Software Architecture

Lecture 1
Introduction

whoami

- http://ulno.net, **Ul**rich **No**rbisrath
  email: replace http:// with ulno@

- Adjunct Professor at
  George Mason University and
  University of Upper Austria

- Independent IoT Consultant

- App developer: http://mcminos.com

- Before: Assistant Prof. at Nazarbayev
  University, Kazakhstan and Senior Research Fellow at
  University of Tartu, Estonia

- PhD from RWTH Aachen University, Germany in Software Engineering:
  "Configuring eHome Systems"

- Research: mobile authentication, mobile AR/VR, story driven modeling,
  cloud computing, search support

- Teaching: IoT introduction, Software Engineering, H&B automation,
  Mobile Computing, Systems Organization, Operating Systems,
  Programming, Systems Administration

Teaching Experiment

- Let's use slack for everything

- Signup-URL is on the board

- Or ask at:
  https://sa-teaching-ulno-net.slack.com

Who are you?

- Who are you, why are you studying CS?

- What do you expect from Software Architectures?

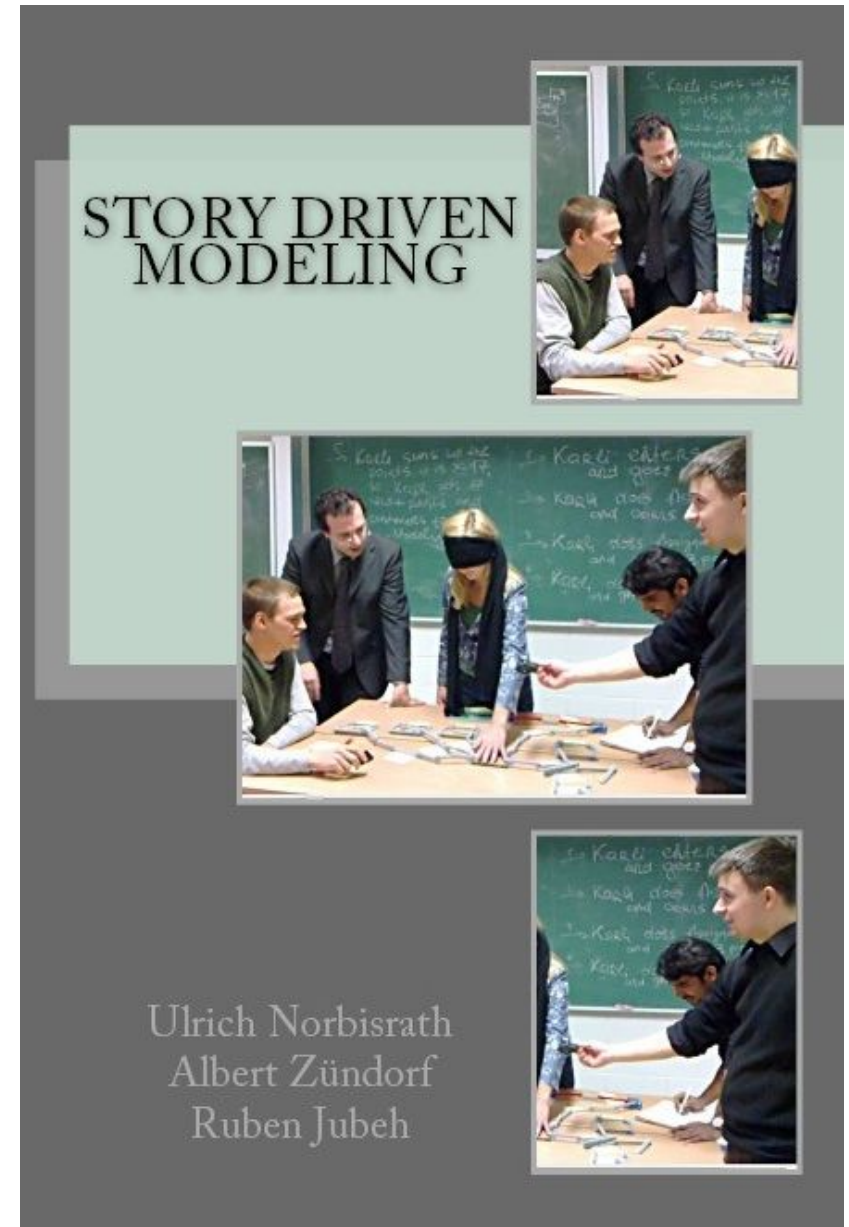- Post into slack, #introduction

Your skills

- Who has done programming outside of class?
- Who has used Software Architecture(s) for SW-Dev?
- Who has used UML for SW-Dev?
- Who runs at least one computer for themselves or their company solely under Linux? (Which distribution?)
- Who has used Git for software development before?
- Who has done agile software development?
- Who has used Scrum for SW-Dev?
- Who has used Kanban for SW-Dev?

Syllabus + Schedule

The Book

- Story Driven Modeling

- Ulrich Norbisrath, Albert Zündorf, Ruben Jubeh

- ISBN: 978-1483949253
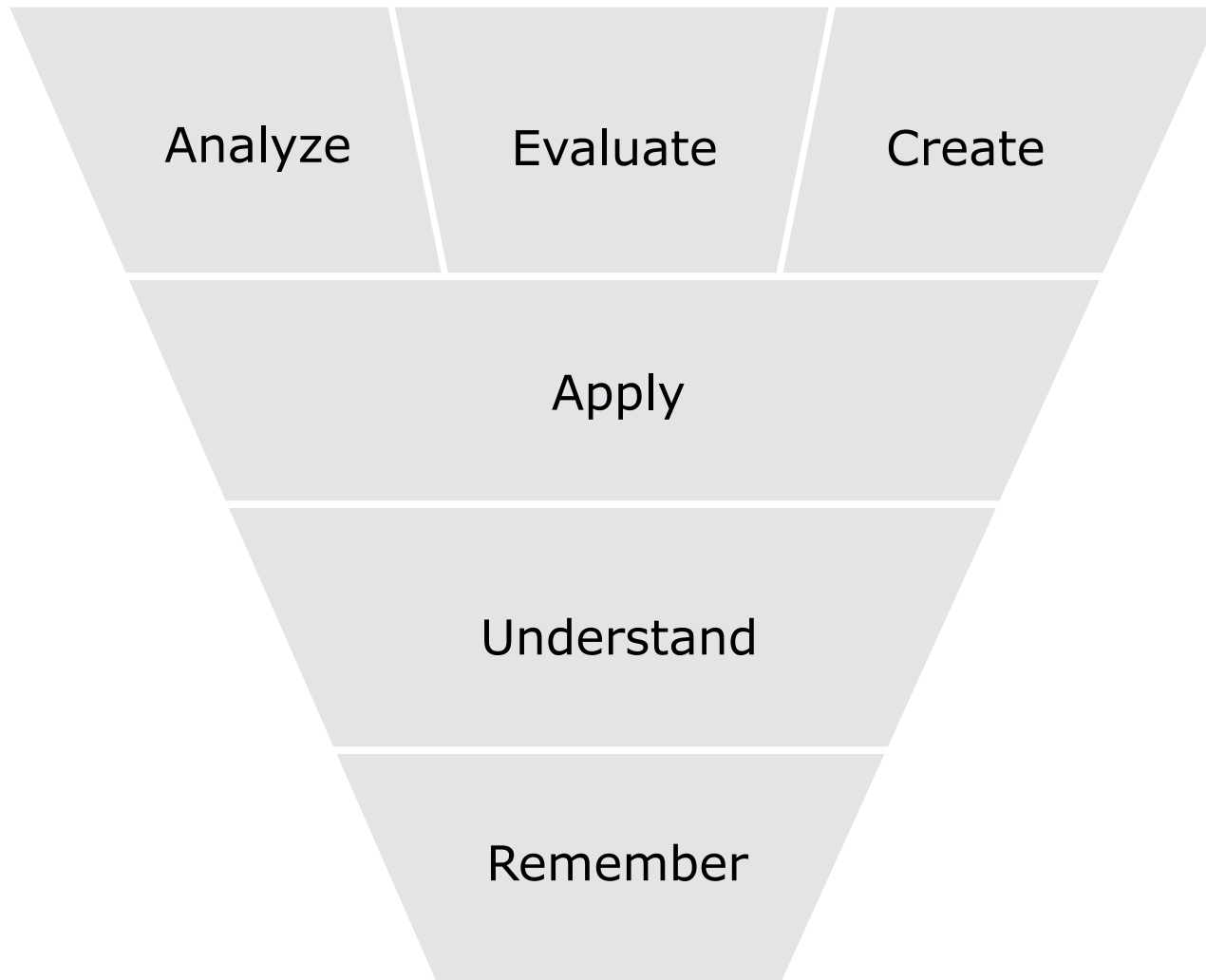
- Also available as ebook on Amazon and Smashwords

I don't lecture!

But this is a lecture...

- … and you are lecturing right now!
- OK, sometimes, but …

- How do you learn best?
- You know Bloom's Taxonomy of Learning?

Blooms Taxonomy of Learning

Analyze | Evaluate | Create

Apply

Understand

Remember

There is a page in the Internet...

What is Software Architecture?

- Let's ask "THE INTERNET"

- 5min, search 1-2 definitions and examples for Software Architectures

- 5min, explain definition to neighbor, pick or create best definition, pick one example and say what is good about it

- Publish to slack #definition

Software Architecture

The **software architecture** of a system consists of *software components*, their *external properties*, and *their relationships* with one another. The term also refers to *documentation* of a system's software architecture. Documenting software architecture facilitates *communication between stakeholders* (people interested or interacting with the project), documents early decisions about high-level design, and *allows reuse of design components and patterns* between projects.
Bass, Len; Paul Clements, Rick Kazman (1998). *Software Architecture In Practice*. Boston: Addison-Wesley, p. 23-28. ISBN 0-201-19930-0.

Architecture is the *fundamental organization of a system embodied in its components, their relationships to each other, and to the environment, and the principles guiding its design and evolution*. [IEEE 1471]

A *system* is a *collection of components* organized to accomplish a specific function or set of functions. The term system encompasses individual applications, systems in the traditional sense, *subsystems*, *systems of systems product lines*, *product families*, *whole enterprises*, and other aggregations of interest. A system exists to *fulfill* one or more *missions in its environment*

First Assignment:
Compare beginning of next slide set