

Course Catalogue

ABC5

AI & Data Science Track

1



What is AI & Data science



Motivations of AI & Data Science

- History and the Future
- Choose Your Challenge or Problem Area

AI Introduction & Data science introduction

- What is AI & Data science
- The relationship between AI & Data science
- Turing Test

Basic concept of AI

- Agent
- Tree & Tree search

2



Searching



Tree Search

- Algorithm - uninformed search: Breadth-first search & Depth-first search, Uniform-cost search
- Algorithm - Informed search: Greedy best-first search, A* Search
- Example: N-queen problem

Game Tree

- Local Search
- Constraint Satisfaction Problems

3

Clustering & Classification



Data Preprocessing

Concept of learning

- Supervised learning
- Unsupervised learning

Classification

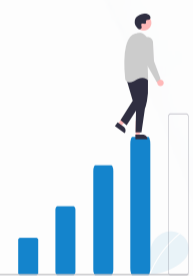
- Decision tree based algorithms
- Bayesian approach
- Statistical approaches
- Nearest neighbour approach

Clustering

- K-means algorithm
- Hierarchical algorithm

4

Neural Network



Concept of Neural Network

- Neuron v.s. Artificial Neuron
- Regression

Multi-Layer Perceptron

Performance on different non linearly separable problems

5



Application and Use case

- Chatbot
- AlphaGo
- Other business applications



6

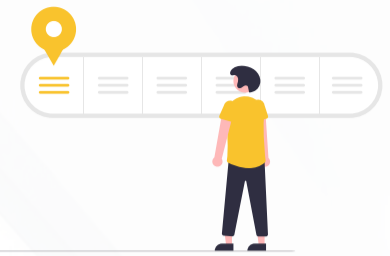


Capstone Project

- Refine Your Chosen Challenge
- State Your Solution
- Creating a Poster Display
- Presenting a Poster Display
- Demo Day Overview



Blockchain Track



1

What is blockchain?

Blockchain Introduction

- Chain Analogy + Magic Ledger
- Internet of Information to Internet of Value
- Double Spending Problem

Why blockchain matters?

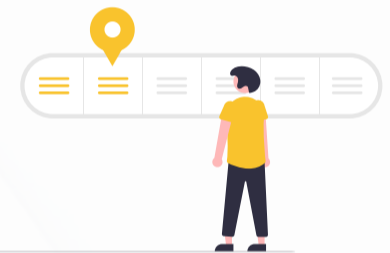
- Real world problems
- Choose Your Challenge or Problem Area
- Blockchain platforms
- Origins of Blockchain platforms



2

Blockchain Business & Opportunities

- Public Chain v.s. Private Chain
- Enterprise blockchain
- Blockchain Project Examples



3

How does blockchain work?

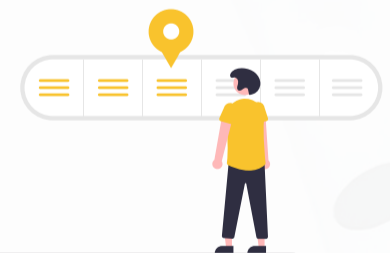
Centralised System & Decentralised System

Cryptography

- Caesar Cipher
- Hash & Hash Trees

Identity & Privacy

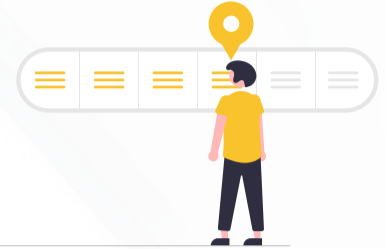
- Identity Theft & Data Breaches
- GDPR & Privacy Regulations



4

Enterprise Blockchain

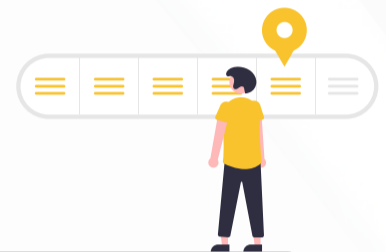
- Asset Tokenisation & Digital Fiat
- Governance & Trust Frameworks



5

Application & Use Case

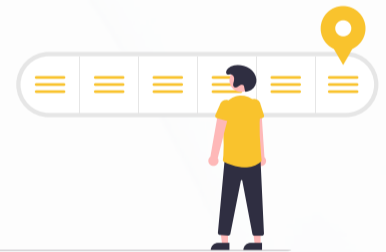
- Immunodex
- Aero-Knowledge Proof
- Other Commercial Applications



6

Application & Use Case

- Refine Your Chosen Challenge
- State Your Solution
- Creating a Poster Display
- Presenting a Poster Display
- Demo Day Overview



Competition Prep Course

1

Writing Workshop (1 or 2 hours)

- Writing Styles
- What to (not) write
- Planning a paper
- How to use appendices
- How to use reference and reference styles
- Formatting best practices and style guides



2

Pitching Workshop (1, 1½, or 2 hours)

- 1- or 2-min Elevator Pitch
- 3- or 5-min Deck-Assisted Pitch
- 10- or 15-min Deck-Assisted Pitch
- Planning a pitch deck
- Formatting a pitch deck
- BONUS: reading decks



3

Posters & Press Workshop (1, 1½, or 2 hours)

- How to layout a poster
- How to engage a conversation
- How to ask good questions
- How to handle Q&A

