

Name **Computer Vision**

Classroom x
Studio or workshop
External venue
Online

Codes **M-KF-301-DI-242502-04, M-KF-E-301-DI-242502-04**

Host **Design Institute**

	Kurzus típusa	Kredit	Kontaktóra	Otthoni munkaóra	Tantárgy típusa	Félév	Melyik tantárgy része?
Basic info		5	48		RDI	2nd semester	RDI

Recommendation

This course is tailored for designer students looking to explore the innovative integration of AR with physical cards. Throughout this program, you'll delve into the fundamentals of computer vision technology combined with generative artificial intelligence and learn how to leverage it creatively in design using interactive cards. Engage in hands-on activities where you'll experiment with AR applications, creating captivating visual experiences that merge the digital and physical realms seamlessly. By the end of this course, you'll have a solid understanding of using AR cards as a powerful design tool, unlocking new dimensions for creative expression in the field of design.

Short Description

Sense making systems in artificial intelligence and computer vision are technologies that aim to give computers the ability to understand and make sense of the world around them. This can involve using various sensors and cameras to capture information about the environment, and using machine learning algorithms to analyze and interpret this data. In the field of computer vision, for example, this could involve using AI to analyze images and video to recognize objects, scenes, and activities. The goal of sense making systems is to enable networks and computers to understand the context and meaning of the information they collect from their environment, in order to make more informed decisions and take appropriate actions. During the sessions, we will explore the following topics, related to the sociocultural aspects of computer vision and interaction:

- experimental capture (historical overview)
- digital signal processing
- computer vision (recognition, tracking, estimation)
- pattern & gesture recognition
- machine learning (regression, classification)
- neural networks (adversarial systems, transfer learning)
- generative design, artificial creativity
- predictive systems

Teachers	Name of lecturer	Contact of lecturer	BIO	Open Office
	Ágoston Nagy	nagy.agoston@mome.hu +36304809295	Assistant Professor	Teams & Onsite once each month

Semester schedule	Course	Date

Alk.	Date	Description
1		Introduction: context and general overview - cognition, automation, learning, game theory, representations
2		Deep time of Artificial Intelligence: - history, trends and examples
3		Case studies, anatomy of a playful artificial system -
4		Consultation: Collected materials (game + AR examples), ideas
		Consultation: Analysis, charts, graphs & visualizations
		Generative AI - image generation models, synthetic media, prompts
		- Augmented Reality
		Worlding, world-building: - simulations, evolutionary systems and game worlds
		Consultation: game mechanics, narrative content
		Consultation: in-depth elaboration, iterative testing
		Consultation: fine tuning, evaluation
		Class Work Presentation & documentation

Requirements and evaluation

Deliverables	Criteria for assessment	Deadline	Proportions
10 mins Presentation & Pitching	Active participation on the classes aesthetic qualities of the practical work	10th week	40%
Video documentation (1.5 mins)		12th week	20%
Presenting interactive software as working prototypes	Presentation (visual introduction of the class work) Method of assessment: Practical demonstration, pitching	9-12th week	40%

Compulsory readings

Recommended readings

"Superintelligence: Paths, Dangers, and Strategies" by Nick Bostrom
 "Thinking, Fast and Slow" by Daniel Kahneman
 "How to Create a Mind" by Ray Kurzweil
 "The Age of Spiritual Machines" by Ray Kurzweil

Learnings	Knowledge	A comprehensive understanding of the fundamentals of AI, AR and sense making systems
	Skills	Improved critical thinking and problem-solving skills in the fields of mixed reality
	Attitude	Responsible designer with advanced problem framing capabilities
	Responsibility	A better understanding of the potential future developments and applications of AI and sense making systems.

- Exemption
- Exemption from attending and completing the course cannot be granted
 - Exemption may be granted from the acquisition of certain competencies and the fulfilment of tasks
 - Some tasks can be substituted with other activities,
 - A full exemption can be granted

Curriculum connections	Unit	Parallel courses	Course proportion in unit
	Befoglaló tantárgy címe	[Ez a kurzus]	
		Másik kurzus címe	
		Harmadik kurzus címe	

Course prerequisites	Is it available as an elective?	Prerequisites in case of elective

Misc. information