Introduction to parallel programming

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Courses lectured over several afternoons will give an introduction to parallel programming.

All courses are **free** of charge.

All lectures are held in **English**.

All courses are held twice every year (**February** and **September**).

Registration: Send an e-mail to: adm@hpc.ntnu.no

(Please add your NTNU User Name in the Registration Email)

Topics covered:

- A walk through of cluster architectures. Amdahl's vs Gustafsons law. Simple MPI-calls, programs with MPI-collective
- OpenMP Programming for CPU and GPU, and hybrid programming (MPI/OpenMP). (OpenMP for GPU is only in September)
- MPI: Programming examples and Algorithms .
- (Only in February) Parallel Matlab Programming and distributed Matlab using MPI. Examples with parallel R and parallel Python. Examples using Deep learing in Matlab.
- Introduction to Jupyter Notebooks is a tutorial showing the basic use of Python in a Jupyter Notebook

Install a Matlab Client on your laptop. See http://www.ntnu.no/adm/it/orakel and software.ntnu.no

The MPI course consists of two parts: an introduction to MPI and a second part that covers a lot of the examples from the IBM's Redbook "Practical MPI programming", Practical MPI Programming - IBM Redbook

Remember to bring your own laptop.

(For Window users: Please install a ssh client, like X-Win32 (which you find in software.ntnu.no), or PuTTY with an X-server on your computer e.g. Xming .

Date and place.

Date: January 30, February 4 - 14, 2020

Location: Bygg-teknisk, L10 , Gløshaugen NTNU - Trondheim, Norway .

(Use the smart phone app MazeMap for navigation)

Registration: (see above)

Date	Time	Duration	Room	Subject	Instructor
Jan 30	15:15	~3hrs	L10	Introduction to parallel programming	Jan Christian Meyer (jan.christian.meyer@ntnu.no)
Feb 04	14:15	~3hrs	L10	Introduction to Linux, Optional, very elementary, mostly for newcomers to "command line" linux	Egil Holvik (egil.holvik@ntnu.no)
Feb 05	15:15	~3hrs	L10	Introduction to Jupyter Notebooks (Optional for HPC users)	Bjørn Lindi (bjorn.lindi@ntnu.no)
Feb 06	15:15	~4hrs	L10	Introduction to OpenMP Programming part 1, with exercises in C and Fortran	John Floan (john.floan@ntnu.no)
Feb 12	15:15	~4hrs	L10	OpenMP part 2. Hybrid Programming OpenMP and MPI, with exercises (C and Fortran)	John Floan (john.floan@ntnu.no)
Feb 13	15:15	~3hrs	L10	MPI: Programming and Algorithms	Henrik Nagel (henrik.nagel@ntnu.no)
Feb 14	15:15	~4hrs	L10	Parallel Matlab, Pyhon and R. Some deep learning.	John Floan (john.floan@ntnu.no)

- Course materials