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MOHAMED BIN ZAYED
UNIVERSITY OF
ARTIFICIAL INTELLIGENCE

**GRADUATE PROGRAMS
ACADEMIC YEAR
2020 - 2021**

www.MBZUAI.ac.ae



PROFESSOR SIR MICHAEL BRADY

INTERIM PRESIDENT OF MOHAMED BIN ZAYED UNIVERSITY
OF ARTIFICIAL INTELLIGENCE

Our aim is to make MBZUAI more than a university. Our goal is to introduce a new model of academia and research in the field of AI.

As part of our campus in Abu Dhabi, whether as a student or faculty, you will have a role to play in shaping not only this new academic model, but the future of our AI-driven society.

MBZUAI provides graduate students and faculty with access to some of the world's most advanced AI systems and state-of-the-art labs. Students will also learn from a world-class faculty, supported by a Board of Trustees comprising individuals who are on the cutting-edge of international AI development.

Our partnership with the Inception Institute of Artificial Intelligence (IIAI), a global driving force in excellence and leadership of AI research, will further augment student's research and PhD work.

Our goal is to encourage the development of real-world AI applications in collaboration with industry and public institutions. We want to demonstrate the immense potential of AI as a force for good.

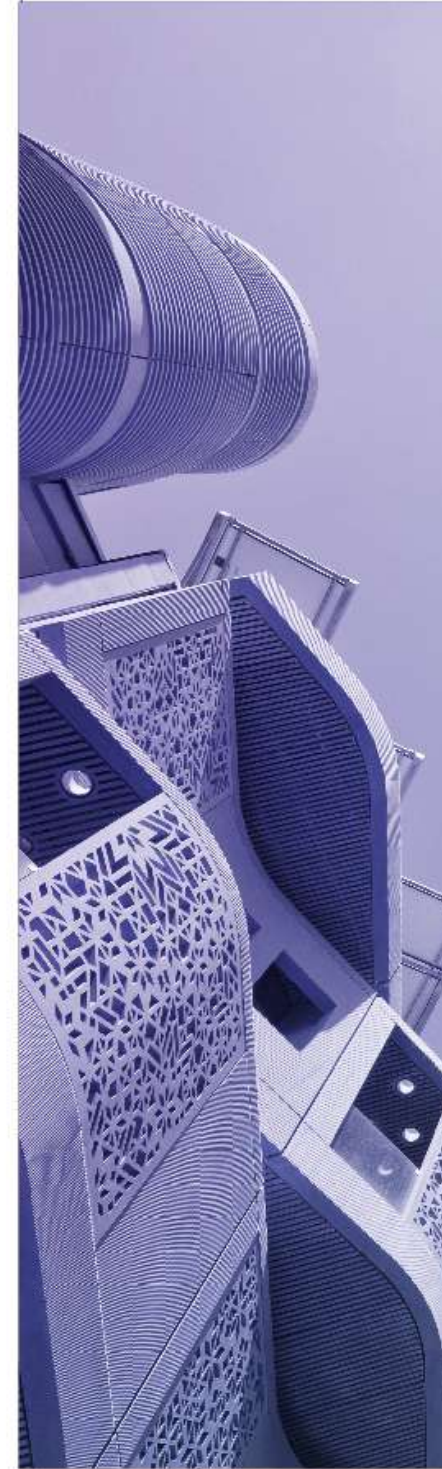
Moreover, we will create experiences for students that bridge the gap between the classroom and the workforce.

By doing so, MBZUAI will enable its students to explore AI's potential to the fullest, as they earn their positions as trusted advisors in global matters related to AI.

Read more about our Leadership on www.mbzuai.ac.ae/about

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ABOUT MBZUAI

The Mohamed bin Zayed University of Artificial Intelligence (MBZUAI) in Abu Dhabi, is a graduate-level, research focused academic institution that offers specialized degree programs for local and international students in the field of Artificial Intelligence. MBZUAI aims to support the advancement of scientific research, development, transfer, and use of Artificial Intelligence through the introduction of MSc and PhD programs that allow students to fulfill their intellectual potential in a state-of-the-art environment. The goal of MBZUAI is to achieve academic and research excellence at the local, regional and international level, helping its students succeed in their career and leverage their acquired knowledge to tackle some of the greatest challenges of our time.

WHY CHOOSE MBZUAI

Our Uniqueness. Your Edge.

RESEARCH FOCUSED

The Mohamed bin Zayed University of Artificial Intelligence is the first AI-focused research university in the world. MBZUAI has partnered with the Abu Dhabi-based Inception Institute of Artificial Intelligence (IIAI), a global force in excellence and leadership of AI research, for the supervision of PhD students and curriculum development

THE CAMPUS

MBZUAI is fully integrated with the city of Abu Dhabi, a vibrant capital which combines heritage with a modern lifestyle. The campus, located in Masdar City - one of the world's most sustainable urban communities - offers state-of-the-art facilities, labs and research centers providing a unique environment in which to conduct your research.

SCHOLARSHIP

MBZUAI offers full scholarship that covers 100% tuition fees and other benefits such as a monthly stipend, health insurance, and accommodation.

PROFESSIONAL OPPORTUNITIES

MBZUAI strong connections with the national Government, the industry and the academic world, provide a platform for our students to connect with a network of strategic partners to gain tremendous experiences through possible internships in fields such as healthcare, telecommunication, technology, Government, finance and much more. The perfect gateway to successfully drive your professional development.

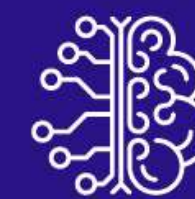
INTERNATIONAL ENVIRONMENT

MBZUAI is the best university for your research stay. Applicants from all countries and nationalities are welcome as the admission and acceptance to the programs will be based on high academic standing and merit. By creating an international campus environment, MBZUAI aims to promote a culture of inclusion and development.

Read more on MBZUAI on www.mbzuai.ac.ae/study

MBZUAI OFFERS

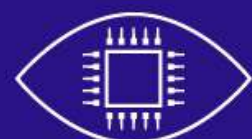
MSC AND PHD PROGRAMS
ACROSS 3 MAIN SPECIALIZATIONS



MACHINE LEARNING (ML)



The scientific study of algorithms and statistical models that computer systems use to effectively perform a specific task without using explicit instructions, relying on patterns and inference instead. These algorithms are based on mathematical models learned automatically from data, thus allowing machines to intelligently interpret and analyze input data to derive useful knowledge and arrive at important conclusions. Machine learning is heavily used for enterprise applications (e.g., business intelligence and analytics), effective web search, robotics, smart cities and understanding of the human genome.



COMPUTER VISION (CV)



This scientific field studies how computers can be used to automatically understand and interpret visual imagery. It aims to mimic the astounding capabilities of human visual cortex using machine vision algorithms. It studies how an image is created, the geometry of the 3D world and high-level tasks such as object recognition, object detection, and tracking, image segmentation and action recognition. Computer vision has important applications in augmented/virtual reality, autonomous cars, service robots, biometrics and forensics, remote sensing and security and surveillance.



NATURAL LANGUAGE PROCESSING (NLP) OPEN FOR ADMISSION FROM ACADEMIC YEAR 2021-2022



NLP focuses on system development that allows computers to communicate with people using everyday language. Natural language generation systems convert information from the computer database into readable or audible human language and vice versa. Such systems also enable sophisticated tasks such as inter-language translation, semantic understanding, text summarization and holding a dialog. The key applications of NLP algorithms include interactive voice response applications, automated translators, digital personal assistants (e.g., Siri, Cortana, Alexa), chatbots and smart word processors.

MSc PROGRAMS

The minimum degree requirements for MBZUAI MSc programs are 35 Credits, distributed as follows:

CORE COURSES

4 COURSES

12 CREDIT HOURS

ELECTIVE COURSES

2 COURSES

12 CREDIT HOURS

RESEARCH THESIS

1 COURSE

12 CREDIT HOURS

MASTER OF SCIENCE IN MACHINE LEARNING

Upon completion of the program requirements, the graduate will be able to:

1. Exhibit highly specialized understanding of the modern machine learning pipeline: data, models, algorithmic principles, and empirics.
2. Achieve advanced skills in data-preprocessing and using various exploration and visualization tools.
3. Demonstrate critical awareness of the capabilities and limitations of the different forms of learning algorithms.
4. Obtain advanced capabilities to critically analyze, evaluate, and continuously improve the performance of learning algorithms.
5. Acquire advanced abilities to analyze computational and statistical properties of advanced learning algorithms and their performance.
6. Gain expertise in using and deploying machine learning-relevant programming tools for a variety of complex machine learning problems.
7. Develop advanced problem-solving skills through independently applying machine learning methods to multiple complex problems, and demonstrate expertise in dealing with ambiguity in a problem statement.
8. Apply sophisticated skills in initiating, managing, and completing multiple project reports and critiques on variety of machine learning methods, that demonstrate expert understanding, self-evaluation, and advanced skills in communicating highly complex ideas.

For more details on this program scan this Qr code



MASTER OF SCIENCE IN COMPUTER VISION

Upon completion of the program requirements, the graduate will be able to:

1. Exhibit comprehensive and highly specialized knowledge of computer vision in line with the underlying mathematical and computational principles.
2. Perform critical literature survey and develop new ideas by integrating multidisciplinary knowledge.
3. Apply advanced problem-solving skills to analyze, design and execute solutions for the existing and new problems in computer vision faced by both industry and academia.
4. Become highly skilled in initiating, managing, and completing multifaceted computer vision projects, and be able to clearly communicate concepts, complex ideas and conclusions both orally and in the form of technical reports.
5. Function independently and in a team to address computer vision problems under complex and unpredictable real-world settings.
6. Demonstrate a fundamental understanding of computer vision discipline at an advanced level suitable to pursue a PhD degree and contribute to cutting-edge computer vision research to produce new knowledge or take responsibility to lead innovative and impactful computer vision projects in the industry.
7. Manifest the right learning attitude during coursework and research that clearly shows ownership, personal and technical growth and responsibility.
8. Understand legal, ethical, environmental and socio-cultural ramifications of computer vision technologies, and be able to make informed and fair decisions on complex practical issues.

For more details on this program
scan this QR code



MASTER OF SCIENCE IN NATURAL LANGUAGE PROCESSING (NLP)

Available from academic year 2020-2021

Upon completion of the program requirements, the graduate will be able to:

1. Demonstrate a highly specialized understanding of the computational techniques for analyzing and modeling textual and speech data with applications to real-world scenarios.
2. Have a deep understanding of the syntactic and semantic structures in speech and textual data (e.g. the predicate-argument structure).
3. Obtain advanced capabilities to implement the cutting-edge NLP algorithms, and benchmark the achieved results.
4. Have the capability to formulate their own research questions, analyze the existing body of knowledge, propose and develop solutions to new problems.
5. Obtain expertise in using and deploying NLP-related programming tools for a variety of NLP problems.
6. Work independently as well as part of a team, in a collegial manner, on NLP related projects.
7. Effectively communicate experimental results and research findings orally and in writing, and critique existing body of work.

For more details on this program
scan this QR code



PHD PROGRAMS

The minimum degree requirements for MBZUAI PhD programs are 59 Credits, distributed as follows:

CORE COURSES

4 COURSES

15 CREDIT HOURS

ELECTIVE COURSES

2 COURSES

8 CREDIT HOURS

RESEARCH THESIS

1 COURSE

36 CREDIT HOURS

DOCTOR OF PHILOSOPHY IN MACHINE LEARNING

Upon completion of the program requirements, the graduate will be able to:

1. Obtain rigorous mathematical background and advanced reasoning capabilities to express comprehensive and deep understanding of the pipelines at the frontier of machine learning: data, models, algorithmic principles and empirics.
2. Master a range of skills and techniques in data-preprocessing, exploration, and visualization of data-statistics as well as complex algorithmic outcomes.
3. Have a critical awareness of the capabilities and limitations of the different forms of learning algorithms and the ability to critically analyze, evaluate, and improve the performance of the learning algorithms.
4. Grow expert problem-solving skills through independently applying the principles and methods learned in the program to various complex real-world problem.
5. Develop a deep understanding of statistical properties and performance guarantees including convergence rates (in theory and practice) for different learning algorithms.
6. Become an expert in using and deploying machine learning-relevant programming tools for a variety of machine learning problems.
7. Grow proficiency in identifying the limitations of existing machine learning algorithms and the ability to conceptualize, design, and implement an innovative solution for a variety of highly complex problems to advance the state-of-the-art in machine learning.
8. Able to initiate, manage, and complete research manuscripts that demonstrate expert self-evaluation and advanced skills in communicating highly complex ideas related to machine learning.
9. Obtain highly sophisticated skills in initiating, managing, and completing multiple project reports and critiques on a variety of machine learning methods, that demonstrates expert understanding, self-evaluation, and advanced skills in communicating highly complex ideas.

For more details on this program scan this QR code



DOCTOR OF PHILOSOPHY IN COMPUTER VISION

Upon completion of the program requirements, the graduate will be able to:

- 1.** Master the fundamental knowledge of computer vision and develop expertise in several specialized areas of research in computer vision.
- 2.** Grow expertise in comprehending existing literature, apply reasoning, and master the necessary skills and techniques to develop novel ideas that are recognized by the experts of the computer vision discipline.
- 3.** Apply advanced problem-solving skills to analyze, design and execute innovative solutions for the existing and/or new problems faced in both industry and academia.
- 4.** Highly skilled in initiating, managing and completing technically challenging computer vision projects and be able to clearly communicate concepts, highly complex ideas and key findings in the form of technical reports, scientific publications and oral presentations at relevant technical venues.
- 5.** Become an expert in selecting and using programming tools, libraries, and other relevant resources to solve real-world computer vision problems.
- 6.** Develop an advanced ability to work independently with substantial authority or in team collaboration with professional integrity to complete highly challenging computer vision projects in a timely manner.
- 7.** Develop a deep understanding of the existing body of knowledge and the ability to develop new knowledge in computer vision that makes students suitable for a role in academia or industry.
- 8.** Practice research ethics and commit to professional responsibilities while conducting cutting edge advancements in computer vision discipline.
- 9.** Understand legal, ethical, environmental and socio-cultural ramifications of computer vision technologies, and be able to take a lead in making informed and fair decisions on complex issues.

For more details on this program
scan this Qr code



DOCTOR OF PHILOSOPHY IN NATURAL LANGUAGE PROCESSING

Available from academic year 2020-2021

Upon completion of the program requirements, the graduate will be able to:

- 1.** Develop a deep and comprehensive understanding of cutting-edge NLP algorithms with applications to real-life scenarios.
- 2.** Implement, evaluate and benchmark existing state-of-the-art in NLP scholarly publications and weigh in their respective pros and cons.
- 3.** Grow capabilities to identify open research problems, the gaps in the existing body of knowledge, and formulate new research questions.
- 4.** Independently develop innovative solutions, through extensive research and scholarship, to resolve unsolved research problems in high-impact real-life applications of NLP.
- 5.** Demonstrate expert knowledge and highly specialized cognitive and creative skills in NLP to deliver state of the art solutions to existing open research problems.
- 6.** Pursue an NLP project either independently, or as part of a team in a collegial manner, with minimal supervision.
- 7.** Initiate, manage, and complete research manuscripts that demonstrate expert self-evaluation and advanced skills in scientifically communicating highly complex ideas.
- 8.** Develop highly sophisticated skills in initiating, managing, and completing multiple project reports and critiques, on a variety of NLP problems, that demonstrate expert understanding and advanced skills in communicating highly complex ideas.

For more details on this program
scan this Qr code



ADMISSION CRITERIA

Applicants must satisfy the following minimum requirements to apply for MBZUAI programs:

FOR MSc PROGRAMS:

- **COMPLETED DEGREE:**
Bachelor of Science or equivalent from an accredited university or college recognized by the UAE Ministry of Education.
- **ACADEMIC TRANSCRIPTS:**
Student should be amongst the top 20% of the class. A minimum CGPA of 3.2 (on a 4.0 scale), or equivalent.
- **ENGLISH LANGUAGE:**
Internet-based TOEFL: Minimum overall score of 90, with 20 or above in each element, taken in one sitting, or IELTS (academic): Minimum grade of 6.5, with 6.0 or above in each element, taken in one sitting.
- **GRADUATE RECORD EXAMINATION (GRE):**
General score is a plus and would be considered in the evaluation of the applicants. (optional)
- **STATEMENT OF PURPOSE.**

FOR PhD PROGRAMS:

- **COMPLETED DEGREE:**
Master of Science or equivalent from an accredited university or college recognized by the UAE Ministry of Education.
- **ACADEMIC TRANSCRIPTS:**
Student should be amongst the top 20% of the class. A minimum CGPA of 3.2 (on a 4.0 scale), or equivalent.
- **ENGLISH LANGUAGE:**
Internet-based TOEFL: Minimum overall score of 90, with 20 or above in each element, taken in one sitting, or **IELTS (academic):** Minimum grade of 6.5, with 6.0 or above in each element, taken in one sitting.
- **GRADUATE RECORD EXAMINATION (GRE)**
General score is a plus and would be considered in the evaluation of the applicants. (optional)
- **STATEMENT OF PURPOSE.**
- **RESEARCH PROPOSAL.**

UNIVERSITY CALENDAR

This calendar notes important dates throughout MBZUAI academic year 2020/2021. MBZUAI academic year is divided into Two main semesters – Fall and Spring. Classes are held Sundays through Thursdays; the weekend days are Friday and Saturday.

OCCASION	DATE
Orientation & Registration	Sunday 16 August 2020 – Thursday 20 August 2020
First (Fall) Semester 2020	Sunday 23 August 2020 – Thursday 24 December 2020
Classes Start	Sunday 23 August 2020
Last day to add courses	Thursday 27 August 2020
Last day to drop courses	Thursday 27 August 2020
Last day of Class	* Sunday 20 December 2020
Grades Announced	* Thursday 24 December 2020
Second (Spring) Semester 2021	* Sunday 3 January 2021 – Thursday 13 May 2021
Classes Start	* Sunday 10 January 2021
Last day to add courses	* Thursday 14 January 2021
Last day to drop courses	* Thursday 14 January 2021
Last day of Class	* Sunday 9 May 2021
Grades Announced	* Thursday 13 May 2021

*Dates are tentative and might be updated over the course of the academic year.

Communicate with MBZUAI

through one of the following contacts:

General inquiries – info@mbzuai.ac.ae
Admission inquiries – admission@mbzuai.ac.ae
Career opportunities – careers@mbzuai.ac.ae

MBZUAI

is based in Abu Dhabi,
the capital of the United Arab Emirates (UAE).

The UAE is a young country that crowns its traditions and cultural beliefs with a solid vision towards a prosperous and productive future for all citizens and residents.

Studying and working in the UAE means first and foremost working in the very center of the Middle East's economic hub.

Abu Dhabi city is ruled by H. H. Sheikh Khalifa bin Zayed Al Nahyan, who is also the President of the UAE.

Abu Dhabi is a modern cosmopolitan city with towering skyscrapers, gleaming beaches, five-star entertainment, resplendent public parks, a budding art scene, and modern health and educational sectors.

The city is also one of the most open and progressive communities in the Gulf region, awarded as the safest city in the world for 3 years in a row.

**For more information about Abu Dhabi, please visit
<https://visitabudhabi.ae/ae-en/default.aspx>**