

翻译对比

原文 (Original Text)

COMPSCI4004/COMPSCI5087AI(H/M) COMPSCI4004/COMPSCI5087 AI (H/M) Week 2:
Introduction and Foundations Debasis Ganguly 1 University of Glasgow, Glasgow, UK
September 30, 2024 D.Ganguly COMPSCI4004/COMPSCI5087AI(H/M)

COMPSCI4004/COMPSCI5087AI(H/M) Overview Course Introduction What is AI? Why is AI
difficult? Agents-Centric view of AI Rationality of Agents Environment Types Agent types
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COMPSCI4004/COMPSCI5087AI(H/M) Course Introduction Lecturers and Time table ►
Lecturers: ► Dr. Debasis Ganguly, Debasis.Ganguly@glasgow.ac.uk (course coordinator).
► Dr. Edmond S. L. Ho, Shu-Lim.Ho@glasgow.ac.uk ► GTAs (for lab support): ► Jie Wang ►
Yuxuan Xie ► Lectures: Mondays: 15:00-17:00 at Boyd Orr - Room 412 (LC01) ► Lab sessions:
Mondays: 09:00-11:00 (you will be allocated specific 1 hour timeslot) at BOYD ORR 720 ►
Open Hours: ► Edmond Ho - Friday 12 noon - 1 PM, SAWB 402, Sir Alwyn Williams Building. ►
Debasis Ganguly - Friday 2 PM - 4 PM, M111 Sir Alwyn Williams Building. D.Ganguly
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COMPSCI4004/COMPSCI5087AI(H/M) Course Introduction Course Information ► AI (H and
M): Overview of intelligent agent design. ► Fundamental concepts of AI. ► We' ll explain
various stages and complexities of an agent-driven model that interacts with an
environment and makes sequence of rational decisions. ► Non-examinable materials: ►
Recent advancements in AI. ► Responsible AI (explainability, trustworthiness and fairness).
► Labs: ► Labs in Week will be based on the lecture notes covered in Week -1. ► Labs
aren' t graded but you should complete the exercises. We will release the solutions the
next day. D.Ganguly COMPSCI4004/COMPSCI5087AI(H/M)

COMPSCI4004/COMPSCI5087AI(H/M) Course Introduction Intended outcomes 1.
Demonstrate familiarity with the history of AI, philosophical debates, and understand the
potential and limitations of the subject in its current form. 2. Explain the basic components
of an intelligent agent, and be able to map these onto other specific subjects such as
information retrieval, computer vision, human-computer interaction etc. 3. Discuss basic
issues in planning and rational decision making. 4. Explain and apply search-based
problem-solving techniques. 5. Formulate and apply Bayesian networks in modelling and
planning. 6. Explain and apply utility theory as probabilistic framework for rational decision
making. 7. Explain and apply reinforcement learning techniques to learn from rewards and
observations. D.Ganguly COMPSCI4004/COMPSCI5087AI(H/M)

COMPSCI4004/COMPSCI5087AI(H/M) Course Introduction Road Map of Weekly Teachings
2. Introduction and Foundations 3. Deterministic problems - search and optimisation 4. Stochastic Problems, Probability and Knowledge Representation 5. Decision-making under uncertainty 6. Sequential decision-making under uncertainty - MDPs 7. Learning from rewards and observations - basic Reinforcement Learning 8. Learning from rewards and observations - Reinforcement Learning with linear and non-linear function approximation 9. Learning from rewards and observations - improved DQN and policy search (with function approximation) 10. Explainable AI/ Artificial General Intelligence (AGI) 11. Practical Problem Solving and Revision D.Ganguly COMPSCI4004/COMPSCI5087AI(H/M)

COMPSCI4004/COMPSCI5087AI(H/M) What is AI? Four Different Viewpoints Thinking Humanly Thinking Rationally Acting Humanly Acting Rationally ► The most popular view-point: Acting Humanly - the Turing Test approach. ► Natural Language Processing: Communication. ► Knowledge Representation: Relations between entities. ► Automated Reasoning: Use the stored information to answer questions and draw new conclusions. ► Machine learning: Adapt to new circumstances and extrapolate patterns. ► Computer vision: Perceive objects and scenes ► Robotics: Manipulate objects. D.Ganguly COMPSCI4004/COMPSCI5087AI(H/M)

COMPSCI4004/COMPSCI5087AI(H/M) What is AI? Mentimeter Go to [mentimeter.com](https://www.mentimeter.com); use code '4760 0586' . D.Ganguly COMPSCI4004/COMPSCI5087AI(H/M)

COMPSCI4004/COMPSCI5087AI(H/M) What is AI? Example AI Systems ► IBM' s Deep Blue defeats Garry Kasparov, the world champion in chess in 1997. ► Modern chess engines like Alpha-Zero, StockFish etc. are much better than human players: ≈ 3500 ELO as compared to ≈ 2830 of Magnus Carlsen! D.Ganguly COMPSCI4004/COMPSCI5087AI(H/M)

COMPSCI4004/COMPSCI5087AI(H/M) What is AI? Example AI Systems ► IBM' s Watson system competed on Jeopardy! winning the first-place prize of 1 million USD. ► Leverages NLP/Information Retrieval and Knowledge-bases for effective Question Answering. D.Ganguly COMPSCI4004/COMPSCI5087AI(H/M)

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翻译 (Translation)

COMPSCI4004/COMPSCI5087 人工智能 (荣誉/硕士) COMPSCI4004/COMPSCI5087 人工智能 (荣誉/硕士) 第2周：介绍与基础 Debasis Ganguly 11 格拉斯哥大学，英国格拉斯哥
2024年9月30日 D. Ganguly COMPSCI4004/COMPSCI5087 人工智能 (荣誉/硕士)

COMPSCI4004/COMPSCI5087 人工智能 (荣誉/硕士) 概览 课程介绍

什么是人工智能。为什么人工智能很难。基于代理的人工智能视角 代理的合理性 环境类型 代理类型
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COMPSCI4004/COMPSCI5087 人工智能 (荣誉/硕士) 课程介绍 讲师和时间表 ▶ 讲师: ▶ Dr. Debasis Ganguly, Debasis.Ganguly@glasgow.ac.uk (课程协调人) 。 ▶ Dr. Edmond S. L. Ho, Shu-Lim.Ho@glasgow.ac.uk ▶ 实验室助教 (提供实验室支持): ▶ Jie Wang ▶ Yuxuan Xie ▶ 讲座: 星期一: 15:00-17:00 在 Boyd Orr - 房间 412 (LC01) ▶ 实验课: 星期一: 09:00-11:00 (您将被分配特定的一小时时间段) 在 BOYD ORR 720 ▶ 办公时间: ▶ Edmond Ho - 星期五中午12点至下午1点, SAWB 402, Sir Alwyn Williams Building

▶ Debasis Ganguly - 星期五 下午2点至4点, M111 Sir Alwyn Williams Building 。 D. Ganguly COMPSCI4004/COMPSCI5087AI(H/M)

COMPSCI4004/COMPSCI5087AI(H/M) 课程介绍 课程信息 ▶ AI (H和M) : 智能代理设计概述。
▶ AI的基本概念。 ▶

我们将解释与环境交互并做出的一系列理性决策的代理驱动模型的各种阶段和复杂性。 ▶

非考试内容: ▶ AI的最新进展。 ▶ 负责任的AI (可解释性、可信度和公平性) 。 ▶ 实验室: ▶ 每周的实验室基于前一周讲义中涵盖的内容。 ▶

实验室不计分, 但你应该完成练习。我们将在次日发布答案。 D. Ganguly

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COMPSCI4004/COMPSCI5087AI(H/M) 课程介绍 预期成果 1.

展示对AI历史、哲学辩论的熟悉程度, 并理解当前形式下该学科的潜力和局限性。

解释智能代理的基本组成部分, 并能够将这些概念映射到其他特定领域, 如信息检索、计算机视觉、人机交互等。3. 讨论规划和理性决策中的基本问题。4. 解释并应用基于搜索的问题解决技术。5. 建立并应用贝叶斯网络进行建模和规划。6. 解释并应用效用理论作为理性决策的概率框架。7. 解释并应用强化学习技术从奖励和观察中学习。 D. Ganguly

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COMPSCI4004/COMPSCI5087AI(H/M) 课程介绍 每周教学路线图 2. 引言与基础 3. 确定性问题 - 搜索与优化 4. 随机问题、概率与知识表示 5. 不确定条件下的决策制定 6. 不确定条件下顺序决策 - MDPs 7

从奖励和观察中学习 - 基础强化学习 8. 从奖励和观察中学习 - 使用线性和非线性函数逼近的强化学习 9. 从奖励和观察中学习 - 改进的DQN和策略搜索 (带函数逼近) 10.

可解释的人工智能/通用人工智能(AGI) 11. 实际问题解决与复习 D. Ganguly

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COMPSCI4004/COMPSCI5087AI(H/M) 什么是人工智能。四种不同的观点 以人类的方式思考
以理性的方式思考 以人类的方式行动 以理性的方式行动 ► 最受欢迎的观点：以人类的方式行动 -
图灵测试方法。 ► 自然语言处理：交流。 ► 知识表示：实体之间的关系。 ►
自动推理：利用存储的信息来回答问题并得出新的结论。 ► 机器学习：适应新环境并推断模式。 ►
计算机视觉：感知物体和场景。 ► 机器人学：操控物体。

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