[Firma]  
Prosjektomfang

1. desember 2016

# Oversikt

## Prosjektbakgrunn og -beskrivelse

Det viser seg at NIDEA har heftig teknologi. Deriblant Deep Learning, og slike FrameWorks: <https://developer.nvidia.com/deep-learning> & <https://developer.nvidia.com/deep-learning-frameworks>.

Slik jeg har forstått det benytter NVIDEA seg av GPU’ens stadig heftigere kraft

## Prosjektomfang

Massivt. Først må man kunne C/C++ som minimum, og de ulike frameworksa har ulike språk de støtter. Personlig vil jeg prøve å lære meg Python som førsteprioritet. Andre som ofte støttes er C, C+, C++, Deretter må man sette seg inn i rammeverkene her, antakeligvis mengder med matematikk og abstrakte konsepter,

## Hvorfor burde vi bry oss?

Deep learning is used in the research community and in industry to help solve many big data problems such as computer vision, speech recognition, and natural language processing. Practical examples include:

* [Vehicle, pedestrian and landmark identification for driver assistance](https://news.developer.nvidia.com/tag/automotive/)
* [Image recognition](https://news.developer.nvidia.com/tag/image-processing/)
* [Speech recognition](https://news.developer.nvidia.com/tag/speech-and-audio-processing/) and [translation](http://devblogs.nvidia.com/parallelforall/introduction-neural-machine-translation-with-gpus/)
* [Natural language processing](https://news.developer.nvidia.com/tag/speech-and-audio-processing/)
* [Life sciences](https://news.developer.nvidia.com/tag/medical-and-lifesciences/)

Dette er enorme potensialer her, om man er kreativ og ambisiøs.

## HOW GPUs ACCELERATE SOFTWARE APPLICATIONS

GPU-accelerated computing is the use of a graphics processing unit (GPU) together with a CPU to accelerate [deep learning](http://www.nvidia.com/object/deep-learning.html), [analytics](http://www.nvidia.com/object/data-science-analytics-database.html), and [engineering](http://www.nvidia.com/object/computational-structural-mechanics.html) applications. Pioneered in 2007 by NVIDIA, GPU accelerators now power energy-efficient data centers in government labs, universities, enterprises, and small-and-medium businesses around the world. They play a huge role in accelerating applications in platforms ranging from artificial intelligence to cars, drones, and robots.

GPU-accelerated computing offloads compute-intensive portions of the application to the GPU, while the remainder of the code still runs on the CPU. From a user's perspective, applications simply run much faster.

## GPU vs CPU Performance

A simple way to understand the difference between a GPU and a CPU is to compare how they process tasks. A CPU consists of a few cores optimized for sequential serial processing while a GPU has a massively parallel architecture consisting of thousands of smaller, more efficient cores designed for handling multiple tasks simultaneously.

**GPUs have thousands of cores to process parallel workloads efficiently**

**Om «Squem»:**

### GPU accelerated SQL database engine for

### big data analytics. Sqream speeds SQL

### analytics by 100X by translating SQL queries

### into highly parallel algorithms run on the

### GPU.

### Up to 100TB of raw data can be stored and

### queried in a standard 2U server. Inserts

### and analyzes hundreds of billions of

### records in seconds. No indexes required.

### No changes to SQL code or data science

### paradigms required.

## Andre interessante linker

<https://developer.nvidia.com/> er har en veldig god oversikt

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