Research groups and available master projects @HVL

Research groups at HiB

- Model-driven software engineering
- Grid computing
- Computer graphics
- Computer communication
- Engineering computing
- IT in health care applications

...plus

- External projects

Model-driven software engineering

- **Lars Kristensen**
- **Adrian Rutle**
- **Yngve Lamo**
- **Volker Stolz**

- Model-Driven Engineering (MDE) is a software development methodology which focuses on software models rather than on coding.

- These models are used to generate (parts of) software systems by means of model-to-model and model-to-text transformations.

Model-driven software engineering

- There are several thesis proposals connected to the DPF project, dpf.hib.no:
  - Develop a configurable syntax editor for the DPF workbench with use of Eclipse Graphiti
  - Further develop the codegenration facilities of the DPF workbench
  - Development of versioning system for graphical models
  - The DPF group are also interested in supervisning projects on the foundation of MDE. E.g. code generation, model transformation, abstract/concrete syntax, versioning etc.

Model-driven software engineering

- Development of an algorithm that deduces a sequence of editing steps that transform the old version of the model to a new version.

- The proposal is to implement this algorithm using the Eclipse Modeling Framework.

- General master projects within software modelling, model checking and software verification techniques, model-based code generation, and practical/industrial applications.

Grid Computing

- **Bjarte Kileng**
- **Kristin F. Hetland**

- Grid systems are developed to make all available computing resources appear as one logical entity, hiding very heterogenous hardware configurations from the average user.

Grid Computing

- The ALICE experiment at CERN use grid computing techniques to handle off-line analysis of the huge amount of data produced in the experiment. The Nordic countries operates a distributed Tier-1 centre using ARC as internal middleware. The main topic of the task will be investigating virtualization techniques in order to make an interface between the ALICE grid system AliEn and the NDGF system ARC.

Høgskulen på Vestlandet

Embedded systems

- **Håvard Helstrup**
- **Johan Alme**

- Also tied to the ALICE exepriment at CERN is a set of projects dealing with handling of high volume data in embedded systems and real time communication.
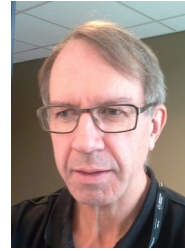
Høgskulen på Vestlandet

Engineering computing

- **Dhayalan Velauthapillai**
- **Jon Eivind Vatne**
- **Alexander Lundervold**
- Modelling and simulation of physical phenomenons such as:
  - Particle tracking
  - Magnetic Fields
  - Electromagnetic Waves

Computer Graphics

- **Harald Soleim**
- **Atle Geitung**
- **Daniel Patel**

- Computer Graphics
- Motion sensors
- External projects
- Real-time rendering

IT applications for health care

- **Yngve Lamo**
- **Ilona Heldal**
- **Carsten Helgesen**
- **Svein-Ivar Lillehaug**

- Patient oriented applications, not «health apps» for the general public
- Improving daily work for health professionals
- Integration, interoperability between different systems
- Support for educational and training
- Support for human collaboration

Høgskulen på Vestlandet

Secure and reliable communication

- **Constanza Riera**
- **Pål Ellingsen**

- Working with simulations of digital communication channels.
- Security in web applications

HVL Project Website

- Projects at HVL can be found at
  http://home.hib.no/ansatte/pel/master-projects.html

What next?

- First lecture MOD251 System Development
  - Monday January **16th** at 11.15
  - Room F228 at HVL
- First lecture MOD350 MOdel Based Software Eng.
  - Tuesday January **17th** at 10.15
  - Room E123 at HVL
- First lecture MOD253 Computer Graphics
  - Thursday January **26th** at 10.15
  - Room C115 at HVL
- First lecture MOD259
  - Tuesday January **17th** at 12.15, room

Course schedules

- https://no.timeedit.net/web/hib/db1/aistudent/