



MAGAZINE

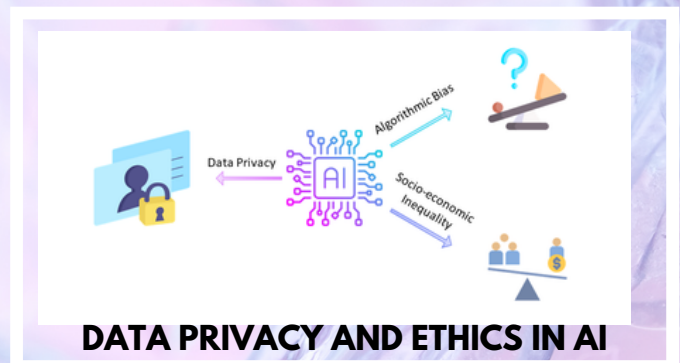
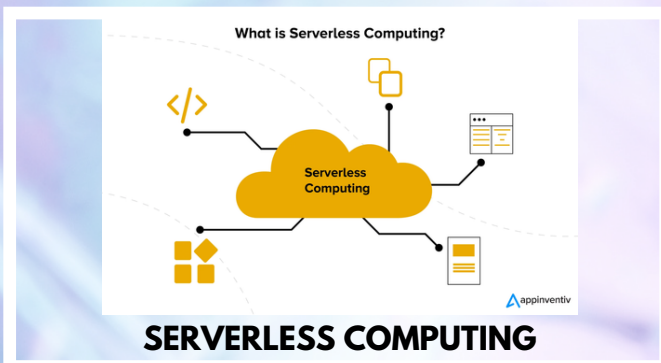
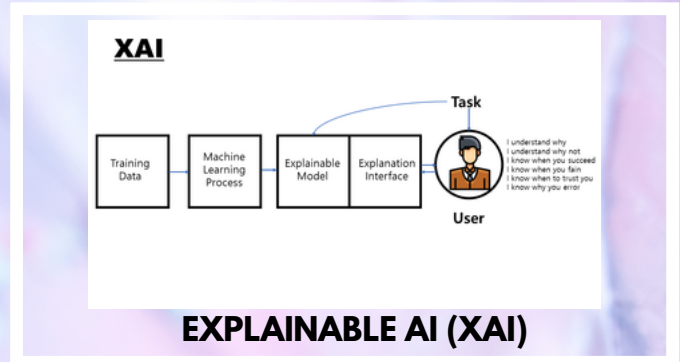
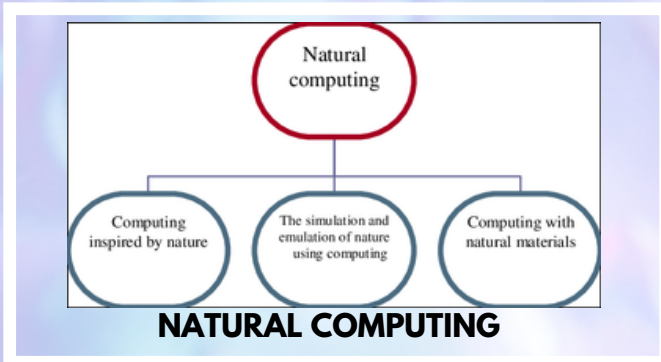
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Department of

CSE

Byte Quest



Department Vision

To be a center for academic excellence in the field of Computer Science and Engineering education to enable graduates to be ethical and competent professionals.

FACULTY COORDINATORS

KOMAL KAUR
ASSISTANT PROFESSOR
DR. BHARGAVI PEDDIREDDY
ASSOCIATE PROFESSOR

Department Mission

To enable students to develop logic and problem solving approach that will help build their careers in the innovative field of computing and provide creative solutions for the benefit of society.

STUDENT COORDINATORS

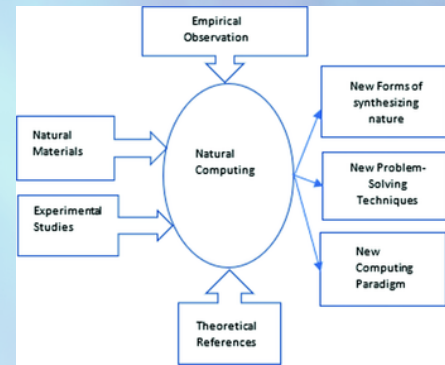
TALLURI CHANDRA KIRAN (3/4) CSE C
AMOGHA KANDURI (3/4) CSE C



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NATURAL COMPUTING

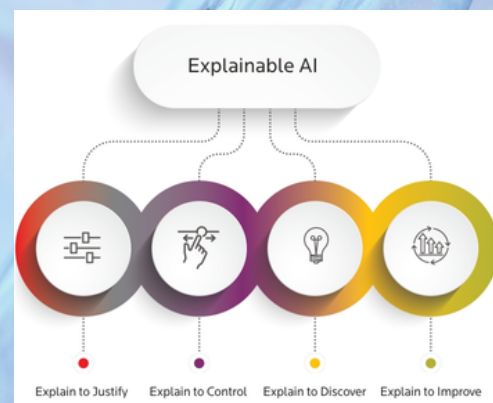
Natural Computing refers to computational processes observed in nature, and human-designed computing inspired by nature. When complex natural phenomena are analyzed in terms of computational processes, our understanding of both nature and the essence of computation is enhanced. Characteristic for human-designed computing inspired by nature is the metaphorical use of concepts, principles and mechanisms underlying natural systems.



Natural computing includes evolutionary algorithms, neural networks, molecular computing and quantum computing. The journal Natural Computing provides a forum for discovery in natural computing, offering links among researchers and insight into trends in an emerging specialty. The journal reports on theory, experiments, and applications, and covers natural computing from a very broad perspective, including use of algorithms to consider evolution as a computational process, and neural networks in light of computational trends in brain research.

EXPLAINABLE AI (XAI)

Explainable AI is used to describe an AI model, its expected impact and potential biases. It helps characterize model accuracy, fairness, transparency and outcomes in AI-powered decision making. Explainable AI is crucial for an organization in building trust and confidence when putting AI models into production. AI explainability also helps an organization adopt a responsible approach to AI development.



As AI becomes more advanced, humans are challenged to comprehend and retrace how the algorithm came to a result. The whole calculation process is turned into what is commonly referred to as a "black box" that is impossible to interpret. These black box models are created directly from the data. And, not even the engineers or data scientists who create the algorithm can understand or explain what exactly is happening inside them or how the AI algorithm arrived at a specific result. There are many advantages to understanding how an AI-enabled system has led to a specific output.



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SERVERLESS COMPUTING

Serverless computing is a method of providing backend services on an as-used basis. Servers are still used, but a company that gets backend services from a serverless vendor is charged based on usage, not a fixed amount of bandwidth or number of servers.



A company that gets backend services from a serverless vendor is charged based on their computation and do not have to reserve and pay for a fixed amount of bandwidth or number of servers, as the service is auto-scaling. Note that despite the name serverless, physical servers are still used but developers do not need to be aware of them.

In the early days of the web, anyone who wanted to build a web application had to own the physical hardware required to run a server, which is a cumbersome and expensive undertaking.

Then came cloud computing, where fixed numbers of servers or amounts of server space could be rented remotely. Developers and companies who rent these fixed units of server space generally over-purchase to ensure that a spike in traffic or activity will not exceed their monthly limits and break their applications. This means that much of the server space that gets paid for can go to waste. Cloud vendors have introduced auto-scaling models to address the issue, but even with auto-scaling an unwanted spike in activity, such as a DDoS Attack, could end up being very expensive. The term 'serverless' is somewhat misleading, as there are still servers providing these backend services, but all of the server space and infrastructure concerns are handled by the vendor. Serverless means that the developers can do their work without having to worry about servers at all.



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DATA PRIVACY AND ETHICS IN AI

One of the most prominent ethical issues of AI with immediate ramifications is its potential to discriminate, perpetuate biases, and exacerbate existing inequalities. Because algorithms are trained on existing data, they can end up replicating unwanted patterns of unfairness due to the data they have ingested.



Further, those building the systems may unknowingly introduce their own human biases into the functionality. Because AI challenges the ability of information privacy to operate as it has done historically, the safeguard against discrimination that information privacy provides as an enabling right risks becoming dismantled. Interestingly, AI technology also has the potential to minimise discrimination if developed with consideration of these issues - by removing or supporting the human element of many decision-making processes, innate human biases can be avoided. Governance and oversight are championed in information privacy law to ensure appropriate structures are in place that prevent a power imbalance between citizens and government. This relies on regulators ensuring that personal information is being handled appropriately.

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