Professional Certificate in Data Quality Assurance using AI in Education

Implementing AI in Education Systems

Artificial Intelligence (AI): The simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using the rules to reach approximate or definite conclusions), and self-correction.

Related terms: Machine Learning, Deep Learning, Neural Networks

Machine Learning (ML): A subset of AI that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. It focuses on the development of computer programs that can access data and use it to learn for themselves.

Related terms: Artificial Intelligence, Deep Learning, Neural Networks

Deep Learning: A subset of ML that is based on artificial neural networks with representation learning. It can process a wide range of data resources, requires less data preprocessing by humans, and is highly scalable and flexible for various data formats.

Related terms: Artificial Intelligence, Machine Learning, Neural Networks

Neural Networks: A type of machine learning algorithm modeled after the human brain. It is designed to replicate the way that humans learn and make decisions. Neural networks are a set of algorithms, modeled loosely after the human brain, designed to recognize patterns.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Data Quality Assurance: A process used to ensure that data is accurate, complete, and useful. It involves monitoring, cleaning, and protecting data to ensure it is of high quality and fit for its intended uses.

Related terms: Data Quality, Data Governance, Data Management

Data Quality: The degree to which a set of data is accurate, complete, and useful for its intended purpose. Data quality is essential for making informed decisions, ensuring operational efficiency, and maintaining regulatory compliance.

Related terms: Data Quality Assurance, Data Governance, Data Management

Data Governance: The overall management of the availability, usability, integrity, and security of data. It includes the development and execution of policies, procedures, and practices to manage data quality, ensure data security, and promote data use.

Related terms: Data Quality, Data Quality Assurance, Data Management

Data Management: The practice of collecting, keeping, and using data securely, efficiently, and cost-

effectively. It includes the development and execution of policies, practices, and procedures to manage data quality, ensure data security, and promote data use.

Related terms: Data Quality, Data Quality Assurance, Data Governance

Intelligent Tutoring Systems (ITS): Computer-based training systems that provide personalized instruction to learners. ITS uses AI to model the learner's knowledge and skills, diagnose learning gaps, and provide tailored instruction to address those gaps.

Related terms: Artificial Intelligence, Adaptive Learning, Personalized Learning

Adaptive Learning: A type of learning that uses AI to provide personalized instruction to learners based on their individual needs and abilities. Adaptive learning systems adjust the content, pace, and sequence of instruction to meet the learner's needs.

Related terms: Intelligent Tutoring Systems, Personalized Learning, Artificial Intelligence

Personalized Learning: A type of learning that tailors instruction to meet the individual needs, strengths, and preferences of each learner. Personalized learning systems use AI to provide customized content, pacing, and sequencing of instruction.

Related terms: Adaptive Learning, Intelligent Tutoring Systems, Artificial Intelligence

Educational Data Mining: The process of discovering patterns and trends in educational data using machine learning, statistics, and data visualization techniques. Educational data mining is used to improve learning outcomes, assess student performance, and inform instructional decisions.

Related terms: Machine Learning, Data Mining, Learning Analytics

Learning Analytics: The measurement, collection, analysis, and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs. Learning analytics is used to improve learning outcomes, assess student performance, and inform instructional decisions.

Related terms: Educational Data Mining, Data Mining, Artificial Intelligence

Natural Language Processing (NLP): A field of AI that focuses on the interaction between computers and human language. NLP enables computers to understand, interpret, and generate human language in a valuable way.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Chatbots: A computer program designed to simulate conversation with human users, especially over the Internet. Chatbots are often used in customer service, education, and entertainment.

Related terms: Natural Language Processing, Artificial Intelligence, Machine Learning

Speech Recognition: The ability of a machine or program to identify and transcribe spoken language. Speech recognition is used in applications such as voice assistants, dictation software, and automated customer service systems.

Related terms: Natural Language Processing, Artificial Intelligence, Machine Learning

Computer Vision: A field of AI that focuses on enabling computers to interpret and understand visual information from the world. Computer vision is used in applications such as image and video recognition, autonomous vehicles, and medical imaging.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Recommender Systems: A type of information filtering system that seeks to predict the "rating" or "preference" that a user would give to an item. Recommender systems are used in applications such as online shopping, music and video streaming, and social media.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Affective Computing: The study and development of systems and devices that can recognize, interpret, process, and simulate human affects (emotions). Affective computing is used in applications such as virtual reality, gaming, and mental health.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Explainable AI (XAI): A subfield of AI focused on creating AI models that are transparent, interpretable, and explainable to human users. XAI is used to build trust in AI systems, ensure fairness and accountability, and comply with regulations.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Bias in AI: Systematic errors or distortions in AI systems that result in unfair or discriminatory outcomes. Bias in AI can arise from biased data, biased algorithms, and biased human decision-making.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Fairness in AI: The principle that AI systems should be designed and deployed in a way that treats all individuals and groups fairly and without discrimination. Fairness in AI requires addressing bias, ensuring transparency, and promoting accountability.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Accountability in AI: The principle that AI systems should be designed and deployed in a way that ensures responsibility and transparency for their actions and decisions. Accountability in AI requires clear lines of responsibility, transparent decision-making, and effective oversight and regulation.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Privacy in AI: The protection of personal data and information in AI systems. Privacy in AI requires addressing issues such as data collection, storage, sharing, and use, as well as ensuring transparency, consent, and control for individuals.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Security in AI: The protection of AI systems and their components from unauthorized access, use, disclosure, disruption, modification, or destruction. Security in AI requires addressing issues such as data protection, system hardening, access control, and incident response.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning

Ethics in AI: The principles and values that guide the design, development, deployment, and use of AI systems. Ethics in AI includes issues such as fairness, accountability, transparency, privacy, security, and social and environmental impact.

Related terms: Artificial Intelligence, Machine Learning, Deep Learning.