강의계획서

교과목명	헬스케어를 위한 인공지능			학수번호	12226001	이수	선택	학점	3
강의시간	월6 ,월7 ,월8	강의실	AI관/지상5층/505						
선수과목				공학인증 이수구분					

교수소속	IT융합대학 AI·소프트웨어학부(인공지능전공)	교수성명	NGUYEN THI HONG NHUNG	연락처	
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홈페이지/카페	https://nhungcnc.com/			조교	

핵심 역량						합계
전문성	30	문제해결	30	협업	40	100%

강의 개요

This course introduces the fundamentals leading to the advancements of AI in healthcare, covering deep learning and its applications in medical diagnosis and treatment. Students will explore how AI improves diagnostic accuracy, personalizes treatment, and accelerates drug discovery, while also considering future trends and advancements in the field.

강의 목표

The healthcare sector is undergoing a transformation through the integration of artificial intelligence (AI), which enhances physician capabilities by improving diagnoses, personalizing treatments, and streamlining patient care. This course addresses the need to reduce reliance on human physicians for routine tasks and explores AI's role in solving real-world medical challenges. Students will learn about current AI applications, future innovations, and practical advancements, aligning with the university's commitment to innovation and preparing graduates to lead in the evolving healthcare industry.

강의 진행방법

실험실습/현장학습	강의	서비스러닝	토론/발표

Module 1: Course Introduction

Module 2: Overview of AI and deep learning

Module 3: AI for Medical Diagnosis

Module 4: AI For Medical Treatment

Module 5: Conclusion and Future Direction

평가요소	성적 평가방법	비율
출석	Attending	10
중간고사	Assignments	20
기말고사	Exam	30
레포트	Presentations	20
그룹 프로젝트	Report	20
기타		0
합 계		100

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과제명 및 과제작성 방법안내	제출일	제출물 유형 및 제출방법
Assignment 1: Review AI in Healthcare papers to get more advanced insights	28/10/2024	Paper
Assignment 2: Develop a model-assisted by Federated/Deep Learning to predict healthcare problems (any healthcare sector) for more experience	15/12/2024	Report + coding

* 과제지연시 패널티 기준 : - 1.0

구분	교재명	저자	출판사	출판년도
주교재	Aftificial Intelligent: An Modern Approach	Russell,		2020
부교재	Machine Learning	Tom M.		1997
참고자료				

강의 규정 (학습자 유의사항)
The course starts at 2 pm every Monday from September 5th every week. The schedule will be announced if there is any change. In addition, students will do practical work and study in-class discussions for component points.

장애학생 지원내용

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주차	기 간	수 업 내 용 및 학 습 활 동
1	09/02 ~ 09/06	Introduction to AI in Healthcare: Overview of AI and its applications in healthcare
2	09/09 ~ 09/13	Fundamentals of Healthcare Systems: Structure of healthcare systems and electronic health records (EHRs)
3	09/16 ~ 09/20	Data Collection and Preprocessing: Methods for collecting and handling healthcare data
4	09/23 ~ 09/27	Machine Learning Basics: Supervised vs. unsupervised learning
5	09/30 ~ 10/04	Deep Learning in Medicine: Introduction to neural networks and deep learning Convolutional Neural Networks (CNNs) for image analysis
6	10/07 ~ 10/11	Natural Language Processing (NLP) in Healthcare: Basics of NLP and its relevance to healthcare
7	10/14 ~ 10/18	AI in Diagnostics and Imaging: Use of AI for medical imaging (e.g., X-rays, MRIs, CT scans)
8	10/21 ~ 10/25	AI in Diagnostics and Imaging: Image classification, segmentation, and anomaly detection
9	10/28 ~ 11/01	AI in Drug Discovery and Development: AI-driven approaches to drug discovery and development
10	11/04 ~ 11/08	Robotics and AI in Surgery: Overview of surgical robots and AI-assisted procedures
11	11/11 ~ 11/15	AI in Patient Monitoring and Management: AI applications in chronic disease management
12	11/18 ~ 11/22	Ethical Considerations and Bias in AI: Privacy concerns and data security
13	11/25 ~ 11/29	AI and Healthcare Policy: Regulatory and policy issues surrounding AI in healthcare
14	12/02 ~ 12/06	Case Studies and Real-World Applications: Detailed analysis of successful AI implementations in healthcare
15	12/09 ~ 12/13	Future Directions and Course Wrap-Up: Innovations on the horizon: AI in genomics, precision medicine, and beyond Student presentations and project showcases