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| 科目ナンバリング | | U-LAS30 10016 LE11 U-LAS30 10016 LE12 U-LAS30 10016 LE10 | | | |
| 授業科目名 <英訳> | Basic Informatics-E2 Basic Informatics-E2 | | | 担当者所属 職名・氏名 | 情報学研究科 特定講師 EVEN , Jani Juhani luc |
| 群 | 情報学科目群 | | 分野(分類) | (基礎) | 使用言語 英語 |
| 旧群 | | 単位数 2単位 | 週コマ数 1コマ | 授業形態 | 講義 (対面授業科目) |
| 開講年度・ 開講期 | 2024・後期 | 曜時限 | 火5 | 配当学年 | 全回生 対象学生 全学向 |
| 【授業の概要・目的】 | | | | | |
| <p>The transformation from an industrial society to an informational society that started in the seventies means that information has been playing an increasing role in society. Then, the development and adoption of modern communication technologies and internet gave it a central role in the economy. Nowadays, with the widespread use of smartphone and social media, information is part of every aspect of our lives. A huge amount of information at our disposal. As a result, in any career path, one must understand how information is processed by computers and be able to access, analyze, and visualize information.</p> <p>This course introduces the fundamentals for understanding how information is processed by computers. We will learn how the collection, organization, and management of a large quantity of information is achieved. Then, we will introduce techniques for searching and analyzing large amount of information. In addition to “ classical approaches ” , recent technologies taking advantages of deep neural network will be presented. Finally, we will introduce ways of presenting and visualizing the information. The students will learn about the necessary technologies to extract knowledge from large amount of information, analyze that information and format the results in an appealing manner for presentation.</p> | | | | | |
| 【到達目標】 | | | | | |
| Students will learn how it is possible to handle large amount of information in an efficient manner. They will also acquire a general knowledge about information processing systems and an understanding of what techniques to use for a given problem. | | | | | |
| 【授業計画と内容】 | | | | | |
| <p>The course starts with an overview presenting the different topics that will be covered to get a general idea of the content.</p> <p>Then, the first part will present techniques for automatic information processing and management:</p> <ul style="list-style-type: none"> • information processing system • information storage (entity relationship model, relational databases) • unstructured information (xml) <p>The next part will focus on accessing information:</p> <ul style="list-style-type: none"> • information retrieval and indexing (search engines) • graph theory (page rank) <p>The next part we will deal with the representation of information by computers:</p> <ul style="list-style-type: none"> • information quantification (entropy) • information acquisition (sampling and quantization) • information representation (coding) <p>Then, will introduce techniques for information analysis:</p> <ul style="list-style-type: none"> • data mining • “ classical ” machine learning (classification and clustering) • deep neural networks-based machine learning <p>Finally, visualization techniques and information presentation will be discussed:</p> <ul style="list-style-type: none"> • diagram, graph and heatmap creation | | | | | |
| ----- Basic Informatics-E2(2)へ続く ----- | | | | | |

Basic Informatics-E2(2)

One to two sessions for each item.

The schedule and contents are subject to change based on class progress.

Total : 14 classes, 1 Feedback session

【履修要件】

This is a beginner course: no prior experience is required. However, some mathematical developments require to be familiar with basic probabilities. Some basic computer skills are required for accessing the material (web browser) and submitting the assignments (writing or scanning). No programming skill is required as algorithms are presented using pseudo code in plain English.

【成績評価の方法・観点】

The evaluation will be based on an assignment given around midterm (50%) and a final examination (50%).

【教科書】

No textbook, handouts.

【参考書等】

(参考書)

Some references will be given in class.

【授業外学修（予習・復習）等】

The students are expected to review the new material within the week of delivery in order to smoothly follow the course.

【その他（オフィスアワー等）】

There is no specific office hour. Students can use e-mails for important communications, assignments, and questions.