

# Artificial Intelligence

## Module 1 : AI to Solve Search Problems

Tuesdays & Thursdays  
from the 7<sup>th</sup> of May 2019  
till the 13<sup>th</sup> of June 2019  
5:00 PM to 8:30 PM

USJ Liban, Campus des Sciences et des  
Technologies (CST)  
Faculté d'ingénierie : ESIB - INCI

Presentation of artificial intelligence as a coherent body of ideas and methods to acquaint the audience with the basic programs in the field. Participants will explore this through problem-solving paradigms, search and control methods and adversarial search problems.



### Key benefits:

solve search and planning problems with and without adversary.



### Learning outcomes:

- Implement uninformed search BFS, DFS and UCS
- Use informed search to improve previous algorithms (A\*)
- Generalize your algorithms to games or situations where you have an adversary.



Université Saint-Joseph de Beyrouth  
Bureau du Développement Régional  
et des Programmes Externes



Faculté d'ingénierie  
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<https://www.usj.edu.lb/fc/inscription.php?cursus=2501>



## Content

### Uninformed and Informed search

- BFS
- DFS
- UCS
- A\*

### Adversarial Search

- Minimax
- Expecimax
- Expectiminimax



## Tools

- Python



## Teaching method:

- Interactive methods: Slide presentations, programming examples.
- Lab sessions to implement all algorithms



**Dr. George E. Sakr** received the BE degree (with distinction) in electrical and electronics engineering from Lebanese University, Roumieh, in 2005, the MS degree in networking and telecommunications from the joint program between the Lebanese University and St. Joseph University of Beirut in 2007 and the PhD degree in Machine Learning from the American University of Beirut in 2011. Between 2011 and 2015 George was a Lecturer at AUB and the Lebanese American University as well as a post-doctoral fellow at the Medical Center of the American University of Beirut where he worked on applying machine learning for precision medicine. Since 2015, George has been an assistant professor at St Joseph University of Beirut. His research interests include artificial intelligence, machine learning, human machine interfacing, and application of machine learning for precision medicine. He is a member of the IEEE since 2008. He has more than 20 journal and conference publications in the domain of machine learning and heart healthcare.

- | **Target audiences** : Alumni | Professionals
- | **Main language of the training** : English
- | **Approximate cost per participant** : 990\$
- | **Credit equivalence**: 4 credits of Masters
- | **Minimum – Maximum number of participants** : 15-25

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