קורס AI - 320 שעות אקדמיות

-רקע על הקורס

Course Content:

Introduction to AI Development – 15 academic hours

- Overview of AI development
- Understanding the differences between full-stack developers and AI developers
- Introduction to the importance of data labeling and ground truth data
- AI development tools and software environment

Machine Learning Fundamentals – 40 academic hours

- Introduction to machine learning concepts and applications
- Types of machine learning algorithms: supervised, unsupervised, and reinforcement learning
- Data preprocessing techniques
- Hands-on exercises using Python libraries: scikit-learn, pandas, numpy

Deep Learning Fundamentals – 40 academic hours

- Introduction to deep learning concepts and applications
- Neural networks and deep learning frameworks: TensorFlow, Keras, PyTorch
- Convolutional neural networks (CNN) and recurrent neural networks (RNN)
- Hands-on exercises using deep learning frameworks to build image recognition and natural language processing models

Data Preprocessing for AI Models – 30 academic hours

- Data cleaning and feature engineering techniques
- Data normalization and scaling techniques
- Data augmentation and handling missing values
- Hands-on exercises using Python libraries: OpenCV, Scikit-image, and Pandas

Model Development and Training – 30 academic hours

- Model architecture and selection techniques
- Hyperparameter tuning and optimization
- Training and validation techniques
- Hands-on exercises using deep learning frameworks to build and optimize AI models

Model Deployment and Evaluation – 20 academic hours

- Deploying AI models in production environments
- Model evaluation and monitoring techniques
- Ethical considerations in AI model development
- Hands-on exercises to deploy and evaluate AI models in cloud environments

Practical Sessions – 50 academic hours
- Hands-on experience in developing AI models using real-world datasets
- Data labeling and ground truth data for model accuracy and algorithm performance
- Building AI models for various use cases: image recognition, natural language processing, recommendation systems, and more

Additional Topics – 9 academic hours
- Data Labeling
- Ground Truth Data
- Synthetic Data
- Chief Data Officer Perspective

Ethics Lectures – 18 academic hours
- Introduction to AI Ethics and Its Importance
- Bias and Fairness in AI Systems
- AI Transparency and Explainability
- AI Accountability and Responsibility
- AI Privacy and Security

Guided AI Project – 10 academic hours Extended, in-course project focusing on a practical application of topics learned, paired with detailed discussions and Q&A sessions.

Tests – 25 academic hours
- Weekly quizzes to evaluate understanding of course material
- Final exam to test overall comprehension of AI development principles and practices

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Final Project: AI-Based Healthcare Recommendation System – 70 academic hours
Project Description:
This comprehensive project focuses on the development of a healthcare recommendation system harnessing the power of AI. It offers a blend of data preprocessing, model development, deployment, and evaluation, encompassing the core areas taught during the course.
Components:
Data Gathering and Preprocessing:
- Sourcing relevant health datasets, potentially spanning genetic data, individual health profiles, historical health records, and lifestyle inputs.
- Cleaning, normalizing, and augmenting data for optimal performance.
Model Development:
- Selection of the appropriate machine learning or deep learning approach based on the nature of the data.

- Utilizing neural networks to decipher complex patterns and generate meaningful recommendations.
- Emphasis on user-centric recommendations such as suitable treatments, specialist doctor referrals, or fitness and dietary routines.

Deployment and User Interaction:
- Creating a mock user interface where individuals can input their data and receive recommendations.
- Emphasis on seamless user experience and easily interpretable results.

Evaluation:
- Techniques to assess the accuracy and relevance of the recommendations.
- User feedback simulation for continuous improvement of the system.

Ethical Considerations:
- Ensuring data privacy and understanding the implications of AI recommendations in a sensitive domain like healthcare.
- Addressing potential biases in healthcare recommendations, ensuring fairness and equity.

The final project aims to provide students with a holistic experience of an AI project, from ideation to deployment and evaluation, while emphasizing real-world implications and ethical considerations.

sqLabs
המכללה הגבוהה להייטק

מבין לקוחותינו:

J.P.Morgan — NCR — לאומי leumi — AT&T

דיסקונט — (Apple) — אלביט מערכות — waze

שירות הביטחון הכללי — Webhelp — Cal. — TEL AVIV YAFO תל אביב יפו

Google — ebay — NVIDIA — SONY

בנק הפועלים — Qualcomm — kaltura

BROADCOM — harmonic — CYBERARK