

COMP3027J

Software Architecture

Overview

DENG, YONGJIAN

Faculty of Computer Science, BJUT

Data Mining & Security Lab (DMS Lab)



Outline

1. Contact Info
2. Course Overview
3. Literature
4. Evaluation Criteria



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邓勇舰 (yongjiandeng.github.io)

DENG, YONGJIAN

Education:

- † [2021] Ph.D. in Computer Vision, City University of Hong Kong
- † [2018] M.Sc. in Robot Dynamics, University of Florida
- † [2016] B.Eng., China University of Petroleum Beijing

Affiliation:

- † Collage of Computer Science, BJUT
- † Data Mining & Security Lab (DMS Lab)

Email: yjdeng@bjut.edu.cn

Office Room: 信息楼 233



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Course Overview

Subject

The subject of software architecture is the description of the high-level structure of a complex software system, the interrelationships between organizational units, and the activities w.r.t this description, such as design, evaluation, implementation, management, etc.

Motivation

This is the core course of software engineering. Through this course, students will learn the **basic concepts, principles** and **methods** of software architecture. Meanwhile, through actual software project design tasks, students **are driven to** use theoretical knowledge to **actively think about architecture solutions**, and **guide** students to use auxiliary tools to **complete system architecture design, evaluation, and implementation**.

Course Overview

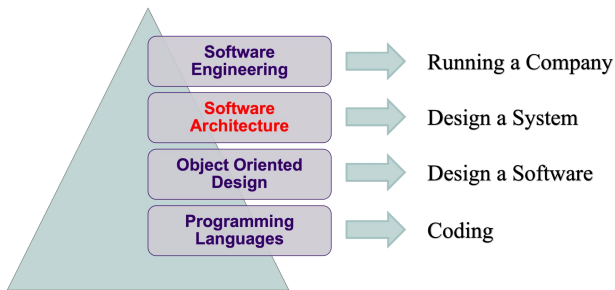
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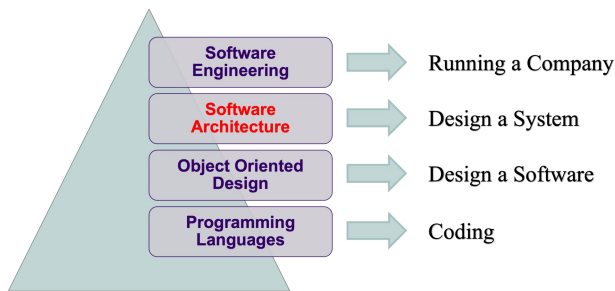
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Course Overview



- † Software Architecture Overview
- † Software Architecture Styles
- † Modelling Description
- † Design Principles
- † Quality Attributes
- † Evaluation
- † Summary of Software Architecture



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Target

- ✦ Understanding architecture definitions
- ✦ Familiar with architectural style
- ✦ Accurately describe an architecture
- ✦ Formulate and select architectural solutions
- ✦ Customize the architecture for specific applications
- ✦ Provide solutions to software systems that meet specific architectural requirements



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Books

- ◆ **Software Architecture: Perspectives on an Emerging Discipline**, Mary Shaw, David Garlan, Prentice-Hall, 1996
- ◆ **Software Architecture in Practice**, Second Edition by Len Bass, Paul Clements, Rick Kazman. Addison Wesley., 2003
- ◆ **The Art of Software Architecture : Design Methods and Techniques**, Stephen T. Albin, John Wiley & Sons, Inc. 2003
- ◆ 软件体系结构原理、方法与实践，第 2 版，张友生等编著，清华大学出版社，2014
- ◆ UML 系统分析与设计教程，第 2 版，冀振燕编著，人民邮电出版社，2009



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Websites

† [Carnegie Mellon SEI – http : //www.sei.cmu.edu/ata/ata_init.html](http://www.sei.cmu.edu/ata/ata_init.html)

† [Worldwide Institute of Software Architects –
http : //www.wwisa.org/wwisamain/index.htm](http://www.wwisa.org/wwisamain/index.htm)

† [Software Architecture – http : //www.softat.org/](http://www.softat.org/)

† [OO Design Principles –
https : //wiki.c2.com/?PrinciplesOfObjectOrientedDesign](https://wiki.c2.com/?PrinciplesOfObjectOrientedDesign)

† [Design Patterns1 – http : //sourcemaking.com/design_patterns](http://sourcemaking.com/design_patterns)

† [Design Patterns2 –
http : //www.tutorialspoint.com/design_pattern/builder_pattern.htm](http://www.tutorialspoint.com/design_pattern/builder_pattern.htm)



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