Zetlan Technologies

GenAIBIZ

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Online Course

Course Modules

Identify AI Fundamentals

1.Define fundamental AI terms and concepts.

- Artificial Intelligence
  - General vs. narrow AI
  - Recent history/timeline
  - Enabling technologies
- Machine Learning
  - Algorithm vs. model
  - Datasets
  - Approaches (supervised vs. unsupervised)
- Deep Learning
  - ANN
  - Network parameters/weights
  - Hyperparameters
  - Applications
    - NLP
    - Computer vision
- Model checkpoints

2.Define generative AI terms and concepts.

- Generative AI
  - Key organizations
  - Key resources
- Generative AI modalities
  - Text
  - Code
  - Images
  - Video
  - Audio
  - Multimodal
- Generative AI approaches
  - GAN
  - VAE
  - GPT
  - Diffusion
  - RLFH
- Prompting
  - Prompt engineering
  - In-context prompting
- Fine-tuning models
- API access

Solve Business Problems with AI-Generated Content

3.Generate text using AI.

- LLM
- Tokens
- Approaches
  - Text generation
  - Text completion
  - Chatbots
  - Speech to text
  - Transcription
  - Assistive AI with text outputs
- Prompt engineering for text generation
- Fine-tuning text models
- Common text generation tools
  - OpenAI GPT models
  - ChatGPT
  - Bard
  - LLaMA
  - Microsoft 365 Copilot
  - Duet AI
  - Whisper

- Business use cases
  - Customer service
  - Online ordering systems
  - Marketing campaigns
  - Information summarization
  - Information mining and inference
  - Language translation
  - Interviews and onboarding

4.Generate code using AI.

- Approaches
  - Code generation
  - Code completion
  - Code refactoring
  - Code testing
  - Code debugging
  - Code commenting and documentation
  - Assistive AI with code outputs
- Prompt engineering for code generation
- Fine-tuning code models
- Common code generation tools

- OpenAI Codex
- GitHub Copilot
- Amazon Code Whisperer
- Duet AI
- CodeT5
- Code Gen

- Business use cases
  - Rapid/agile development
  - Project management
  - DevOps
  - Proof of concept
  - Software prototyping
  - QA
  - Performance optimization
  - Software security

5.Generate images and video using AI.

- Image approaches
  - Text to image
  - Image to image
  - Image editing and inpainting
  - Image control
  - Image upscaling
  - Assistive AI with image outputs

- Video approaches
  - Text to video
  - Image to video
  - Text + image to video
  - Video to video
  - Frame interpolation
  - Video customization
  - Assistive AI with video outputs
- Prompt engineering for image and video generation
- Fine-tuning image and video models
- Common image generation tools
  - DALL·E
  - Craiyon
  - Midjourney
  - Stable Diffusion
  - Dream Booth
  - Imagen
- Common video generation tools
  - Synthesia
  - Rephrase Studio
  - Make-A-Video
  - Runway

- Business use cases
  - Business use cases
    - Promotional materials
    - Press releases
    - Training materials
    - Games/virtual worlds
- Corporate branding
- Data visualization
- Product design and prototyping
- Website and app styling
- Product listings
- Medical imaging and diagnostics

6.Generate audio using AI.

- Approaches
  - Text to audio
  - Audio to audio
  - Audio editing and cleaning
  - Assistive AI with audio outputs
- Prompt engineering for audio generation
- Fine-tuning audio models
- Common audio generation tools

- Business use cases
  - Audio assets
    - Promotional materials
    - Press releases
    - Training materials
    - Games/virtual worlds
    - Voiced chatbots/assistants
    - Accessibility
    - Localization
    - Language learning

Identify Generative AI Challenges

7.Identify shortcomings of generative AI.

- Confabulation/hallucination
- Misinformation and misleading content
- Cost
  - Monetary cost of implementation
  - Training time cost
  - Output time cost
- Lack of fine-tuned control
- Limitations of training data
- Hardware requirements
- Reliance on external factors
  - Cloud services
  - Foundational models
- Industry-specific risks
- Adversarial vulnerabilities

8.Identify ethical risks of generative AI.

- Privacy issues
- Accountability issues
- Transparency/explainability issues
- Bias/discrimination issues
- Safety/security issues

9.Identify business concerns of generative AI.

- Governance
- Employee impact
- Future of work
- Operational risks
- Data risks
- Brand reputation/consumer trust risks
- Legal issues
- Intellectual property/copyright
- AI laws and regulations

Implement Business Strategies for Generative AI

10. Apply best practices for implementing generative AI

- Project factors
  - Scope
  - Strategy
  - Objectives
  - Goals
  - Requirements
- Alignment with initiatives
  - Organizational initiatives
  - ESG initiatives
  - Ethics and compliance initiatives
- Acquisition
  - Resources
  - Job expertise
- Education
  - End users
  - Employees
- Selection of generative AI
  - Modalities
  - Tools

- IT strategy and infrastructure
  - Data and tools used in fine tuning
  - Tech stack for implementing generative AI
  - Cloud vs. on-premises resource allocation
- Change management
  - Change agents
  - Knowledge translators
  - Humans in the loop
- Prototyping

11. Evaluate the results of generative AI projects.

- Business analyses
  - Business impact analysis
  - Comparative analysis
- User feedback
  - Collection
  - Analysis
- Usage of generative AI systems
  - Monitoring
  - Analysis
- KPIs
- Adverse results from generative AI systems
  - Project limitations
  - Undesirable outcomes

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The efficiency of online learning in terms of time management, flexibility, and the ability to access resources anytime, anywhere can be compelling.

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