

Course Schedule Information

Course Code／時間割コード	331601
Semester／開講区分(開講学期)	Spring and Summer Term
Day and Period／曜日・時間	Mon2
Course Name (Japanese)／開講科目名	マルチメディアシステムアーキテクチャ
Room／教室	Graduate School of Information Science and Technology/A109
Course Name／開講科目名(英)	Architecture for Multimedia Systems
Capacity／定員	100
Course Numbering Code／ナンバリング	33BIEN5M003,33BIEN5M006,33INPS5M003,33INPS5M006,33COSC5M003,33COSC5M006,33INSE5M003,33INSE5M006,33INNE5M003,33INNE5M006,33MUEN5M003,33MUEN5M006
Credits／単位数	2.0
Student Year／年次	1,2
Instructor／担当教員	Shinji Shimojo,Susumu Date,KOJIMA Kazuhide,Yoshiyuki Kido,Takashi Yoshikawa,Yasuhiro Watashiba

Detailed Syllabus Information

Course Name／講義題目	Architecture for Multimedia Systems
Language of the Course／開講言語	Japanese
Type of Class／授業形態	Lecture Subject
Course Objective／授業の目的と概要	Aim to acquire knowledge and skills to understand today's large-scale multimedia system. * to explain the development methodology and technologies of e-learning system for linguistic study * to explain the concept and implementation technology of overlay network and SDN (Software Defined Networking) * to be able to discuss how machine learning algorithms work and how they are applied into data analytics. * to acquire big data classification techniques using deep learning on a high-performance computer * to acquire the knowledge on basic and cutting-edge technologies related to I/O devices such as GPUs and Non-volatile memories * to understand the concept of IoT(Internet of Things) and problems in IoT
Learning Goals／学習目標	Nothing special. Dialogue negotiation simulator (3 classes) Through the case study of actual multimedia system developed at Osaka University, the structure and architecture of the system is explained as well as the related technologies.
Requirement / Prerequisite／履修条件・受講条件	Basics of advanced networking technology (2 classes) SDN (software defined networking), which enables flexible and effective management of networking operation, is explained as well as other networking technologies in HPC systems. Distributed Computing Technology (1 class) Introduce computing technology and its applications for processing huge amount of data with distributed and a large amount of computing research.
Class Plan／授業計画	Basics of Machine Learning Algorithm and Big Data Classification Techniques using Deep Learning (3 classes) Supervised Learning (Decision Tree, Naive Bayes, Support Vector Machine, Neural Network) and Unsupervised Learning (K-means, Principle Component Analysis) are explained, and how to utilize their learning methods are discussed. Subsequently, backpropagation as a learning method of neural network is explained. After that, deep learning models are introduced and then exercise of image classification (Python programming) is conducted. IO devices and their related technologies in today's multi-media computer systems (2classes) During two classes, several computer system architectures and IO devices such as accelerators, storage, and network interfaces are explained. Also, how systems are structured is explained especially focusing on the interconnection and virtualization. Japan's ICT policy and its International trend (1 class) Japan's ICT (Information and Communication Technology) policy including technology, standardization and regulations is explained as well as their international trend. Application-centric networking (4 classes) The concept of overlay networking as a basic function of IoT is explained. After that, programming exercise for realizing a distributed agent environment on an overlay network needs to be completed Network programming in JAVA Instructions are given in class. Instructions are given in class. Quiz 65%. Exercise 35%
Independent Study Outside of Class／授業外における学習	Mini quiz or exercise would be given in some classes.
Textbooks／教科書・教材	
Reference／参考文献	
Grading Policy／成績評価	
Other Remarks／コメント	
Special Note／特記事項	
Office Hour／オフィスアワー	
Messages to Prospective Students／受講生へのメッセージ	

Cautions for Students

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