



Software Engineering

Spring 2013

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CSIE 4202

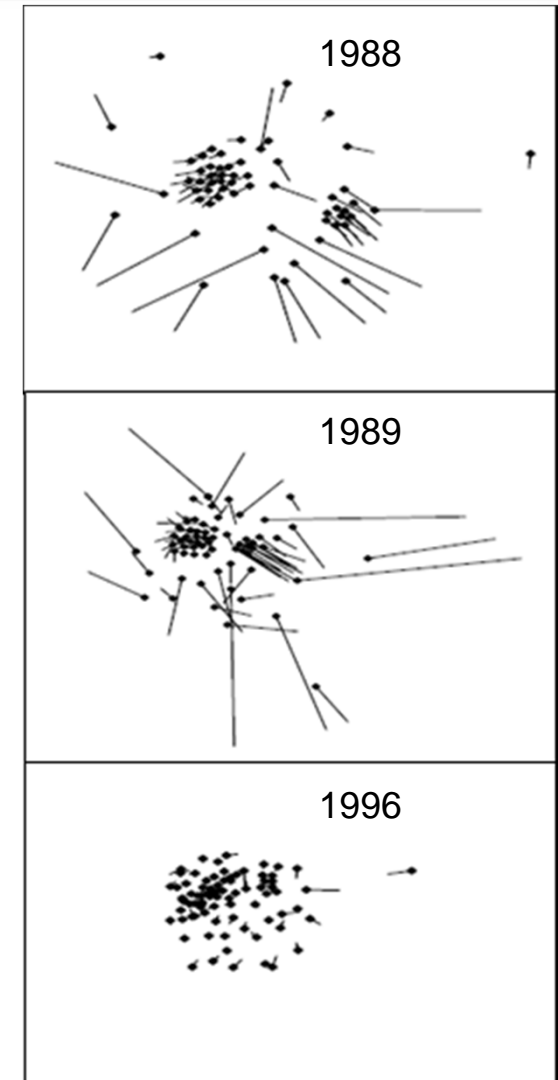
- ❑ Instructor: Assistant Prof. Shin-Jie Lee (李信杰)
- ❑ Office: 資訊大樓5F
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- ❑ Class Hours: Tuesday 9:10 – 12:00, CSIE Building 4202
- ❑ Office Hours: Tuesday 13:10 – 14:00 or by appointment



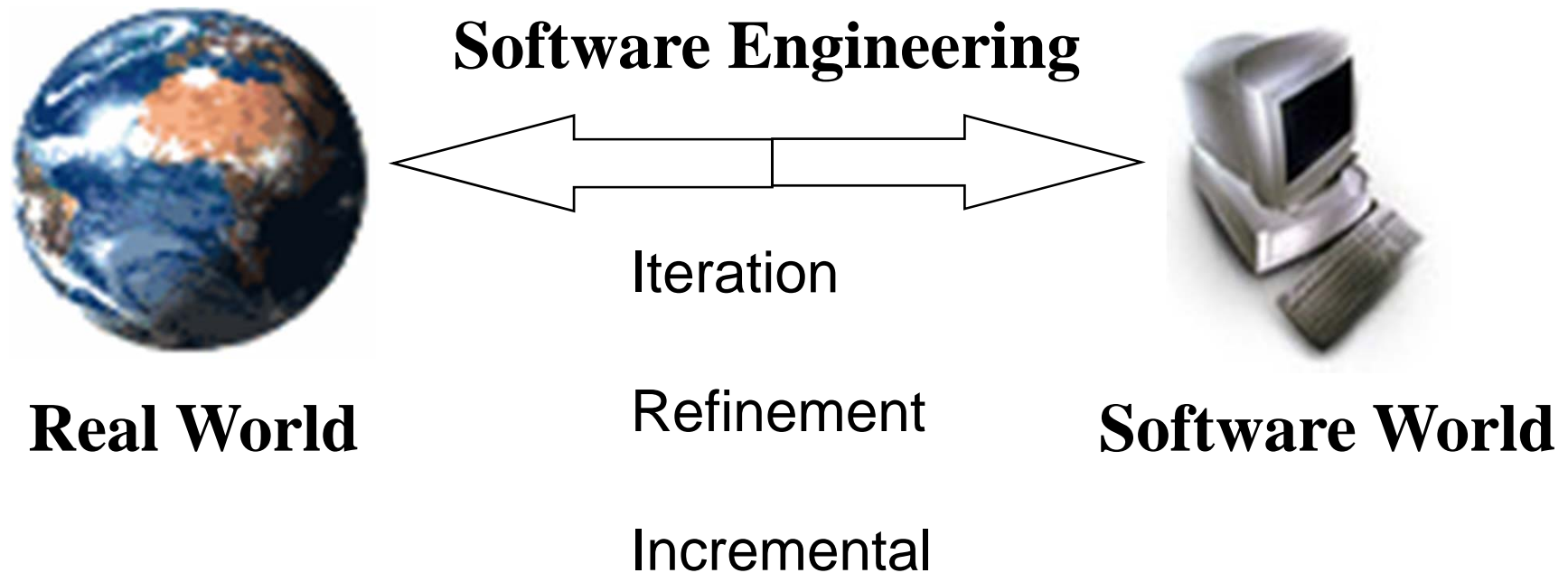
Software/Code Decay

- ❑ A unit of code (in most cases, a module) is decayed if it is *harder to change than it should be*, measured in terms of effort, interval and quality.
- ❑ An Example: The Telephone Switches Project
 - Fifteen-year old real-time software system for telephone switches
 - 100,000,000 lines of source code (C/C++) and 100,000,000 lines of header and make files, organized into some 50 major subsystems and 5,000 modules.
 - More than 10,000 software developers have participated.
 - A module within one of the clusters is often changed together with other modules in the cluster but not with other modules
 - Head of each tadpole-like shape corresponds to a module





What's Software Engineering?





What's Software Engineering?

- ❑ Software engineering is the application of engineering to software.
- ❑ The application of systematic, disciplined, and quantifiable approaches to the design, development, operation, and maintenance of software, and the study of these approaches.
- ❑ First introduced in NATO Software Engineering Conference in 1968.



Course Outline

**Presentation
& Homework**

(2/26) Software Industry Era	
(3/5, 3/12, 3/19) Software Process (Lifecycle) Traditional Software Process Methods: Waterfall, Spiral, Automatic Synthesis, OO, UP Agile Methods: SCRUM, XP	Process Document
(3/26) Requirements Engineering	SRS
(4/9, 4/16) Software Project Management	PEP
(4/23, 4/30, 5/7) Software Engineering Modeling and Analysis Object-Oriented Concept UML	SDD
(5/14, 5/21, 5/28, 6/4) Software Engineering Practices Configuration Management Code Review Issue Tracking Debugging	Report
(6/11, 6/18) Software Process Improvement	Improved Process Document
(6/25) Final Exam	



Grading

- ❑ Class attendance and participation (15%)
- ❑ Term Project (50%)
 - Presentation and homework
- ❑ Final Exam (35%)



Course Materials & Reference

- 李允中, 軟體工程, McGraw-Hill, 2009.
- Ian Somerville, *Software Engineering (9th Edition)*, Addison Wesley.