

高等服务计算

Service-Oriented Computing: Advanced Services Engineering

The objective of this course is to introduce new concepts and techniques for developing and engineering advanced services in emerging distributed computing systems including IoT (Internet of Things), network functions, cloud services, blockchain, machine learning and human-based services. In this course, we will examine the roles of IoT, cloud services, blockchain, data-as-a-service, data concerns, data marketplaces, machine learning for advanced elastic services. We study and implement techniques for developing such services by utilizing IoT data and other types of data with compute services in cloud environments. Furthermore, we will investigate human-based services in engineering advanced data analytics and how to combine them with data and compute services. All of them create emerging hybrid computing systems for various important domains, such as smart cities, predictive maintenance, etc.

The course will provide hand-on experiences via real-world exercises and mini programming projects. This follows project-based course approach. The course will provide a great interaction between students and the instructor. Students are expected to produce realistic applications and services to demonstrate their selected scenarios.



Hong-Linh Truong is a Priv.-Doz. and an Assistant Professor at the Faculty of Informatics, TU Wien, since 2013. He leads the Service Engineering Analytics team in Distributed Systems at TU Wien. He received a PhD (2005) and a Habilitation (2013) from TU Wien, Austria. Before taking the current position, he was a senior researcher at TU Wien (2007-2013), a post-doc researcher at University of Innsbruck (2005-2007), a researcher at University of Vienna (2000-2005) and an assistant lecturer at BachKhoa University (1998-2000).

He has been visiting professors at Bach Khoa University (2016, 2017), HCMC, Vietnam, Da Nang University of Science Technology (2016), and visiting scholars at University

of Southern California (Center for Cyber-Physical Systems and Internet of Things, Sep 2017) the University of California, Irvine (July-Aug, 2017), the Japan National Institute of Informatics (NII) (2017), University of Chicago (2016), Shenzhen University (2016), Lund University (2014), and University of Stuttgart (2010).



张亮 现任复旦大学计算机科学教授，博士生导师。中国计算机学会高级会员、IEEE 会员、ACM 会员、中国计算机学会服务计算专委会常务委员、协同计算专委会委员，上海市物联网专委会、协同与服务计算专委会、数据库专委会委员。1983年毕业于武汉大学，获得学士学位，并留校任教；1997年毕业于武汉大学软件工程国家重点实验室，获得计算机科学博士学位；1998年至2000年在复旦大学计算机科学系从事博士后研究。

2000年由武汉大学调入复旦大学。近十年中，发表了70多篇期刊和会议论文，内容涉及多媒体数据管理、XML数据管理、数字图书馆、Web服务和业务流程管理BPM。近年来主要研究方向包括服务计算、以Artifact为中心的BPM以及CPS/IoT服务。现任ICSOC Steering Committee委员，中国业务过程管理大会指导委员会成员，曾任ICSOC 2013程序委员会联合主席、ICSOC 2012联合总主席、首届中国业务过程大会CBPM的程序委员会联合主席、中国数据库大会NDBC 2011的程序委员会联合主席。在服务计算和BPM研究中，与美国加州大学的苏建文团队、澳大利亚麦格里大学的杨坚团队、爱沙尼亚Tartu大学的Marlon Dumas团队合作，在CPS/IoT服务研究中，与奥地利维也纳科技大学(TU Wien)的Hong-Linh Truong团队合作。其研究工作受到中国自然科学基金、973、863、国家重点研发项目的资助。

课程设置

学分：3 学分

学时：75 学时（包括实验 35 学时）

基础知识要求：It is expected that students have good knowledge and experience with cloud computing and web services. The recommended programming languages are Java/Python or Node.JS. Students are required to publish the mini project into open source platforms (e.g., github) with documents in English.

授课语言：English

上课时间：2018 年 7 月 12 日 - 18 日

课程助教：白晓菲，学号：16210240001

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手机号：18818265271.

选课网址：

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课程进度安排：2018 年 7 月 12 日至 7 月 18 日				
日期	星期	节次	上课内容	授课教师
2018-07-12	TH	1-2	Emerging distributed systems and challenges for services engineering	Hong-Linh Truong
2018-07-12	TH	3-4	Lab on identifying scenarios (requirements, datasets, business models)	Hong-Linh Truong, Liang Zhang, students
2018-07-12	TH	6-7	The role of IoT, Cloud systems, Blockchain and Machine Learning as a service	Hong-Linh Truong
2018-07-12	TH	8-9	Lab on identifying application-specific services and platform services, presentation of scenarios and services	Hong-Linh Truong, Liang Zhang, students
2018-07-13	FR	1-2	Data-as-a-Service, Data marketplace, data lakes: Models, Data Concerns, and Engineering	Hong-Linh Truong
2018-07-13	FR	3-4	Big data service systems: Models, Elasticity, and Platforms	Hong-Linh Truong
2018-07-13	FR	6-9	Lab on data services, big data processing, elastic model for data, data concerns.	Hong-Linh Truong, Liang Zhang, students
2018-07-16	MO	1-4	Algorithms & Quality-aware Data Analytics	Hong-Linh Truong
2018-07-16	MO	6-9	Lab on elasticity model, algorithms & Quality-aware Data Analytics models	Hong-Linh Truong, Liang Zhang, students
2018-07-17	TU	1-4	Human-machine in advanced services	Hong-Linh Truong
2018-07-17	TU	6-9	Lab on human-machine integration, incident management with human-tasks.	Hong-Linh Truong, Liang Zhang, students
2018-07-18	WE	1-3	Mini project presentation, demonstration and discussion	Students, Hong-Linh Truong, Liang Zhang
2018-07-18	WE	4	Ensembles of IoT, Network Functions and Clouds: Requirements, Models and Engineering Analytics	Hong-Linh Truong
2018-07-18	WE	6-9	Final exam. Recap	Students, Hong-Linh Truong, Liang Zhang

参考教材:

There is no text book. The list of references is provided in the course.

Further information can be found at:

<http://www.infosys.tuwien.ac.at/teaching/courses/ase/>