Artificial Intelligence for Enterprise Program

An eleven-week program covering artificial intelligence for IT professionals and business leaders

DePaul University's Artificial Intelligence for Enterprise Program is designed for IT professionals and business leaders who want to understand the fundamental principles of artificial intelligence (AI) and be able to apply them to their businesses. The program is suitable for IT professionals wanting to make the transition from business intelligence to artificial intelligence and bring their knowledge to the next level. AI is reshaping and revolutionizing the world—many different industries have already seen automation of business processes and significant disruptions in their business models because of AI. The program focuses on artificial intelligence, cognitive analytics, natural language processing (NLP), knowledge engineering, digital voice assistant/chatbot technologies, image/video recognition, robotics process automation (RPA), and augmented reality. In addition, the program also covers different APIs that are used in the industry relating to cloud and mobile applications.

Program content consists of lectures and demonstrations complemented with hands-on labs. Reading assignments, case studies, group discussions, and projects will be assigned. The program will prepare students with the necessary skills to create efficient AI applications to solve business problems and improve business processes.

In order to maximize learning, students will be required to bring their own laptop computer to every class session. Several cloud-based products for AI will be explored. While access to most of these cloud services will be provided to students in class, there may be some cloud services that are only accessible via the use of the student’s own credit card. Students should expect to spend a small fee to access these services.

YOU WILL BE ABLE TO:

- Understand digital transformation and use it to influence positive business outcomes
- Identify basic concepts, terminology, models, and methods in the field of AI
- Discuss the landscape of common AI use cases and various solutions across different lines of business
- Review real-world scenarios that are optimized through the practical use of AI
- Gain insight into the use of AI and advanced analytics to identify customer behavior patterns and make the best use of available data
- Develop artificial intelligence applications using cloud-based tools
- Use different bot frameworks to implement conversational bots and digital assistants
- Experiment with vision technology including facial recognition, object detection, etc.
- Gain real-world experience through lab work to demonstrate the skills learned
- Understand the capabilities provided by various cloud-based tools integrated with different artificial intelligence systems and APIs offered by Google, Amazon, Microsoft, IBM, etc.
### ARTIFICIAL INTELLIGENCE FOR ENTERPRISE PROGRAM

#### CURRICULUM
Each student will have a flexible environment to access different tools, along with sample code and scripts to learn best practices and real-world scenarios. In order to maximize learning, students will be required to bring their own Apple or Windows laptop to every class session. Classroom lectures and demonstrations will be complemented by reading assignments, hands-on exercises, case studies, and projects.

#### ARTIFICIAL INTELLIGENCE OVERVIEW
Introduction to artificial intelligence (AI) concepts. Using a comprehensive set of flexible AI services to create the next generation of applications using cloud computing and mobile devices powered by AI.

#### BOTS AND DIGITAL ASSISTANT
Use pre-built APIs, such as cognitive services and conversational AI with bot tools, to build custom chatbot. Use of artificial intelligence technologies for developers to create digital voice assistant solutions easily and with maximum productivity.

#### NATURAL LANGUAGE PROCESSING (NLP)
Interaction between computers and human (natural) languages including speech recognition, natural-language understanding, and natural-language generation. Use of cloud-based tools to demonstrate text-to-speech, speech-to-text and language translation.

#### VIDEO AND IMAGE RECOGNITION
Build automatic image/video recognition systems. Use of facial recognition technology, deep learning algorithms and image processing to smartly identify objects.

#### COGNITIVE ANALYTICS
Cognitive Services expands on machine learning APIs and enables developers to make applications more intelligent, engaging, and discoverable. Build apps with powerful algorithms to see, hear, speak, understand, and interpret personal needs using natural methods of communication.

#### MICROSOFT ARTIFICIAL INTELLIGENCE
Building intelligence into your solutions with the Microsoft AI platform, including pre-trained AI services like Cognitive Services, bot framework, natural language understanding and processing as well as vision technology for object detection and facial recognition.

#### AMAZON ARTIFICIAL INTELLIGENCE
Build conversational interfaces using Amazon Lex. Create automated image and video processing using Amazon Rekognition.

#### GOOGLE ARTIFICIAL INTELLIGENCE
Experiment with Google’s artificial intelligence platform including voice assistant tools, image recognition methods and best practices for business.

#### IBM COGNITIVE ANALYTICS
Acquire hands-on experience with IBM Cognitive Analytics including Watson Assistant and Object Recognition along with use cases across a variety of industries.
| KNOWLEDGE ENGINEERING | Knowledge engineering is a field of AI that tries to emulate the judgment and behavior of a human expert in a given field. It heavily relies on data, rules, and reasoning mechanisms to create expert decision making solutions. Reinforcement learning will be covered along with different real-world scenarios. |
| MIXED AUGMENTED REALITY | The key concepts and techniques of mixed and augmented reality (AR) will be covered along with some business concepts of augmented reality: the AR market, potential applications, and the value chain. |
| ROBOTIC PROCESS AUTOMATION (RPA) | Provide an overview of robotic process automation industries, applications, benefits, challenges, and risks. |

**GENERAL INFORMATION**

**ADMISSION**
The program is suitable for IT professionals and business decision-makers who are eager to deepen their expertise in the field of artificial intelligence and advance their careers. Basic understanding of cloud computing and machine learning is helpful, but not required. In addition, students are required to bring their own laptop computers to class. Both Windows and Mac computers are acceptable.

A substantial commitment of time is required for this intensive course of study. Final admission will be determined by the admissions committee on the basis of an applicant's overall qualifications, including work history and educational background.

**FACILITIES**
To promote the learning process, the Institute maintains special-purpose laboratories as well as dedicated classrooms equipped with state-of-the-art audio/visual equipment.

In addition, the college’s unique Course OnLine (COL) technology allows students to replay classes over the Internet. COL captures the essential elements of our on-campus classes—the lecture itself and information displayed in class and written on the board—incorporated into a flexible interface, available online a few hours after the class session ends.

**SCHEDULE**
The Institute offers one section of the program each quarter. Classes meet one evening per week. The option to take the program entirely online is also available.

**FACULTY**
The program is taught by Marco Chou. Mr. Chou has been an adjunct lecturer at DePaul University for many years, and has more than 30 years’ experience in the IT industry specializing in database administration, information management, cloud computing and big data analytics. Since 2013 he has developed big data analytics and data science technologies programs for DePaul’s Institute for Professional Development. Mr. Chou will be available throughout the program both in person and through electronic mail.
The college, through its School of Cinematic Arts, School of Computing, and its School of Design, offers a variety of programs at the undergraduate and graduate levels. Over 3,000 students are enrolled in the college’s bachelor’s programs and about 2,000 students are enrolled in the master’s and Ph.D. programs making the college’s graduate program one of the largest in the country. The college offers close to 500 courses each quarter, many in the evening, and primarily in the Loop and Lincoln Park Campuses. Most of the degree programs are also available exclusively online.

Offerings at the undergraduate level include:
- Animation B.A. / B.F.A.
- Computing B.A.
- Computer Science B.S.
- Cyber-Physical Systems Engineering B.S.
- Cybersecurity B.S.
- Data Science B.S.
- Film and Television B.A. / B.F.A.
- Game Design B.S.
- Game Programming B.S.
- Graphic Design B.F.A.
- Information Systems B.S.
- Information Technology B.S.
- Math and Computer Science B.S.
- Network Engineering and Security B.S.
- User Experience Design B.S.

Offerings at the graduate level include:
- Animation M.A.
- Business Information Technology M.S.
- Computational Finance M.S.
- Computer Science M.S.
- Cybersecurity M.S.
- Data Science M.S.
- Digital Communication and Media Arts M.A.
- E-Commerce Technology M.S.
- Experience Design M.A.
- Film and Television M.S.
- Game Programming M.S.
- Health Informatics M.S.
- Human-Computer Interaction M.S.
- Information Systems M.S.
- Network Engineering and Security M.S.
- Product Innovation and Computing M.S.
- Software Engineering M.S.
- J.D./M.S. in Computer Science Technology

Master’s of Fine Arts
- Animation
- Creative Producing
- Documentary
- Film and Television Directing
- Game Design
- Screenwriting

Ph.D. in Computer and Information Sciences
- Ph.D. in Human Centered Design

The Institute for Professional Development was formed by the college in 1984 to assist both individuals and businesses in keeping pace with the rapid development of computer technologies. The Institute currently offers a variety of intensive certificate programs in these areas:

- Advanced Python
- Advanced SQL
- Artificial Intelligence for Enterprise
- Big Data and NoSQL
- Big Data Using Hadoop
- Big Data Using Spark
- Cloud Computing Technologies
- Cybersecurity Risk Management
- DevOps
- Data Analytics with Excel
- Data Science for Business
- Data Science: Programming with Python
- Fundamentals of R
- Fundamentals of Software Testing
- Incident Response and Digital Forensics
- Introduction to SQL
- iOS Developer
- Modern Information Technology
- Machine Learning and Deep Learning
- Modern .NET Web Development
- SQL Server® Business Intelligence
- SQL Server® Database Administration
- Technology and Innovation
- Web Development with JavaScript and HTML5

APPLICATION PROCEDURE:

You do not have to be an existing DePaul student to take this certificate program. All interested parties must apply for admission. Prospective students may complete the online application and pay the (non-refundable) $40.00 application fee online during the application process. Alternatively, prospective students may print, complete and return the printable application via mail or email (ipd@cdm.depaul.edu), and mail the non-refundable $40.00 application fee (check or money order made payable to DEPAUL UNIVERSITY) to:

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