

AI & Design

CREDIT	3	INSTRUCTOR	Jin-Kook Lee
OFFICE	#522 Samsung Hall	OFFICE HOURS	
TIME	On demand	CLASSROOM LOCATION	Online, on-demand
E-MAIL	leejinkook@yonsei.ac.kr		

* Please leave the fields blank which haven't been decided yet.

[COURSE INFORMATION]

COURSE DESCRIPTION & GOALS	<p>This course deals with a series of recent issues in artificial intelligence (AI) focusing on the field of design, more specifically <u>deep learning</u> and architectural <u>space design</u>, for <u>beginners</u>. Students will review the related technologies with cases, and the conceptual and intellectual issues on top of AI in the perspective of design. Not only focusing on the AI techs, but also surveying the qualitative/quantitative aspects of design with theoretical issues outside of the conventional state of knowledge are the objectives of this course, empowered by actual individual project developments. Theory lectures, case studies, survey on the references, and students' participation in class are the materials for the course.</p> <p>In the technological standpoint, recent decade has marked a huge change in how we perceive and talk about general AI. Buzz words "Big Data" and "Machine Intelligence" also changes (or will change) the fundamental role of designers from conventional approaches, and we will take a look where to go via this course. The deep learning (DL) techniques, for example, have shown how end-to-end differentiable functions can be learned to solve complex design tasks involving high-level perception abilities. In association with this shift and effect to our domain-specific knowledge, design, we would keep eyes opening so that we can take max advantages from it.</p>
PREREQUISITE	<p>None: This course is for beginners. No previous experience / knowledge of AI is needed</p>
COURSE REQUIREMENTS	Strong interests in design, Fundamental skills on computing, and Laptop or PC
GRADING POLICY	<p>Attendance 20% (check online & on-demand), Exercises 20%, Mid-project and or assignment 20%, Final project 20%, Overall qualitative evaluation 20%</p>
TEXTS & NOTES	Lecture slides given by instructor
INSTRUCTOR'S PROFILE	<p>Jin Kook Lee, Ph.D., Associate Professor, Space & Design IT Lab., Dept. of Interior Architecture & Built Environment, Col. of Human Ecology, Yonsei University. Contact: http://designitlab.kr leejinkook@yonsei.ac.kr +82-2-2123-3134</p> <p>Bio: Jin Kook Lee is a researcher and developer in the field of Design Computing - the intersection of design and computation. He pursues "better environment" using computing technologies based on his interdisciplinary studies in Housing & Interior Design, Digital Design Media, Computer Science, and Architecture. Building Information Modeling (BIM) and AI & Design are his research directions that have been explored in his studies and recent research and development projects.</p>

	<ul style="list-style-type: none"> - Academic degree: B.S. and M.S. received from Yonsei University, Ph.D. from Georgia Institute of Technology - Industry experiences: Hanssem Co. Ltd., Autodesk Inc. at San Francisco - Academia experiences: Researcher of Digital Building Lab at Georgia Tech, Professor at Hanyang University
--	---

[WEEKLY SCHEDULE]

* Your detailed explanation would be very helpful for prospective students to get a pre-approval for credit-transfer from their home university in advance.

WEEK	DAILY TOPIC & CONTENTS	COURSE MATERIAL & ASSIGNMENTS	REFERENCE
1	Intro to the course	<ul style="list-style-type: none"> - Google classroom tutorial - Questions 	
	AI, ML, and DL	<ul style="list-style-type: none"> - AI tools in Photoshop - Questions 	
	AI & Design Approach	<ul style="list-style-type: none"> - AI design tools on web Logo design & Style Transfer painting your pics with a style - Questions 	
2	Design & Design Computing	<ul style="list-style-type: none"> - AI design tools on web - Questions 	
	AI Platforms	<ul style="list-style-type: none"> - Introduction to Google Colaboratory - Image classification by given dataset - Questions 	
	Colab & TensorFlow	<ul style="list-style-type: none"> - Tensorflow Image Recognition - Questions 	
	Image Recognition	<ul style="list-style-type: none"> - Tensorflow Image Recognition: Style of Interior Design - Questions 	
3	Image Recognition & Design	<ul style="list-style-type: none"> - How to collect images efficiently - Tensorflow Image Recognition - Questions 	
	Azure Machine Learning	<ul style="list-style-type: none"> - MS Azure ML Studio tutorial - Data Science approaches - Questions 	
	Text & Dialogflow	<ul style="list-style-type: none"> - Chatbot tutorial by Dialogflow - Questions 	
	AI Issues & Criticisms	<ul style="list-style-type: none"> - xR applications & 360 images - Questions 	
4	AI & Design Case Study	<ul style="list-style-type: none"> - AI & Design - HomeStyler demo - Questions 	

WEEK	DAILY TOPIC & CONTENTS	COURSE MATERIAL & ASSIGNMENTS	REFERENCE
	Design Media & Interface	- HomeStyler demo - Questions	
	AI & Design Advances	- AI and Design advances	
	Final Project	- Project	