Progress report

Neronet

Toolbox for managing the training neural networks

CSE-C2610 Software Project

Aalto University

December 6, 2015

Progress report

Neronet

Introduction

Results

Demo

Quality

Effort





Introduction

Goals

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

specification and management of experiment queues

Progress report

Neronet

Introduction

Results

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Retros

- specification and management of experiment queues
- batch submission of experiment jobs to computing clusters



Goals

Retros

- specification and management of experiment queues
- batch submission of experiment jobs to computing clusters
- monitoring of ongoing experiments' logs and parameter values

Effort

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Introduction Goals

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- batch submission of experiment jobs to computing clusters
- monitoring of ongoing experiments' logs and parameter values
- access to experiment information during and after the run
- configurable notifications on experiment state and progress
- configurable criteria for experiment autotermination
- logging of experiment history



Introduction

What

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

Progress report

Neronet

Introduction

Results

Demo

Quality



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Retros

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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.

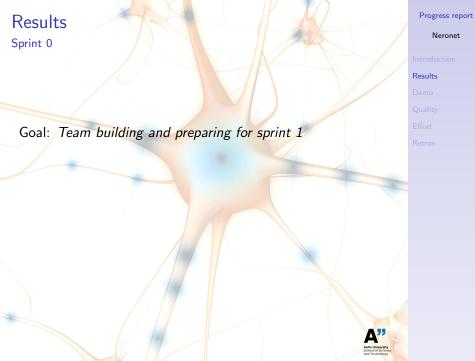


Introduction What

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- 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.







Results
Sprint 0

Goal: Team building and preparing for sprint 1 Done Product Backlog Items: None

Progress report

Neronet

Introduction

Results

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Introduction

Results

Demo

Quality

Effort

Retro

Goal: Team building and preparing for sprint 1 Done
Product Backlog Items: None
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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Results

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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

Progress report

Neronet

Introduction

Results

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Results

Sprint 1

Goal: Develop a prototype that offers the most basic functionality via a CLI
Product Backlog Items:

Progress report

Neronet

Introduction

Results

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▶ US1: As a user, I want a basic user guide that would cover the installation of Neronet and its use via CLI.

Progress report

Neronet

Introduction

Results

Demo

Quality



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Done

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Introduction

Results

Demo

Quality



Sprint 1

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▶ US1: As a user, I want a basic user guide that would cover the installation of Neronet and its use via CLI. Done

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Progress report

Neronet

Results



Quality

Retros

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Goal: Develop a prototype that offers the most basic

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Just a prototype, not ready for release to users.

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

Retros

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: Bl:s are Done, increment is tested and reviewed, sprint goal is achieved



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Definition of done:

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- 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.



Retro

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

Retros

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

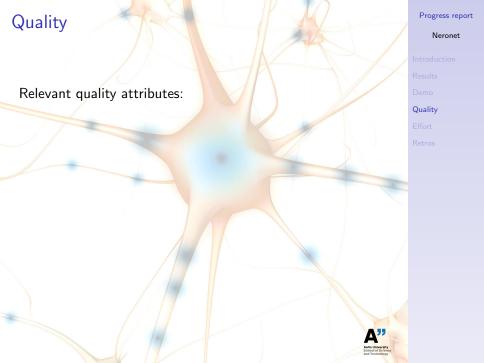
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4	3	3	3	3	1
5	1	3	2	1	1
7	2	3	3	2	2

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)

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Relevant quality attributes:

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Relevant quality attributes:

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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.



Effort

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

_		(_ /	_			
S	Samuel	Teemu	Tuomo	Joona	liro	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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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 leader developer

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Retros

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

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.



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Introduction

Result

Quality

Retros

Teamwork sessions:

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



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Retros

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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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

