

Automated Image and Video Analysis

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Language	English
ECTS-Points	
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Dates and time	Nov 17 (9:30am – 5pm) Nov 18 (9:30am – 5pm) Nov 24 (9:30am – 5pm)
Content	<p>In the digital age, visual content such as images and videos play a pivotal role in conveying complex socio-cultural narratives, shaping perceptions, and informing decisions. The expansive use of such content, particularly in social media and digital platforms, necessitates an in-depth understanding and analysis of these visual data for research purposes. Automated image and video data analysis stands out as an innovative methodological tool to navigate and comprehend these multitudes of visual narratives in the realm of social sciences.</p> <p>This course delves into the realm of image and video data analysis, grounding students in both its theoretical underpinnings and its practical applications within the social sciences. Participants will engage with contemporary research threads that employ computer vision techniques, shedding light on how these methods are revolutionizing the way we understand societal phenomena.</p> <p>Key areas include:</p> <ul style="list-style-type: none">- The manipulation and processing of image and video data, providing students with the foundational skills to curate, clean, and prepare visual data for analysis.- Supervised image classification techniques, enabling students to tag, categorize, and understand visual data with predefined labels.- Unsupervised image classification, diving into the world of pattern recognition where no prior categorization exists and uncovering latent themes and connections within visual datasets.- A dedicated segment on ethics and research practices in computer vision, ensuring that students are not only adept at using these tools but also understand the profound ethical implications tied to visual data analysis.

	<p>Emphasizing a hands-on approach, the workshop will incorporate practical exercises allowing students to actively follow along. Further enriching the learning experience, there will be designated research time when students can work on developing their own applications in this domain. This self-directed research opportunity will be complemented by feedback sessions, ensuring that students receive constructive critique and guidance on their endeavors.</p> <p>By the end of this course, participants will have developed a thorough understanding of how automated image and video analysis can be integrated into social science research. They will be equipped to conduct their own image-based studies, critically assess the work of others in this field, and navigate the ethical landscape of computer vision research. This course is ideal for students, researchers, and professionals interested in the convergence of technology and social science research, aiming to apply cutting-edge techniques to traditional research methodologies.</p> <p>Prerequisites: No prior experience in computer vision is required, although a basic familiarity with python programming will be needed. The course is designed to be accessible to those new to computer vision while providing enough depth to be valuable to those with some experience in the field.</p>
<p>Preliminary Program</p>	<p>Day 1</p> <ol style="list-style-type: none"> 1. Introduction and Course Overview 2. Why do Images Matter? 3. Good practices and limitations 4. Supervised classification <p>Day 2</p> <ol style="list-style-type: none"> 1. Convolutional Neural Networks 2. Unsupervised classification 3. Individual hands-on project <p>Day 3</p> <ol style="list-style-type: none"> 1. Automated face analysis 2. Video-as-data (Analysing TikTok videos) 3. Individual hands-on project 4. Presentations