Progress report

Neronet

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# Progress report

## Neronet

*Toolbox for managing the training
neural networks*

CSE-C2610
Software Project

Aalto University

February 28, 2016

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# Outline

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# Introduction
## Goals

Our goal is to develop a tool for computational researchers to enable easy

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- ▶ monitoring of ongoing experiments' logs and parameter values

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- ▶ configurable notifications on experiment state and progress

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- configurable criteria for experiment autotermination

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- configurable criteria for experiment autotermination
- logging of experiment history

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# Introduction
## What

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In essence the product is a Python-based tool that enables computational researchers to conduct their research more effectively.

# Introduction
## What

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In essence the product is a Python-based tool that enables computational researchers to conduct their research more effectively.

- ▶ It utilizes SSH and TCP sockets to distribute the computational workload into computer clusters. It supports the Slurm job and resource manager but can function without it as well.
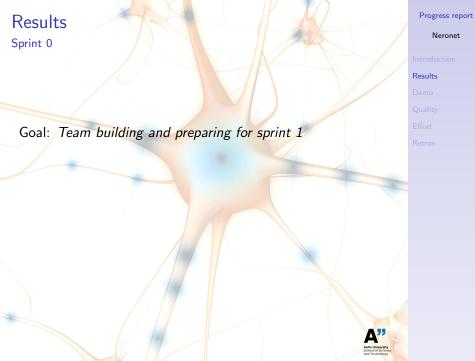
# Introduction
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In essence the product is a Python-based tool that enables computational researchers to conduct their research more effectively.

- It utilizes SSH and TCP sockets to distribute the computational workload into computer clusters. It supports the Slurm job and resource manager but can function without it as well.

- It is framework agnostic in that it permits the use of a very wide variety of tools to actually conduct the computing.

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# Results

## Sprint 0

Goal: *Team building and preparing for sprint 1*

# Results

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Sprint 0 took a lot of effort from us since the project topic was very challenging to dive into. Also none of us had done this course before. Interviews with Jelena & Simo helped us to understand the project.

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We were proud of our efforts in the sprint.

# Results

## Sprint 1

Goal: *Develop a prototype that offers the most basic functionality via a CLI*

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- US5: As a user, I want an experiment status report so that I can review experiment status details.

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Just a prototype, not ready for release to users.

# Demo

Demo script:

1. Neronet Installation, preferences and initial setup of clusters
2. Specification of clusters via CLI
3. Specification of an experiment
4. Submission of the specified experiment to an unmanaged node
5. Retrieval of experiment status report

# Quality

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Definition of done:

- We defined Done in three levels: BI, sprint and project
- BI level: unit tests done where applicable, functional test coverage 80%, conformity (PEP-8), commented, documented, peer reviewed
- Sprint level: BI:s are Done, increment is tested and reviewed, sprint goal is achieved

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Definition of done:

- We defined Done in three levels: BI, sprint and project
- BI level: unit tests done where applicable, functional test coverage 80%, conformity (PEP-8), commented, documented, peer reviewed
- Sprint level: BI:s are Done, increment is tested and reviewed, sprint goal is achieved
- Updates to DoD:
  - We replaced *unit test coverage 90%* with *unit tests are written where applicable* – the old metric was not useful for all BIs
- Otherwise, we have followed our DoD as planned.

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# Quality

Used QA practices and tools:

- ▶ Commenting & documentation – forces to rethink from another perspective, facilitates peer review
- ▶ Python standard unittest framework – white-box test automation
- ▶ Functional testing – manual black-box testing based on specs
- ▶ Peer review – quality assurance

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# Quality

Performance in quality assurance practices peer-graded with scale 0-3:

| US | UT | FT | Com | Doc | Peer |
|----|----|----|-----|-----|------|
| 1  | 3  | 3  | 3   | 3   | 3    |
| 2  | 2  | 2  | 3   | 2   | 3    |
| 3  | 3  | 3  | 3   | 3   | 3    |
| 4  | 3  | 3  | 3   | 3   | 1    |
| 5  | 1  | 3  | 2   | 1   | 1    |
|    | 2  | 3  | 3   | 2   | 2    |

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| 3  | 3  | 3  | 3   | 3   | 3    |
| 4  | 3  | 3  | 3   | 3   | 1    |
| 5  | 1  | 3  | 2   | 1   | 1    |
|    | 2  | 3  | 3   | 2   | 2    |

Qualitatively we achieved our standards only partially:

- Unit and functional test coverage – good
- Quality of comments and documentation – good
- Peer review – ok (done rather quickly)

# Quality

Relevant quality attributes:

# Quality

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Relevant quality attributes:

▶ Usability – Our user guide helps newbies understand our product → The usability should be good

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Relevant quality attributes:

- ▶ Usability – Our user guide helps newbies understand our product → The usability should be good
- ▶ Reliability – We estimate the overall reliability only satisfactory. We will put more effort on this in the future.

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Relevant quality attributes:

- Usability – Our user guide helps newbies understand our product $\rightarrow$ The usability should be good
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- Extendability – At the moment our software's extendability is ok, but it is only a prototype.

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- Reliability – We estimate the overall reliability only satisfactory. We will put more effort on this in the future.

- Extendability – At the moment our software's extendability is ok, but it is only a prototype.

- Performance – The current performance is mediocre. We will put more effort on this in the future.

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# Effort

Spent and budgeted effort in hours by team member and sprint:

| S | Samuel | Teemu | Tuomo | Joona | Iiro | Matias |
|---|--------|-------|-------|-------|------|--------|
| 0 | 140/50 | 36/35 | 45/35 | 40/35 | 36/35 | 43/35 |
| 1 | 52/30 | 37/33 | 42/33 | 46/33 | 32/33 | 37/33 |
| 2 | 0/30 | 0/33 | 0/33 | 0/33 | 0/33 | 0/33 |
| 3 | 0/15 | 0/33 | 0/33 | 0/33 | 0/33 | 0/33 |
| 4 | 0/15 | 0/33 | 0/33 | 0/33 | 0/33 | 0/33 |
| 5 | 0/15 | 0/33 | 0/33 | 0/33 | 0/33 | 0/33 |
| 6 | 0/20 | 0/25 | 0/25 | 0/25 | 0/25 | 0/25 |
| | 192/175 | 73/225 | 87/225 | 86/225 | 68/225 | 80/225 |

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| 3 | 0/15 | 0/33 | 0/33 | 0/33 | 0/33 | 0/33 |
| 4 | 0/15 | 0/33 | 0/33 | 0/33 | 0/33 | 0/33 |
| 5 | 0/15 | 0/33 | 0/33 | 0/33 | 0/33 | 0/33 |
| 6 | 0/20 | 0/25 | 0/25 | 0/25 | 0/25 | 0/25 |
| | 192/175 | 73/225 | 87/225 | 86/225 | 68/225 | 80/225 |

▶ Our team had comparatively little experience
▶ The project's problem domain was challenging to understand
▶ Studying existing products and technologies took a lot of time
▶ The scrum master served also as team leader and lead developer

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# Retros: Sprint 0

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Sprint planning:

- BI clarity and simplicity (user guide helps)
- It might have been better if the PO had created the stories from scratch -Matias, Tuomo
- We should actively seek more input from PO when developing the user guide
- we should make sure we reserve enough time for the actual story selection on Monday -Matias

# Retros: Sprint 0

Daily scrums:

- ▶ We have mostly been doing teamwork, so there has been little new info in the scrums -Matias -Joona -Teemu

- ▶ They have been overly long and they have extended due to inexperience.

- ▶ People are late.

# Retros: Sprint 0

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Teamwork sessions:

- Sessions are too long and sometimes people get hungry
- Generally someone has to leave early or comes late

# Retros: Sprint 0

Tools:

- Flowdock is good x6
- Agilefant has a steep learning curve. -liro
- People tend to forget to log their time at agilefant
- Github hasn't been used much. Hope to use it more during future sprints
- Floobits is very buggy.
- Top 3 tools: 1) GitHub 2) Flowdock 3) Agilefant
- Worst 3 tools: 1) Floobits 2) Six tactics 3) Agilefant

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# Retros: Sprint 0

How teamwork could be improved:

▶ People should be more on time

▶ Scrum Master shouldn't have to work as a team leader too.

▶ Hard to think of improvements since we haven't really started coding yet