TDDC88/TDDD69 Project introduction

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- Attendence list…

Course personnel

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- Rita Kovordanyi, rita.kovordanyi@liu.se, ritko75
- Lena Buffoni lena.buffoni@liu.se, olero90
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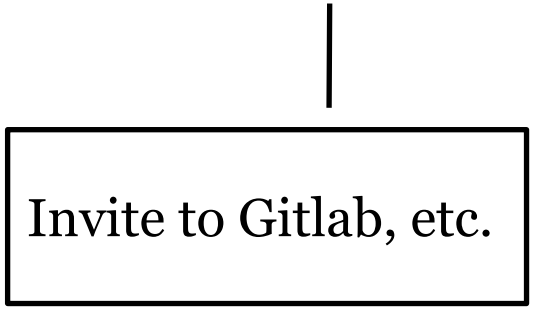


Real-world-like project in student companies

- Competing for contract with customer
  - Pre-study
  - Present at Toll-Gate meeting
- Develop prototype
  - In dialogue with the customer
- Final presentation in December at VSSE

Aim of the project

- Individual aim
  - Practical experience with the theory-part of the course
- Company-wide objective
  - Get insight into processes and work flows
    - Requriments, design, testing
  - Handling of problems
- Product-perspective
  - App functionality and code quality

The company is responsible for assigning roles

- Role-assignment meeting end of this week
- Many roles are inherently part-time
  - Many of you will end up coding in october-november
  - Internal education part of the project work
- Roles should be dynamically assigned
  - Change roles, as company's needs change through the project

This year: Analytics & machine learning

- Feasibility study to facilitate future development of innovative products
  - Demonstration of your concept (demo-protoptype)
  - Architectural notebook on decisions during the progress of the project (why, what, …)
    - Live document to support ongoing and future product development
  - Documentation of background research on methods, libraries, etc.

Machine learning

- Decision trees
- Bayesian networks
- Artificial neural networks
  - Convolutional neural networks
    - For image/video processing
- Deep learning
  - If you are training a new network: *Must* have access to big data
  - Alternative: re-use already trained model

Different phases of innovation

- Adapt already working solutions to your specific problem/data
  - Re-use already trained network
    - Find open source code, try to run it on your data
- Use an approach already validated/used for similar data/problems to set up and train your own model
  - Use open source libraries (do *not* implement own algorithms!)

Internal education is important

- For artificial neural network, a good starting point is:
  - http://neuralnetworksanddeeplearning.com/index.html
- Document what you find, the decisions you make, parameters you choose, the results you get

General project start-up activities

- Internal group contract
  - What is expected from employees in the company
  - Rules regarding meetings
  - Other practical matters
- Setting up technical environment
- Plan internal education
- Project plan

Company website with roles and contact info

- Company must publish website
  - Pictures of all employees
  - … with current roles and contact info
- Keep this site updated
- Invite course staff to all communication and collaboration platforms
  - Website, Drive, Slack, etc.

Toll-gate meeting (45 min / company)

- App
  - Design
  - High-level architecture
  - Plan: Features at each iteration
- Company
  - “We’re the best suited company to achieve this”

“Role-playing” at Toll-Gate

- Mandatory presence for the whole company
- But only 2-3 representatives actually participate
  - No help from the “audience”
- Aim is to “sign a contract” with the customer
  - For development of a first prototype
- Final contract at December presentation at VSSE (Valla Software System Expo)

Organize for efficient work

- Cross-functional teams recommended, mix of roles
- Establish tools and routines for collaboration and communication
- External communication (with customer, course staff)
  - Clear contact points
  - Various roles in the company easily reached
  - Sign all your communication (email, etc.) with your company name and your role

Free choice of tools

- Server (version control, deployment, automated testing), e.g.
  - **IDA Gitlab**, Track/Redmine, Jenkins
- Collaboration tools, e.g.
  - Drive, Trello, Slack https://slack.com/
- Always invite CEO, examiner, and all supervisors!
  - Important to show the company's processes (not only the end result)

Mandatory meetings every Wednesday

- CEO-meeting (Chief Executive Officer—”vd”)
  - 20 min
  - Elicit company processes
  - Discuss problems and how they are being solved
- Followed by two supervisor meetings
  - Ca. 15-30 min
  - Technical issues and technically-oriented procedures

CEO's role

- Elicit and advise / discuss:
  - Company's strategic decisions
  - What directions are currently being investigated?
  - How are problems brought up and handled?
    - What options were considered?
    - Why a certain choice (based on what)?

The two consultants' (supervisors) role

- Guide product development processes
  - Requirements analysis
  - Software architecture
  - Continuous integration and testing

Consultant: Chih-Yuan Lin

- Requirements, testing, and quality management
- chih-yuan.lin@liu.se

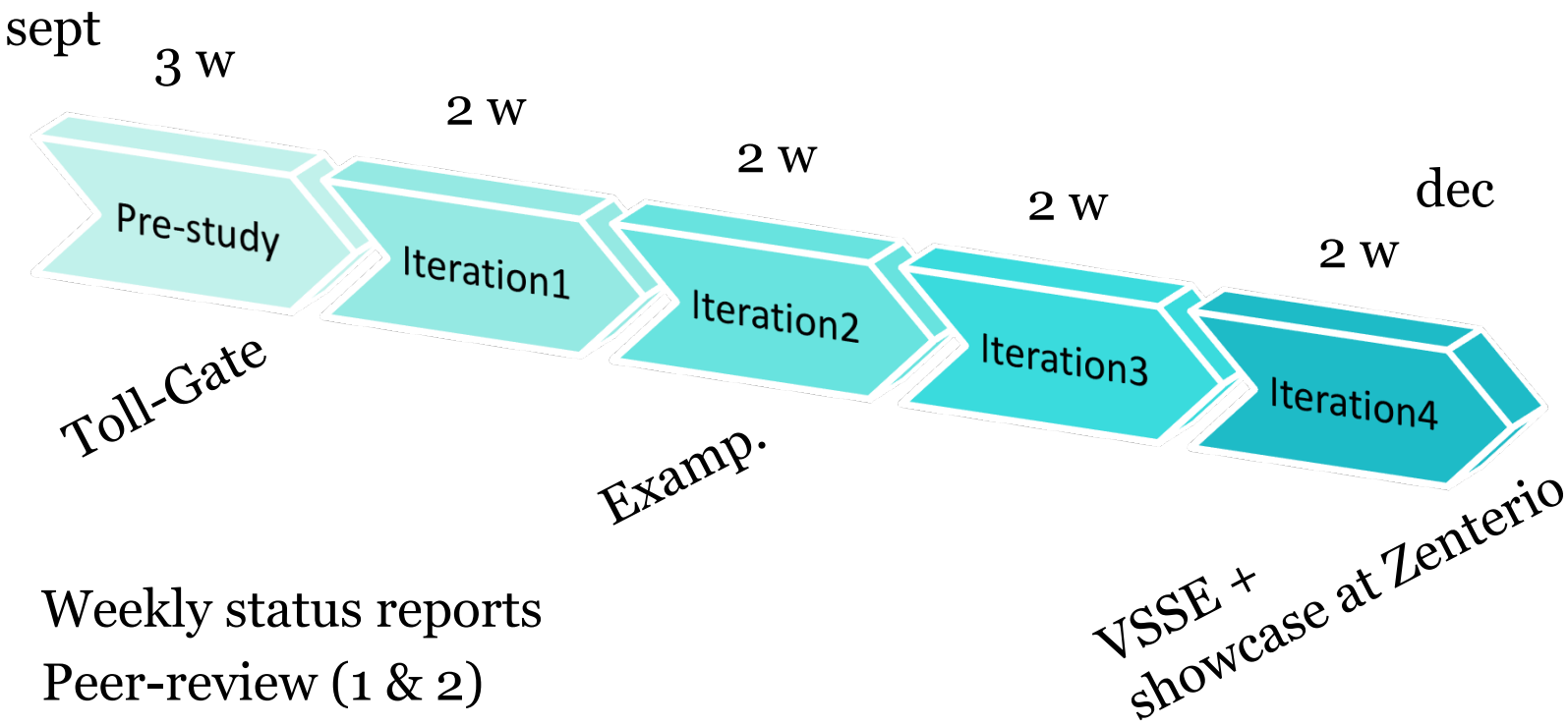
- Background
  - M.Sc. in Computer Science
  - Worked as a software QA Engineer and Java developer
  - Now a PhD Student at LiU

Consultant: Lena Buffoni

- Architecture, design, implementation, unit testing
- lena.buffoni@liu.se

- Background
  - Master & PhD in computer science in computer science from Pierre & Marie Curie University
  - Working at IDA since 2011

Timeline



- Weekly status reports
- Peer-review (1 & 2)
- Reflection report (1 & 2)

Weekly status reports

- 1 report from each company
- Deadline every Tuesday 13:00 (pm)
- Mail to CEO, supervisor, examiner (and own company)

Status report contents

- Brief (1 page), use bullet list
  - Progress since last week
  - Plans for next week
  - Risks – contingencies
- Time report
  - Time spent in the project for each employee.
    Last week, accumulated time
    Each employee: ca. 160 h

Two individual reflection reports

- Max 1 page
  - Your own contributions within the project
    - Description of the work
    - Name collaborators
  - The most important things that you learned so far
  - Detailed individual time report
    - Number of working hours (detail level in half hours)

Peer and self assessment

- 2 times during the project you will assess the contribution made by you and by co-workers
  - Contribution and confidence in assessment
- Used for coaching and interviews by supervisors (can affect grade)

Grading

- Course staff is advising the course leader
  - Process
    - CEO
  - Product (software, documents)
    - Supervisors + customer

- Individual grades can differ from company's grade

Individual grades

- Be transparent about your own work
  - Can your code/commits be seen in Gitlab?
  - Documents you have authored?
- If your role has changed, document this, inform the course staff

VSSE – Valla Software Systems Expo

- Expo = companies show-case their products
- Session 1
  - Present product
- Session 2:
  - Summarize experiences (for the course)

Final presentation of product at customer

- On evening, day of the VSSE
  - "After work", beer and chips
- Important final presentation of app
  - Showcase your product for the customer's company
  - Career opportunity for you
- Products are then screen-casted and used as inspirational demos by the customer

You may be called to individual interview

- The week after the VSSE
  - Before final grades are set
  - Make sure you are in town, as you could be called for an interview!

Reference customer: zenterio

- Reference customer
  - Pays* for some of the product development cost
  - Provides requirements as input → the company can develop relevant features for the market
- Contact persons
  - Marco Frattolin
  - Urko Serrano urko.serrano@zenterio.com

* Within the course: with their time and interest

Thank you!

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