

Product Vision

Neronet

Project 2

Toolbox for managing the training
neural networks (Pyy Takala)

CSE-C2610 Software Project
Aalto University

November 3, 2015

Outline

Why

What

For whom

Product Vision

Neronet

Why

What

For whom

Why – business view

Currently available state-of-the-art tools and systems for computational research could be improved.

Researchers are slowed down by lack of good easy tools for practical everyday difficulties like

Product Vision

Neronet

Why

What

For whom

Why – business view

Currently available state-of-the-art tools and systems for computational research could be improved.

Researchers are slowed down by lack of good easy tools for practical everyday difficulties like

- ▶ managing a queue and history of different experiments

Product Vision

Neronet

Why

What

For whom

Why – business view

Currently available state-of-the-art tools and systems for computational research could be improved.

Researchers are slowed down by lack of good easy tools for practical everyday difficulties like

- ▶ managing a queue and history of different experiments
- ▶ specifying several variations of experiments and running them

Why – business view

Currently available state-of-the-art tools and systems for computational research could be improved.

Researchers are slowed down by lack of good easy tools for practical everyday difficulties like

- ▶ managing a queue and history of different experiments
- ▶ specifying several variations of experiments and running them
- ▶ getting information about the computing environment

Why – business view

Currently available state-of-the-art tools and systems for computational research could be improved.

Researchers are slowed down by lack of good easy tools for practical everyday difficulties like

- ▶ managing a queue and history of different experiments
- ▶ specifying several variations of experiments and running them
- ▶ getting information about the computing environment
- ▶ monitoring and controlling progress of ongoing experiments

Product Vision

Neronet

Why

What

For whom

Why – business view

Currently available state-of-the-art tools and systems for computational research could be improved.

Researchers are slowed down by lack of good easy tools for practical everyday difficulties like

- ▶ managing a queue and history of different experiments
- ▶ specifying several variations of experiments and running them
- ▶ getting information about the computing environment
- ▶ monitoring and controlling progress of ongoing experiments
- ▶ analysing and comparing the results of experiment variations

Why – business view

Currently available state-of-the-art tools and systems for computational research could be improved.

Researchers are slowed down by lack of good easy tools for practical everyday difficulties like

- ▶ managing a queue and history of different experiments
- ▶ specifying several variations of experiments and running them
- ▶ getting information about the computing environment
- ▶ monitoring and controlling progress of ongoing experiments
- ▶ analysing and comparing the results of experiment variations

This leads to ineffective use of man and machine hours.

What – product goals

The product's goal is to enable easy

1. specification of experiments and management of queues
2. batch submission of experiment jobs to computing clusters

Product Vision

Neronet

Why

What

For whom

What – product goals

The product's goal is to enable easy

1. specification of experiments and management of queues
2. batch submission of experiment jobs to computing clusters
3. monitoring of ongoing experiments' logs and parameter values
4. access to experiment information during and after the run
5. configurable notifications on experiment state and progress
6. configurable criteria for experiment autotermination

Product Vision

Neronet

Why

What

For whom

What – product goals

The product's goal is to enable easy

1. specification of experiments and management of queues
2. batch submission of experiment jobs to computing clusters
3. monitoring of ongoing experiments' logs and parameter values
4. access to experiment information during and after the run
5. configurable notifications on experiment state and progress
6. configurable criteria for experiment autotermination
7. logging of experiment history
8. preferences configuration

Product Vision

Neronet

Why

What

For whom

What – product goals

The goals should be achieved in a generic way suitable for many different computational problem areas and experiment types.

Product Vision

Neronet

Why

What

For whom

What – product goals

The goals should be achieved in a generic way suitable for many different computational problem areas and experiment types.

Potential extra goals:

1. visualisation and analysis of experiment data
2. robust multi-user support

Product Vision

Neronet

Why

What

For whom

What – product goals

The goals should be achieved in a generic way suitable for many different computational problem areas and experiment types.

Potential extra goals:

1. visualisation and analysis of experiment data
2. robust multi-user support

Nonfunctional requirements:

1. low computational and memory overhead
2. good usability
3. easily maintainable and extensible
4. open source

For whom – users

The envisioned users are all individuals who run long lasting computational experiments and appreciate progress feedback.

Product Vision

Neronet

Why

What

For whom

For whom – users

Product Vision

Neronet

Why

What

For whom

The envisioned users are all individuals who run long lasting computational experiments and appreciate progress feedback. The potential user segments include for instance:

- ▶ Deep learning researchers
- ▶ Machine learning researchers
- ▶ Computational physics researchers
- ▶ Computational bioscience researchers
- ▶ Data science practitioners
- ▶ Enthusiasts & hobbyists