**考试的进行**

**如课程阅读材料第 2 部分第 2 节所述，在考试中**

**在规定的时间内，每三名学生为一组，进行 30 分钟的提问。**

**时间为 30 分钟。考试的重点是从问题清单中抽取的问题。**

**从问题清单中抽取。该问题清单作为课程阅读材料的第 4 部分单独提供给学生。**

**阅读材料。学生不仅要能回答问题，还要熟悉问题所涉及的主题。**

**学生不仅要能回答问题本身，还要熟悉问题所涉及的主题。**

**学生必须确保**

**考试使用的设备及其麦克风和摄像头能正常工作，并且**

**麦克风和摄像头工作正常，并有稳定的互联网连接和**

**网络连接稳定**

**e 考试期间周围环境安静。**

**详细时间表**

**考试时间表如下。**

**在任何 30 分钟的时间段内都不得有学生空位，即必须始终有 3 名学生。**

**必须始终有 3 名学生，但最后一个时间段除外，如果学生总数不能被 3**

**不能除以 3。**

**学生分组交替**

**学生不得旁听其他学生的考试。**

**为了让各组学生顺利交接，30 分钟的时间段之间有 5 分钟的间隔。学生助理和主持人将邀请各个小组入场。如有任何问题，应立即联系她。联系方式见上文。**

**通过www.DeepL.com/Translator（免费版）翻译**

**SECTION 2: AI – THE TECHNICAL CONTEXT**

1. **What is AI?**

AI is a branch of computer science that in

volves the development of computer programs (in the AI context often

just called "algorithms") to complete tasks which would otherwise require

human intelligence, such as learning, perception, problem-solving, lan

guage-understanding and/or logical reasoning.

1. **Name at least 3 technologies that are covered by the term "Artificial Intelligence", choose one and discuss it.**

**Machine Learning (ML)**

**Natural Language Processing (NLP)**

**Computer Vision**

**Natural Language Processing (NLP) is a branch of artificial intelligence that focuses on the interaction between computers and humans through natural language. The goal of NLP is to enable computers to understand, interpret, and generate human language in a way that is both meaningful and useful.**

1. **What is an algorithm?**

**Algorithm can refer to any computer code that carries out some set of**

**instructions, and is essential to the way computers process data. Algorithms are "encoded procedures for transforming input data into desired output, based on specific calculations".**

1. **Give a definition of AI and explain it!**

**AI, in a general sense, can be defined as a technology that can have**

**basic human thinking or can produce results based on what it learns on**

**its own. It can also mean that AI is just a way through which human intelligence can be mimicked by machines or any software it is injected in.**

1. **What is weak (narrow) AI?**

As AI trained and focused to

perform specific tasks, it refers to systems/algorithms that are de

signed to solve one particular problem,

It can self-learn and thus

be able to produce better results as time goes on, and as more data

are fed into the system. It is the ability of machines to approximate

human intelligence in a deliberate domain;

1. **What is strong (general) AI**

**Strong (general) Artificial Intelligence refers to Al with human-level**

**intelligence that can be applied to any given human task, ie it has such**

**broad applicability that it could successfully perform any task or solve**

**any problem requiring human intelligence.**

1. **How does AI work?**

**The majority of AI applications use algorithms.AI generally refers to computer software or algorithms that can perform tasks normally performed by humans by:**

** studying very large amounts of data.**

** making generalizations or statistical estimations.**

1. **What are the most important technologies of AI?**

Today, probably the most important AI technologies are machine learning

and deep learning.

1. **What is Machine Learning?**

**Machine learning is a subset of AI application that learns by itself. It**

**actually reprograms itself, as it digests more data, to perform the specific task it's designed to perform with increasingly greater accuracy.**

1. **What is Deep Learning?**

**Deep learning is a subset of machine learning application that teaches itself to perform a specific task with increasingly greater accuracy,**

**without human intervention.**

1. **Name 3 subcategories of AI, choose one and discuss it.**

**Machine learning**

**Deep learning**

Neural Networks

**Neural networks are computer systems modeled after neural connections**

**in the human brain. Neural networks are interconnected networks of artificial neurons, or nodes, that simulate human brain cells. They are designed to learn from labeled patterns in data that flow through the network layer by layer. They record what they learn by weighting or unweighting an input – to determine how correct or incorrect it is – with the**

**ultimate goal of using probability to solve the task being performed.**

**Reinforcement Learning**

**Reinforcement Learning (RL) is a type of machine learning where an agent learns to make decisions by interacting with an environment. The agent receives feedback in the form of rewards or penalties based on its actions. The goal is to learn a strategy (policy) that maximizes the cumulative reward over time. RL is often used in applications such as robotics, game playing, and autonomous driving, where the agent must learn to navigate complex tasks through trial and error.**

1. **What is the operating principle of AI?**

AI applications operate by analyzing a vast amount of unstructured data

(Big Data) 104 , using a custom-tailored algorithm in order to identify certain

patterns in the data and to draw a conclusion from them.

1. **What is a robot?**

**A robot is a mechanism/machine designed to executing a set of actions by direct human control, computer control or a combination of both. Robots can thus be guided by an external control device or the control may**

**be embedded within.**

1. **What is the difference between a robot and AI?**

**The key difference between AI and robots is that robots are physical machines designed to perform specific tasks, often through human or computer control. While many robots operate autonomously to some extent, they traditionally lack AI capabilities. AI, on the other hand, refers to intelligent systems that can learn, adapt, and make decisions, which can enhance a robot's functionality. As AI technology has advanced, it has influenced robotic research, leading to the development of more sophisticated robots that can mimic certain human-like capabilities, such as proprioception. Modern robots integrate enhanced sensing, control, and AI to automate and assist human activities across various industries. Ultimately, robots are mechanisms that can operate independently, while AI enables them to perform more complex and adaptable actions.**

1. **What is robotics?**

Robotics is a branch of technology that deals with the design, construc

tion and use of machines ("robots") to perform tasks done traditionally by

human beings.

1. **What is the difference between a robot and an autonomous system?**

**The difference between autonomous systems and robots is in their capabilities. Autonomous systems can perform tasks without being specifically programmed for them, using AI to adapt to new situations. Robots, on the other hand, usually follow pre-programmed tasks and require some level of human input.**

**While automation allows machines to execute specific tasks they are designed for, autonomy gives machines the ability to make decisions in unfamiliar situations. For example, autonomous vehicles use AI to navigate but are still guided by algorithms, meaning their decision-making isn’t like a human’s.**

**In summary, autonomous systems are more independent and adaptable than robots, which typically operate within set guidelines.**

1. **What is a chatbot?**

**A chatbot is a computer program/software**

**that conducts a conversation via auditory or textual methods.**

**Such programs are often designed to convincingly simulate how a human would**

**behave as a conversational partner, although they are far short of being**

**able to pass the Turing Test. They are typically used in dialog systems for**

**various practical purposes including information acquisition. Some chatbots use sophisticated natural language processing systems, but many**

**simple ones scan for keywords in the input and then give a reply with the most matching keywords or the most similar word pattern from a database**

**SECTION 3: AI IS A MARKET REALITY – AI IS BIG BUSINESS**

1. **Why has AI become so successful in the last 20 years or so and not earlier?**

**The recent explosion of machine learning technology as an AI technique**

**is really a product of two things: tremendous increases in computational**

**power and enormous volumes of accumulated data. The cost of performance at this level has also dropped dramatically**

1. **List at least 3 of the most common AI applications, choose one and discuss it.**

**Speech recognition**

**Natural language processing (NLP)**

**Image recognition (computer vision or machine vision):**

**NLP enables a software application, computer, or machine to understand, interpret, and generate**

**human text. NLP is the AI behind digital assistants (such as the aforementioned Siri and Alexa), chatbots, and other text-based virtual assistance. Some NLP uses sentiment analysis to detect the mood, attitude,**

**or other subjective qualities in language.**

1. **What is the difference between speech recognition by an AI application**

**and the use of a microphone and a recorder to record speech?**

**The difference between AI speech recognition and using a microphone with a recorder lies in functionality.**

**Speech Recognition by AI involves software that can understand and convert spoken words into text or commands. It processes and analyzes the audio for meaning, enabling interactions, such as voice commands or transcription.**

**Microphone and Recorder simply captures audio for later playback without understanding or analyzing the content. It is used for recording speech but doesn’t interpret or convert it.**

**In summary, AI speech recognition understands and processes speech, while a microphone and recorder only capture it.**

1. **What is the difference between image recognition by an AI application**

**and the use of a camera to make a photo or video recording?**

**The difference between AI image recognition and using a camera for photos or videos lies in processing and functionality.**

**Image Recognition by AI involves software that can analyze and understand images, identifying objects, patterns, or features within them.**

**Camera for Photo/Video Recording simply captures visual data (photos or videos) without analyzing or interpreting the content.**

**In summary, AI image recognition interprets images, while a camera just records them.**

**SECTION 4: THE LEGAL, POLICY AND REGULATORY CONTEXT**

1. **What is at the core of AI?**

software and data

1. **What is the difference between a computer program/software and AI?**

What distinguishes AI from traditional software development is,

 first, that the algorithm's rules and software implementation may them

selves be dynamic and change as the AI learns; and

 second, the very large datasets that the AI processes (as what was

originally called big data).

1. **What are the 3 types of data that are used as input for an AI application?**

training, testing and operational datasets

1. **What is the difference between input and output data of an AI?**

**Input data refers to the information provided to an AI system to process and analyze, whereas output data is the result generated by the AI based on the input data and its programming. In simple terms, input data is what you give to the AI, and output data is what the AI gives back to you after processing the input.**

**SECTION 5: SOME COMMON MISCONCEPTIONS AND THE LEGAL**

**ASPECTS OF AI**

1. **What is the "I, Robot fallacy"**

**we all tend to anthropomorphise AI332 and think of AI and robots**

**as analogous to humans and the brain rather than as software and data. But we must not anthropomorphise AI: In legal terms, AI is personal**

**property, not a person**

1. **What is the "agency fallacy"**

**we tend to analogise AI systems, particularly when in motion**

**and especially in popular culture, to agents.**

**334 From there it is only a**

**short jump to conferring rights on and imputing duties to these systems**

**as agents. But AI systems are not 'agents' in any legal sense**

1. **What is the "entity fallacy"**

**as AI systems increasingly interact, is to speak**

**of these platforms as possessing separate legal personality and able**

**to act independently of their operators, although AI platforms themselves do not possess separate legal personality**

**SECTION 6: HOW WILL AI AFFECT THE LAW-REGULATION AND**

**GOVERNANCE OF AND POLICY APPROACHES TO AI**

1. **How may AI affect the law?**

**AI will impact the law by raising legal challenges that require careful management by policymakers and legislators. There will be a need to adapt existing laws or create new ones to address the risks associated with AI deployment. This includes implications for fields like intellectual property, data protection, employment, taxation, and liability. AI's introduction will change legal practices and the formulation of laws, necessitating modifications to current legal concepts. Overall, AI will prompt a reevaluation of various areas of law and governance.**

1. **What is the regulation of AI?**

**Regulation of AI is the creation of laws, rules and public sector policies**

**for the promotion and regulation of AI algorithms.**

1. **What is the difference between regulation of AI and policy regarding AI**

**Regulation is a response but not a solution**

policy regarding AI is an exact solution

1. **Why is regulation of AI necessary and important?**

**Regulating AI is necessary to ensure safety, protect individuals' rights, prevent discrimination, and maintain accountability. It helps manage risks, promotes ethical use, fosters public trust, and ensures compliance with existing laws while adapting to technological advancements.**

1. **What areas/topics are particularly important for regulation of AI?**

 market driven self regulation

 industry standards and codes of pratica (the "softlaw" or "best practice"

approach)

 external regulation

 legal restrictions or prohibitions

1. **What is the "softlaw"-approach to regulation?**

publications, guidelines and political declarations

1. **What is the external regulation of AI by**

**The best that governments can do now is to set up the infrastructure to**

**study the technology and its potential perils, and ensure that those working on the problem have adequate re- sources.**

1. **Should AI be regulated? Why and how?**

**Most aspects of AI are far too speculative and immature to be appropriate**

**subjects for regulatory action at present. However there are some welldocumented and serious problems with currently deployed machine**

**learning systems for prediction and classification in institutional decision**

**making.They are urgent enough that careful, judicious, and consciously experimental regulation may be warranted in some domains.**

**Governments need to regulate AI in these ways**

**Regulation of demographic bias**

**Transparency and explainability**

**Devices possibly affecting the safety and health of humans**

**Support for research and development**

**Providing effective framework for data governance**

**Development of industrial strategy and plan for impact of AI**

**Regulation relating to different RAS applications**

**9. What is the risk of bias or discrimination in the use of AI? Why is it a legal**

**risk?**

**The risk of bias or discrimination in AI arises when algorithms reflect existing societal prejudices or are trained on flawed data, leading to unfair treatment of individuals based on race, gender, or other characteristics. This poses a legal risk as it can violate anti-discrimination laws, resulting in lawsuits, regulatory penalties, and reputational damage for organizations. Furthermore, biased AI outcomes can undermine public trust and exacerbate social inequalities, making it crucial for companies to address and mitigate these biases to comply with legal standards and ethical norms.**

1. **How is it possible that AI acts with bias or in a discriminating way?**

**AI can act with bias or in a discriminatory way primarily due to biased training data, which reflects historical inequalities or stereotypes. If the data used to train AI systems includes these biases, the AI learns to replicate them in its decision-making processes. Additionally, the design of algorithms may inadvertently prioritize certain characteristics over others, leading to unequal outcomes. Without proper oversight and diverse datasets, AI systems can perpetuate existing social biases, resulting in unfair treatment of marginalized groups.**

**SECTION 7: EXAMPLES OF SOFT LAW RESPONSES BY**

**ORGANISATIONS AND STATES**

**1. China was the fist country to bring up the problem of fully autonomous**

**weapons and to propose a global regulation. – What are autonomous**

**weapons and why should China's proposal be followed?**

**In 2016, China published a position paper questioning the adequacy of**

**existing international law to address the eventuality of fully autonomous**

**weapons, becoming the first permanent member of the U.N. Security**

**Council to broach the issue, and leading to proposals for global regulation. In the United States, steering on regulating security-related AI is**

**provided by the National Security Commission on Artificial Intelligence.445**

**Later developments in China until 2023 the draft AI Measures for Regulating Generative Artificial Intelligence released in April 2023 are discussed in Section 15, the special section on China.**

**If adopted, the Measures will clarify how certain privacy protections apply**

**to AI, mandate steps to prevent algorithmic bias and prohibit discriminatory content generation, and require AI products to undergo security assessments before being publicly offered.**

**SECTION 8: WHAT LESSONS CAN A COUNTRY LEARN FROM OTHER**

**COUNTRIES IN THEIR POLICY APPROACH TO AI?**

**1. Why is it reasonable, if a country learns from initiatives regarding AI in**

**other countries or by international organizations?**

**In our globalized world many issues deserve, indeed must not be considered and dealt with only from a parochial national perspective. AI with all**

**its ramifications is no exception. A country may learn valuable lessons**

**from the policy and regulatory approaches to AI of other countries or international organizations.**

**SECTION 9: THE EUROPEAN PROPOSAL FOR A REGULATION OF AI**

**1. What does it mean that the European Union has adopted a risk-based**

**approach in its proposal for an AI regulation?`**

**The EU's proposal for risk-based AI regulation means that AI systems will be subject to different levels of regulation depending on their level of risk. High-risk AI applications would face stricter regulations, such as data management and transparency requirements, while low-risk applications would face less regulation. This approach has the advantage of being flexible and able to adapt to changes in technology and the market. In addition, it encourages developers and businesses to consider safety and ethical issues when designing AI products and services, thereby building trust and competitiveness. The proposal embodies a regulatory philosophy that strikes a balance between fostering innovation and preventing risk, and aims to ensure the sustainability and public acceptance of AI technologies.**

**SECTION 10: AI POLICY IN CHINA**

1. **What is the foundation of AI policy in China? What is its goal?**

**"New Generation Artificial Intelligence Development Plan"**

**The goal is to build a domestic AI industry worth nearly US$150 billion in the next few**

**years and to become the leading AI power by 2030.**

1. **Name 3 of the "Principles of next-generation AI governance and responsible AI" published in 2019 by the Chinese Next Generation AI Governance Expert Committee**

 harmony and friendliness

 fairness and justice

 inclusiveness and sharing

1. **What are the Beijing AI Principles?**

**The Principles are separated into three sections: Research and Development, Use, and Governance. They include focus on benefitting all of**

**humanity and the environment; serving human values such as privacy,dignity, freedom, autonomy, and rights; continuous focus on AI safety and**

**security; inclusivity; openness; supporting international cooperation and**

**avoiding a "malicious AI race"; and long-term planning for more advanced**

**AI systems, among others.**

**SECTION 11: BASIC LEGAL ISSUES OF AI**

**1. Guidelines for the development, deployment and use of AI usually require**

**an ethical purpose for AI. What does that mean?**

Its development, deployment and use should re

spect fundamental rights and applicable regulation, as well as core

principles and values, ensuring "an ethical purpose", and

**2. Guidelines for the development, deployment and use of AI usually require**

**technical robustness for AI. What does that mean?**

It should be technically robust and reliable

given that, even with good intentions, the use of AI can cause uninten

tional harm

**SECTION 12: AI AND INTELLECTUAL PROPERTY**

1. **Why is it important to have legal protection for AI?**

Innovation is often triggered by incentives, such as economic benefits.

**As a technology, AI is becoming as important as classical software and**

**thus the question of legal protection of AI. As significant resources are invested to achieve that, IP protection is sought for AI solutions and the resulting work product.**

**2. What kind of legal protection may in principle be available for AI? Choose**

**one and discuss it.**

**Copyright in the AI area revolves around the ownership of content generated by artificial intelligence and the use of copyrighted materials for training AI models. There are debates about whether AI-generated works can be copyrighted, as they lack human authorship, and whether using copyrighted materials to train AI constitutes fair use. Additionally, issues arise regarding liability for copyright infringement when AI creates content that resembles existing works. Overall, the intersection of AI and copyright law is complex and evolving, necessitating clearer legal frameworks to address these challenges.**

1. **What is a patent? What is required for the patentability of inventions?**

**A patent gives its owner the exclusive right to make, use and sell the subject of a patent, a new invention, which is a product or a process that provides in general a new way of doing something, or offers a new technical**

**solution to a problem.**

**In order to obtain patent protection for the invention technical information about the invention must be disclosed to the**

**public in a patent application filed with the patent office.**

**4. Why may the patentability of AI be problematic?**

**While AI systems are not patentable "as such" –the implementation usually lacks the technical character required for protection by a patent – their specific implementation may be protectable**

1. **Can an AI be an inventor?**

**No**

**However, as in the short-tomedium term AI systems will probably only be used as tools in the invention process and they may be accommodated within existing ownership**

1. **Can a patent be obtained for an invention made by an AI?**

**As of today, the patent legal system in most countries requires that the invention must be done by a natural person or a legal entity, and artificial intelligence (AI), as a non-legal subject, usually cannot be the inventor of a patent directly.**

1. **Who owns on AI-generated invention?**

**Ownership of AI-generated inventions is usually vested in the human or organisation controlling the AI, rather than the AI itself. However, this issue continues to be debated in both the legal and technical communities, and the relevant legal provisions and practices are likely to continue to evolve as AI technology advances.**

1. **What is copyright?**

**Copyright law protects the original expression of an idea, not the idea itself. It encapsulates the exclusive rights creators have over their literary,**

**artistic and certain other works. Works covered by copyright range from**

**books, music, paintings, sculpture and films to computer programs, technical drawings and certain other works.**

**Like patent owners copyright owners enjoy exclusive rights to their creations. However, copyright does not require registration, it comes into existence with the act of creation and subsists usually for 70 yeas from the**

**death of the author.**

1. **What can copyright in principle protect in an AI?**

Copyright could in principle protect the following realms of AI:

 The software code in which an AI system is written is protected by

copyright, enabling the creators of AI software to be paid for their work

and to control how others can use it.

 Data sets used for the training of AI as compilations of data, if the raw

data have been manipulated and organized into structured datasets

 data sets as programmed into the AI application, as all of these fall

within the ambit of "Artistic Works".

1. **Can an AI be an author of a copyright work?**

**There is no uniform legal position on whether AI can be the author of a copyrighted work. Some argue that AI itself may not be recognised as the author of a copyright work, as copyright law generally requires that the work must be created by a human author. Although the legal status of AI as an author of copyrighted works is currently unclear, as technology advances and society's understanding of AI's creativity deepens, corresponding legal changes may occur in the future to accommodate this emerging phenomenon.**

1. **Who owns the copyright invention?**

**In most countries, if no human author can be identified for the work, no**

**copyright will subsist in it and therefore it will fall into the public domain.**

**Although there may be copyright in the AI algorithm itself, as computer programs are protected by copyright, this is a separate work whose authorship (and ownership) is separate from the work it creates.**

1. **What are data? What are work training data in the context of AI?**

**data are a reinterpretable representation of information in a formalized**

**manner suitable for communication, interpretation, or processing [which]**

**can be processed by humans or by automatic means".**

**In the field of artificial intelligence, job training data typically refers to datasets used to train machine learning models that contain information generated by human workers as they perform tasks in specific occupational settings.**

1. **Are data property? If not, can there be rights in relation to data?**

**No**

**Although data do not have all the attributes of traditional property, data rights can have the attributes of property rights, personality rights and national sovereignty. The object of data rights is "data", and the natural properties of this object are different from those of existing civil rights, making data rights a new type of civil right. Research on data rights has shown that data can be used as the object of rights and can be subject to rights, circulation and trade.**

1. **Why are data important for AI?**

**Data are of paramount importance to the development of AI given the**

**need for high-quality training data to feed learning models. Every good AI**

**systems need a large amount of high-quality data with which to train.**

1. **What is a database?**

A database is a collection of data (information) that is organized so that it

can be easily accessed, managed and updated. It is generally stored and

accessed electronically from a computer system.

1. **Can a database enjoy copyright protection?**

**If the data is eligible for copyright protection, one might consider data collected for training purposes to be a database, however if the data is simply captured and dumped into a file without organisation, then it cannot be considered a database eligible for copyright protection.**

1. **How can AI developers find data?**

AI developers have many ways to find good data

 Use data in the public domain (some risk of bias and data unsuitability)

 Purchase data

 Generate new data – for example, use a text and data mining (TDM)

system which is the automated discovery of new information from dif

ferent written resources. 751

1. **Can a database enjoy protection outside copyright law?**

**Yes**

**The question of whether databases can enjoy protection beyond copyright law relates to different levels and types of intellectual property rights. In addition to copyright law, database protection can be achieved through other legal mechanisms, such as sui generis database right. A sui generis database right is a type of intellectual property right, separate from copyright, that protects a database producer's investment in a collection of data, even if the data itself is not protected by copyright. Such rights typically give the database producer the right to prevent unauthorised extraction and reuse of data.**

**19. What legal risks can there be that third party rights exist in the data used**

**to train an AI?**

**Rights holder audits:**If the data have been acquired from the rights

holder under a data licence, does the licence provide the right holder with

audit rights? Data audits are a common way for right holders to squeeze

additional revenues by identifying use of licensed data outside the scope

of the licence and threatening litigation if further payments are not made.

**Possible data sources:**Are the right holders the only source of the rele

vant category of data? Where data are commercially available from a

range of sources, the risk of detection will be lower than where the data

has come from a sole provider in the marketplace.

**Identity of the rights holder:**Commercial data suppliers will be keenly

aware of the value of their data and are likely to be more aggressive in

pursuing infringements than organisations less focused on commercialis

ing data.

1. **How can AI be protected as a trade secret?**

Trade secret laws protect economically valuable secrets. Protectable in

formation includes formulae, compilations, programs, methods, tech

niques, processes, designs, and codes. Unlike a patent, no application or

registration is required to obtain trade secret protection; rather, trade se

cret protection arises automatically provided that the trade secret owner

can demonstrate that the information creates a competitive advantage by

virtue of its secrecy and that reasonable measures have been taken to

maintain its secrecy. Many AI system elements are well-suited for trade

secret protection, such as: neural networks, including modular network

structure and individual modules; training sets, data output, and other da

ta; software including underlying AI code and AI-generated code; and

learning, backpropagation, and other algorithms.

**21. Why should the developer of an AI try to protect the AI components as a**

**trade secret?**

Developers protect AI components as trade secrets primarily to maintain competitive advantage, avoid intellectual property disputes, control technology diffusion, reduce costs and risks, and adapt to a rapidly changing technological environment. This type of protection helps to maintain the proprietary nature of the technology, circumvent the disclosure requirements of patent applications, and manage the use of the technology flexibly, thereby effectively safeguarding the innovative capacity and economic interests of the enterprise.

1. **What measures can be used to protect AI as a trade secret?**

**"Reasonable measures" to maintain the secrecy of a trade secret may**

**vary depending on a company's size and resources, but they can include**

**physical and technical solutions to limit and monitor access to trade secret information. Physical solutions include locked cabinets and server**

**rooms, whereas technical solutions may involve multi-factor authentication, mobile device management, and data loss prevention software. Written policies should dictate trade secret management, and employees who**

**have access to trade secrets should be limited in number and contractually required to protect company confidential and trade secret information**

**from improper disclosure.**

**23. What is a trademark?**

A trademark is a sign to identify the source/origin of goods or services. It

may consist of words, a combination of letters, those of logos or sounds

that distinguish one company's goods and services from another compa

ny. It is obtained by registration for a limited time, usually ten years, with

the possibility of renewal. It gives the owner the exclusive right to use it in

relation to the goods or services for which it is registered. A strong

trademark for an AI application (as a good) will propel AI companies to

differentiate their products from competitors and act as a safety shield

from passing off or infringement of trademarks

1. **What use can be made of AI in the context of trademarks?**

**AI can be used for determination of confusing similarity of trademarks**

1. **Which kind of intellectual property protection is viable for AI?**

Trade secrets and copyright

**26. Which is the best may to protect AI?**

**Protect AI as trade secret**

**SECTION 13: AI AND TRAINING DATA-QUALITY, BIAS AND**

**DISCRIMINATION**

1. **How can training data be protected?**

Under the

laws of some countries, pure data collections are not protected under in

tellectual property law, while others afford protection for data bases

**2. How is it possible that AI can display bias or discrimination when it is**

**used?**

**Experience has shown that this is particularly relevant with regard to equality and discrimination: An inappropriately programmed/trained AI application can lead to violations of statutory equality requirements and nondiscrimination laws: If, for example, women are systematically disadvantaged by AI-based decisions due to a machine bias (e.g. regarding hiring or wages), there may be a violation of the gender equality legislation. If the training data are not well balanced (e.g. regarding gender or skin color), then the AI application trained with such "biased" training data will automatically adopt this imbalance (so-called "machine bias"). If a company uses an AI application with such a machine bias, it runs the risk of violating statutory equality requirements and non-discrimination laws.**

**3. How can developers of AI mitigate the risk of bias and discrimination in**

**AI?**

**developers conducting the training of an AI application with their own data should therefore verify the data's quality and appropriateness, not to run the risk of ending up with an AI application that displays bias and discrimination violating statutory equality requirements and nondiscrimination laws.**

**4. Why is privacy legislation relevant in the AI context respectively the development of AI?**

**Why is privacy legislation relevant in the AI context respectively the development of AI**

**AI thrives from the use of vast amounts of data used in its training.**

**Further, information can be captured from your computer use; for example, by examining what you are typing and which programs you are using,**

**from your browsing history, emails and social media posts. Cameras in**

**the street can track your movements and these can be analysed to assess your behaviour. If you have a robot or two at home, or even a smart**

**meter or appliance, while they may help you to deliver efficiencies in your**

**life more efficient, they will also capture personal data about their user**

**and its lifestyle. The combination and analysis of the data offer extremely**

**valuable and potentially powerful information for those who control it.**

**AI will be at the core of any such capture, interpretation and use of information, and this is why some argue that all applications of AI will need to**

**be regulated. Of course, privacy is closely guarded but technology, but a**

**lack of understanding of its operation, may lead people to unwittingly allow others to observe their life,**

**5. Why is cybersecurity relevant in the context of AI?**

**threat actors exploit AI tools to generate sophisticated phishing emails**

**and malicious codes. Further, AI systems can be tricked or deceived**

**by being fed malicious or misleading data, undermining the accuracy**

**or reliability of AI systems. This could have significant consequences in**

**areas such as medical diagnosis, financial trading or autonomous vehicles.**

**SECTION 14: LEGAL ISSUES PERTAINING TO THE PROCUREMENT**

**OF AI**

**1. Why would a company consider intellectual property ownership and training data when deciding whether to develop an AI in-house or to**

**buy/license an AI application?**

Investing in a maturing area of technology can create value through intel

lectual property (IP). The possibility of owning IP can be a competitive

advantage, providing an asset to a company. If it is developing a poten

tially competitive AI solution, IP ownership should be considered when

deciding whether developing or buying is best for its business.

**2. Why does the in-house development of AI usually not make sense for a**

**company?**

** Lack of training data**

**Many AI solutions require very large amounts of data that must be trained**

**and revised. For example, training software to identify objects in an image such as a cat or dog could take many thousands of pictures. The**

**need to acquire those images and process them is another massive undertaking.**

**Although problems can be solved with open source tools (such as**

**CAFFE, a deep learning framework852 that is open sourced under a**

**BSD license), the more complex a problem, the more data are required**

**for AI.**

**3. What kind of provisions should a contract for the development of an AI**

**include?**

**The parties should therefore clearly specify in the contract the application**

**purposes and other customer requirements. Detailed contractual provisions are also required if customers train the AI application themselves or**

**provide the training data, wish to further develop the AI application themselves or intend to use it for purposes other than those originally specified.**

**4. What key issues are there in an AI license contract?**

In particular, it is important to address the following key issues:

 the key components of AI

 IP ownership and use rights

 IP infringement

 warranties, specifically performance promises

 legal compliance

**5. What does "AI as a Service" (AIaaS) mean? Why has it become so popular?**

**AIaaS refers to off-the-shelf AI applications that enable companies to implement and scale AI techniques at a fraction of the**

**cost of a full in-house developed AI. AIaaS makes AI technology accessible to everyone. Through APIs and intuitive, low-code tools, users can**

**harness the power of AI without writing a single line of code. Plus, instead**

**of months, it will take the user just weeks to set up AIaaS solutions.**

**6. Why are data-related legal issues at the centre of AI and AI-related contracts?**

**Data-related legal issues are at the center of AI and AI-related contracts because AI systems heavily rely on data for training and operation. This raises concerns about data ownership, privacy, consent, and compliance with regulations like GDPR. Contracts must clearly define data usage rights, liability for data breaches, and responsibilities to ensure that both parties adhere to legal standards, thus protecting against potential disputes and ensuring ethical use of data in AI applications.**

**7. Name at least 2 data-related legal issues in the context of AI, choose on**

**and discuss it.**

**1. Data privacy and protection**

**2. Data ownership and access**

**On the issue of data privacy and protection, AI systems are often collecting and analysing large amounts of personal data for training and optimisation, which raises compliance challenges. For example, the GDPR requires that the principles of transparency and accountability be followed when processing personal data. Companies must clearly inform users about how their data will be used and obtain their consent.**

**This legal issue is not only about data compliance, but also ethical considerations. If an AI system uses biased data in the training process, it could result in unfair decision-making and further infringe on individual privacy and rights. Organisations could face hefty fines and reputational damage if they fail to comply with data privacy laws. Therefore, ensuring that data is collected and used legally is critical in AI development to maintain consumer trust and avoid legal risks.**

**8. What does the "risk of machine bias" mean?**

**Experience has shown that this is particularly relevant with regard to equality**

**and discrimination: If the training data are not well balanced (e.g. regarding gender or skin color), then the AI application trained with such ‹biased› training data will automatically adopt this imbalance (so-called**

**"machine bias").**

**SECTION 16: CONTRACTUAL RELATIONSHIPS – CAN AI CONCLUDE**

**CONTRACTS?**

**1. Can an AI system conclude a contract?**

**No**

**As of now, the definition of a legal person cannot be interpreted**

**to encompass AI-based systems. A legal person is, generally speaking,**

**an individual, company, or other entity which has legal rights and is subject to obligations.**

**SECTION 17: RESPONSIBLE DEPLOYMENT OF AI IN BUSINESS**

**1. Why is the responsible deployment of AI in business important?**

**Whilst this comes with clear upsides, businesses are**

**also coming to realise that there are some unique risks associated with**

**these systems and technologies. These risks to date have been underappreciated and in many cases unaddressed.936**

**The costs of getting Al implementation wrong could be great – and this**

**could include human, social and political costs as much as economic**

**costs: organisations risk meaningful losses, fines and reputational damage if the use of Al results, for example, in unintended discrimination,**

**misselling or breach of privacy.937**

**It is thus increasingly critical to consider carefully not only how adoption**

**of AI technology can deliver efficiencies and cost savings, but also to**

**consider carefully how the associated risks can be managed properly.**

**SECTION 18: THE TRANSFORMATIVE-POTENTIAL OF AI**

**1. What are indicates of the transformative-potential of AI?**

**Ability to synthesise large volumes of complex data quickly**

**Adaptability and scalability**

**Autonomy**

**Creativity**

**Consistency and reliability**

**SECTION 19: DEPLOYMENT RISKS**

**1. What risks does the deployment and use of AI present from the liability**

**perspective? List at least 3, choose one and discuss it.**

**Reputational risk:**

**Risk associated with regulatory change**

**Personal data and information security risk:**

**Personal data and information security risk: This is particularly relevant when large datasets containing personal data and other sensitive datasets are used.**

**2. How can the risks refer to in the previous question be managed or mitigated?**

**For example, the GDPR requires that the principles of transparency and accountability be followed when processing personal data. Companies must clearly inform users about how their data will be used and obtain their consent.**

**the key is ensuring that data is collected and used legally is critical in AI development to maintain consumer trust and avoid legal risks.**

**SECTION 20: CIVIL LIABILITY FOR AI**

**1. Which liability frameworks are relevant in the context of AI?**

**Contracts**

**Tort**

**Strict liability: consumer protection**

**2. What is tort liability? How can it be relevant in the AI context?**

Tort liability refers to the legal responsibility imposed on an individual or entity for causing harm to another party through their actions or omissions without consent. It encompasses a broad range of wrongful acts, including negligence, intentional torts, and strict liability offenses. The key elements of tort liability typically include duty of care, breach of that duty, causation, and damages suffered by the injured party.

In the realm of artificial intelligence (AI), tort liability becomes significant as AI systems increasingly perform tasks that were traditionally carried out by humans. When these systems cause harm, such as accidents, privacy invasions, or financial losses, determining who is liable can be complex due to the nature of AI as autonomous agents. The traditional principles of tort law must adapt to address issues of control, foreseeability, and the extent of human oversight over AI operations.

**3. What is product liability? How can it be relevant in the AI context?**

**Product liability is the legal responsibility of a product manufacturer, seller or service provider for damage caused to consumers or third parties as a result of defects in their products. Such liability is usually based on the safety and intended use of the product, ensuring that the safety of the consumer's person and property is not infringed upon when the product is used.**

**Product liability becomes particularly complex in the field of AI, where the autonomy and learning capabilities of AI systems can lead to unpredictable behaviour.Defects in AI products may stem from algorithmic errors, data bias or poor system design, and these defects may not become apparent until after the product has been placed on the market. As a result, the traditional legal framework for product liability may not be sufficient to address the risks specific to AI products.**

**4. What is strict liability? How can it be relevant in the AI context?**

**Strict liability is a legal principle according to which certain actors may be held liable for damage caused by their behaviour even if they are not at fault. Such liability usually applies to activities that are considered inherently dangerous, such as transporting hazardous materials, using explosives or engaging in other behaviour that could result in serious harm. Under strict liability, the intent, fault or negligence of the defendant is not the key factor in determining his or her liability.**

**The concept of strict liability has become particularly important in the field of AI because the complexity and autonomy of AI systems can lead to unpredictable behaviours that can sometimes result in injury to persons or damage to property. If an AI system is deemed to perform inherently dangerous activities, then the developer, owner or operator may face strict liability. This means that they may be liable for the misbehaviour of the AI system, whether or not they were able to foresee or control it**

1. **What is a "robo-advisor"? Which liability issues can its use raise?**

AI systems are now used on a routine basis to produce professional ad

vice with either limited or no human invention, including in the fields of

medicine, finance and law.1203 Such AI-enabled systems come with vari

ous labels.

strict liability

product liability

**6. Which future liability frameworks for AI are contemplated for introduction?**

Insurance

Turing Registries

**Individuation or AI**

**7. Should people be fully responsible for their intelligent agents?**

**The question of the legal liability of intelligent agents is a complex one, especially when it comes to whether their behaviour should be regarded as "behaviour" in the legal sense.**

**I think that when the problem comes from the intelligent agent itself, the main person to take responsibility should be the designer of the intelligent agent or the provider of the service. However, if the intelligent agent is used improperly, the responsibility should mainly be borne by the user.**

**8. Should an AI system be permitted to own property?**

**Whether artificial intelligence (AI) should be allowed to have property rights is a complex legal and ethical issue. Currently, most legal systems grant property rights to natural or legal entities, while the legal status of AI as non-biological entities is not yet clear. Some experts and scholars have suggested that if AIs are able to demonstrate human-like creativity and autonomy, they should be granted some form of legal recognition, including property ownership. But as of now, the answer to this question is no**

**SECTION 21: CRIMINAL LIABILITY**

**1. Why might it be possible that (in the future) criminal liability may be faced**

**by developers or manufacturers of AI systems that cause serious bodily**

**injury or death of people?**

**Developers and manufacturers may face criminal liability for serious injuries or deaths caused by the AI systems they design and produce, stemming primarily from factors such as product liability, negligence, adaptation of legal frameworks, and public pressure.**

**SECTION 22: THE USE OF AI IN THE CRIMINAL JUSTICE SYSTEM**

**1. How can AI be used in the criminal justice system?**

AI, and in particular are machine learning systems, increasingly used in

the criminal justice system – specifically in relation to the sentencing of

crimes.

For example

In the criminal justice system, AI is now being used in the United States

to make sentencing, bail and parole decisions for prisoners and starts be

ing used in other countries, including the UK and China.

**SECTION 23: AI, EMPLOYMENT AND TAXES**

**1. Which effect can AI have on employment? How does this effect, negatively affect a state's tax revenue?**

**SECTION 24: AI, COMPANIES AND COMPANY LAW**

**1. Can an AI system be appointed as a company director/board member?**

**The answer is no**

**Whilst AI systems are not currently able to act directly as company directors, their application in boardroom decision-making and assisted management is progressively being explored and utilised.**

**2. Can a company director delegate duties to an AI?**

**Despite the potential of AI to aid decision-making in corporate governance, there is still legal uncertainty about directors delegating duties exclusively to AI, and directors need to use AI with caution and maintain oversight of decision-making.**

**SECTION 26: THE USE OF AI IN THE LEGAL PROFESSION**

**1. What is "legal technology" ("Legal Tech")?**

**Legal technology (also known as "Legal Tech") traditionally refers to the**

**use of technology and in particular computer programs/software to help**

**law firms, eg with practice management, billing, electronic discovery**

**.**

**2. How respectively for what can AI be used in the practice of law, e which**

**AI applications exist for the legal profession? List at least 3, choose one**

**and discuss it.**

**Can be used for contract review, legal research and predictive analyses**

**With regard to contract review, such software is usually based on advanced text-analysis technology that can identify key terms in a contract and compare them with predefined legal standards. For example, AI can detect the liability for breach of contract, termination conditions, and dispute resolution mechanisms in a contract to ensure its legality and enforceability. In addition, the contract review software is able to learn from itself as legal practices are updated, constantly improving the accuracy and efficiency of the review. This application not only saves lawyers' time, but also helps reduce potential legal risks.**

**3. How can AI be used in dispute resolution?**

Such systems employ game theory, analysis of successful outcomes,

and negotiation strategies to resolve issues using methodology that liti

gants perceive to be objective and unbiased, making them more amena

ble to settlement

**SECTION 27: THE USE OF AI IN INTERNATIONAL ARBITRATION**

**1. How can AI be used in the preparation of an arbitration?**

Start-ups providing analytics related to international arbitration and medi

ation are working with arbitration and mediation service providers world

wide. They use standard questionnaires to collect data based on thou

sands of cases that can then be segmented by categories such as re

gion, case types and rules used. This allows access to detailed infor

mation such as average arbitration institution fees, average total arbitra

tor fees, legal costs awarded, the extent of the use of e-discovery and

whether emergency arbitrators were involved. All these aggregated data,

which were previously unavailable or difficult to access, show patterns

and trends that can be used for different purposes such as cost assess

ment, risk management, deciding budgets and designing case strategies.

**The main applications of artificial intelligence in arbitration preparation include automated document production, data analysis and evidence mining, legal decision prediction, assisted decision-making, optimisation of the arbitration process, increased transparency and fairness, language translation and cross-cultural communication, and risk assessment and compliance checking. Through these applications, AI can not only speed up the arbitration preparation process, but also improve the quality and efficiency of arbitration while reducing costs and error rates. As AI technology continues to evolve, its application in the arbitration field will become even broader and deeper**

**2. How could AI be used by arbitrators instead of a tribunal secretary?**

**The main applications of artificial intelligence in arbitration preparation include automated document production, data analysis and evidence mining, legal decision prediction, assisted decision-making, optimisation of the arbitration process, increased transparency and fairness, language translation and cross-cultural communication, and risk assessment and compliance checking. Through these applications, AI can not only speed up the arbitration preparation process, but also improve the quality and efficiency of arbitration while reducing costs and error rates. As AI technology continues to evolve, its application in the arbitration field will become even broader and deeper**

1. **How could AI be used by arbitrators drafting an award?**

**Artificial intelligence in the writing of arbitral awards through the integration of natural language processing technology and specialised databases can improve efficiency and consistency, assisting arbitrators with complex legal analysis and structured argumentation, while needing to ensure data privacy and security, thus enhancing the quality and transparency of awards.**

**4. What would be the advantages of having an AI as arbitrator instead of a**

**human arbitrator?**

**Advantages of Artificial Intelligence as an Arbitrator**

**Artificial intelligence (AI) as an arbitrator has multiple potential advantages over human arbitrators. Firstly, AI can provide greater efficiency and consistency as they are able to quickly process large amounts of data and apply uniform legal rules and standards to analyse cases. Second, AI arbitration systems can reduce human bias and error by being programmed to ensure objectivity and fairness in the decision-making process. In addition, AI technology can supplement or even replace traditional arbitration processes, such as understanding complex legal documents and oral presentations through natural language processing techniques.**

**AI can also provide predictive analyses to help parties understand the likelihood of an award, thereby facilitating settlement negotiations. This predictive capability is based on machine learning algorithms that can improve their accuracy based on historical case data. Finally, AI arbitration systems can reduce costs because they can automate many of the tasks that traditionally need to be done manually, reducing reliance on expensive legal professionals.**

**Although the use of AI in arbitration is still in the developmental stage, these benefits are expected to be further realised as technology advances and could reshape the future of dispute resolution.**