	Clustering	Feature Learning	Trustworthy ML
Noon			Lunch break		
Afternoon slot 13-16	Privacy-preserving data processing	Ethics of AI	Probabilistic Circuits	Multicultural work	Farewell evening

Week 3: post-assignment work (online)

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Aalto University – educating game changers

Aalto University is a public research university in Espoo, Finland. Established in 2010, the school is as a merger of three major universities in the fields of Technology, Economics, and Art and Design.

At Aalto University, we are committed to identifying and solving grand societal challenges and building an innovative and sustainable future. Besides the innovation and multidisciplinarity, Aalto is well known for its vibrant entrepreneurship and startup community. The world's leading startup event **Slush** was founded by Aalto students.

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Experience the Finnish summer

Helsinki and Espoo offers the perfect combination of nature trails and city life, overflowing with local culinary experiences, world-class design, interesting museums and unique architecture.

The city and national parks are accessible by public transport, and bike and scooter rental services are also available. Helsinki and Espoo have an extensive and reliable public transportation network consisting of metro, tram lines, commuter trains, buses and archipelago ferries.

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Social Program

Summer School is not all about lectures and assignments – get to know your course mates outside the classroom as well! Our social program offers the perfect opportunities for networking and exploring the best Helsinki and Espoo has to offer, including a private guided tour around the city, a kick-off event and farewell dinner.

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Apply now

Apply here:
https://forms.office.com/r/CePpKBHbD6
More information:
https://www.aalto.fi/en/aalto-university-summer-school/human-centered-machine-learning
The course has a limited number of places.
Application period ends **May 15th 2022.**

Aalto students should additionally sign up to the course through Sisu. Course code CS-E407507: Special course in Machine learning and Data science, Human-centered Machine Learning

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Additional information

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For more information about summer programs, visit summer.aalto.fi

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