


 Announcing ERA (Extensive AI: Reimagined and Advanced), the most advanced deep AI course in the world, designed to give you unparalleled hands-on experience in cutting-edge AI technologies! This is the 9th iteration of our highly successful training program, now merging our two beloved courses, EVA (Extensive Vision AI) and END (Extensive NLP via Deep Learning), along with key sessions from EMLO (Extensive Machine Learning Ops).

 Registrations open on April 5th and close on April 18th. The course commences on April 29th, with classes held every Saturday at 9:00 AM.

 Due to recent breakthroughs in AI research, the entire course has been re-written, with an updated curriculum that covers both vision and NLP topics, as well as machine learning operations. In nearly every session, students will be developing applications and deploying them on the cloud!

 Each weekly session features hands-on exercises, accessible through our new Learning Management System (LMS), ensuring that students gain practical experience in addition to

theoretical knowledge. Every session starts with solving the previous week's assignment and quiz, reinforcing the learning process.

🏆 ERA is the culmination of our best offerings, providing a comprehensive and unparalleled deep AI learning experience.

Here is the complete Syllabus:

Session	Name	Description
Session 1	Fundamentals of Artificial Intelligence;	Introduction to neural network concepts, data representation for images, text, and audio, converting spatial to temporal data and vice versa, understanding convolutions, fully connected layers, and forward propagation mathematics
Session 2	Exploring Neural Network Architectures;	Delving into multi-channel convolutions, max pooling, layer structures, receptive fields, attention spans, and receptive field calculation.
Session 3	Git and Python Essentials;	Introducing Git, GitHub, and Python for effective collaboration and programming in AI projects.
Session 4	Building the First Neural Networks;	Understanding kernels, channels, word embeddings, embedding mutation, embedding layers, comparing vision and language models, positional encoding, SoftMax, and GPU processing.
Session 5	Introduction to PyTorch;	Learning PyTorch basics, tensors, AutoGrad, squeezing and unsqueezing operations, and constructing a neural network from scratch using PyTorch.
Session 6	Backpropagation and Advanced Architectures;	Grasping backpropagation mathematics, fully connected layers, spatial data loss and recovery, modern AI architectures, negative log likelihood, SoftMax, and learning rates
Session 7	In-Depth Coding Practice;	Hands-on coding exercises and optimization of code performance
Session 8	Advanced Techniques and Optimizations;	Exploring batch normalization, dropout, word-level masking, regularization, convolution types, dense problems, and optimizers
Session 9	Data Augmentation and Visualization;	Understanding data augmentation, preprocessing, tokenization, class activation maps, GradCAM, and attention visualization techniques
Session 10	PyTorch Lightning and AI Application Development;	Learning PyTorch Lightning, Fabric, and creating Lightning-based AI applications
Session 11	Residual Connections in CNNs and FC Layers;	Examining ResNet and the concept of residual connections in neural networks
Session 12	Building and Deploying AI Applications;	Creating machine learning pipelines for training and deployment of AI models
Session 13	YOLO and Object Detection Techniques;	Understanding anchor boxes and the YOLO object detection algorithm
Session 14	Multi-GPU Training and Scalable Model Serving;	Implementing multi-GPU training, dynamic batching, and autoscaling for model serving
Session 15	UNETs, Variational AutoEncoders, and Applications;	Exploring UNETs, variational autoencoders, and their practical applications
Session 16	Transformers and Advanced Embedding Techniques;	Studying transformers, self-attention, cross-attention, multi-head attention, Word2Vec, encoding types, and advanced tokenization and embeddings
Session 17	Encoder Architectures and BERT;	Investigating encoder architectures and training BERT models
Session 18	Masked AutoEncoders and Vision Transformers;	Learning about masked autoencoders, vision transformers, their architectures, and training techniques
Session 19	Decoders and Generative Pre-trained Transformers;	Understanding decoder-only architectures, training GPT/GPT-2 models, and exploring sparse attention

<b>Session 21</b>	Training and Fine-tuning Large Language Models;	Techniques for training large language models and fine-tuning them on a single GPU
<b>Session 22</b>	CLIP Models and Training;	Studying contrastive language-image pre-training, understanding CLIP models, and training them from scratch
<b>Session 23</b>	Generative Art and Stable Diffusion;	Exploring the world of generative art and the concept of stable diffusion in AI
<b>Session 24</b>	Automatic Speech Recognition Fundamentals;	Introduction to Whisper and automatic speech recognition (ASR) technologies
<b>Session 25</b>	Reinforcement Learning Part I;	Understanding deep Q learning, A3C, and DDPG in reinforcement learning
<b>Session 26</b>	Reinforcement Learning Part II;	Exploring advanced reinforcement learning algorithms like T3D and Agent57
<b>Session 27</b>	Reinforcement Learning from Human Feedback;	Investigating reinforcement learning from human feedback (RLHF) and language-human alignment in models like ChatGPT and InstructGPT
<b>Session 28</b>	Training ChatGPT from Scratch;	Step-by-step guide to training a ChatGPT model from scratch
<b>Session 29</b>	Training Multimodal GPTs;	Techniques and best practices for training multimodal generative pre-trained transformers
<b>Session 30</b>	Capstone Project;	Comprehensive capstone project that consolidates and applies the knowledge gained throughout the course, encouraging students to create an innovative AI solution.