CS 747, Autumn 2020: Week 0, Lecture 1

Shivaram Kalyanakrishnan

Department of Computer Science and Engineering Indian Institute of Technology Bombay

Autumn 2020

• Are you wondering: "Should I register for this course or not?"

- Are you wondering: "Should I register for this course or not?"
- How can you make the right decision, especially since you are uncertain about
 - how much time you'll be able to devote to it;
 - whether you have sufficient background;
 - the course's relevance to your future plans;
 - whether the topics will be interesting;
 - whether the videos will induce sleep;
 - all the same questions about other courses you could do instead?!

- Are you wondering: "Should I register for this course or not?"
- How can you make the right decision, especially since you are uncertain about
 - how much time you'll be able to devote to it;
 - whether you have sufficient background;
 - the course's relevance to your future plans;
 - whether the topics will be interesting;
 - whether the videos will induce sleep;
 - all the same questions about other courses you could do instead?!
- Life is full of uncertainty, and yet life is full of decisions!

- Are you wondering: "Should I register for this course or not?"
- How can you make the right decision, especially since you are uncertain about
 - how much time you'll be able to devote to it;
 - whether you have sufficient background;
 - the course's relevance to your future plans;
 - whether the topics will be interesting;
 - whether the videos will induce sleep;
 - all the same questions about other courses you could do instead?!
- Life is full of uncertainty, and yet life is full of decisions!
- This course—"Foundations of Intelligent and Learning Agents"—is about decision making in the face of uncertainty.

- Are you wondering: "Should I register for this course or not?"
- How can you make the right decision, especially since you are uncertain about
 - how much time you'll be able to devote to it;
 - whether you have sufficient background;
 - the course's relevance to your future plans;
 - whether the topics will be interesting;
 - whether the videos will induce sleep;
 - all the same questions about other courses you could do instead?!
- Life is full of uncertainty, and yet life is full of decisions!
- This course—"Foundations of Intelligent and Learning Agents"—is about decision making in the face of uncertainty.
- If you want to decide in a principled way whether to take this course,

- Are you wondering: "Should I register for this course or not?"
- How can you make the right decision, especially since you are uncertain about
 - how much time you'll be able to devote to it;
 - whether you have sufficient background;
 - the course's relevance to your future plans;
 - whether the topics will be interesting;
 - whether the videos will induce sleep;
 - all the same questions about other courses you could do instead?!
- Life is full of uncertainty, and yet life is full of decisions!
- This course—"Foundations of Intelligent and Learning Agents"—is about decision making in the face of uncertainty.
- If you want to decide in a principled way whether to take this course, you need to first take this course!

- Multi-armed bandits
- Markov Decision Problems
- Reinforcement learning
- Multi-agent systems/learning

- Multi-armed bandits
 - The "explore or exploit" tradeoff.
- Markov Decision Problems
- Reinforcement learning
- Multi-agent systems/learning

- Multi-armed bandits
 - The "explore or exploit" tradeoff.
- Markov Decision Problems
 - Sequential decision making.
- Reinforcement learning
- Multi-agent systems/learning

- Multi-armed bandits
 - The "explore or exploit" tradeoff.
- Markov Decision Problems
 - Sequential decision making.
- Reinforcement learning
 - Learning by trial and error, reward and punishment, to optimise long-term gain.
- Multi-agent systems/learning

- Multi-armed bandits
 - The "explore or exploit" tradeoff.
- Markov Decision Problems
 - Sequential decision making.
- Reinforcement learning
 - Learning by trial and error, reward and punishment, to optimise long-term gain.
- Multi-agent systems/learning
 - Decision making in the presence of other decision-makers.

- Multi-armed bandits
 - The "explore or exploit" tradeoff.
- Markov Decision Problems
 - Sequential decision making.
- Reinforcement learning
 - Learning by trial and error, reward and punishment, to optimise long-term gain.
- Multi-agent systems/learning
 - Decision making in the presence of other decision-makers.
- Applications in game playing, robotics and control, planning and scheduling on-line advertising, autonomous navigation, etc.

- Multi-armed bandits
 - The "explore or exploit" tradeoff.
- Markov Decision Problems
 - Sequential decision making.
- Reinforcement learning
 - Learning by trial and error, reward and punishment, to optimise long-term gain.
- Multi-agent systems/learning
 - Decision making in the presence of other decision-makers.
- Applications in game playing, robotics and control, planning and scheduling on-line advertising, autonomous navigation, etc.

We will consider some case studies as a part of the course.

Multi-armed bandits

The "explore or exploit" tradeoff.

Markov Decision Problems

Sequential decision making.

Reinforcement learning

Learning by trial and error, reward and punishment, to optimise long-term gain.

Multi-agent systems/learning

Decision making in the presence of other decision-makers.

 Applications in game playing, robotics and control, planning and scheduling on-line advertising, autonomous navigation, etc.

We will consider some case studies as a part of the course.

 Previous years' course pages have weekly schedule, readings, references, assignments, assessments. Take a look.

Multi-armed bandits

The "explore or exploit" tradeoff.

Markov Decision Problems

Sequential decision making.

Reinforcement learning

Learning by trial and error, reward and punishment, to optimise long-term gain.

Multi-agent systems/learning

Decision making in the presence of other decision-makers.

 Applications in game playing, robotics and control, planning and scheduling on-line advertising, autonomous navigation, etc.

We will consider some case studies as a part of the course.

 Previous years' course pages have weekly schedule, readings, references, assignments, assessments. Take a look.

Happy decision making!