

# Software Engineering Research Group



```
public class TcpClientSample
{
    public static void Main()
    {
        byte[] data = new byte[1024]; string input; string data;
        TcpClient server;
        try{
            server = new TcpClient("...", port);
        }catch (SocketException){
            Console.WriteLine("Unable to connect to server");
            return;
        }
        NetworkStream ns = server.GetStream();
        int recv = ns.Read(data, 0, data.Length);
        stringData = Encoding.ASCII.GetString(data, 0, recv);
        Console.WriteLine(stringData);
        while (true){
            input = Console.ReadLine();
            if (input == "exit") break;
            newChild.Properties["*"].add
            ("Auditing.Changes");
            newChild.Close();
        }
    }
}
```

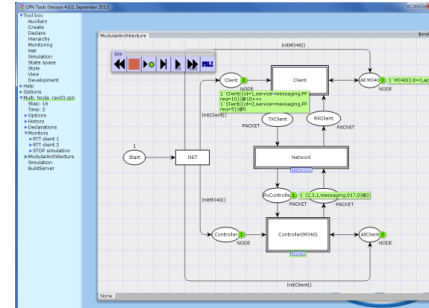
Department of Computing, Mathematics, and Physics  
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<http://prosjekt.hib.no/ict/research/software-engineering/>

# Software Engineering

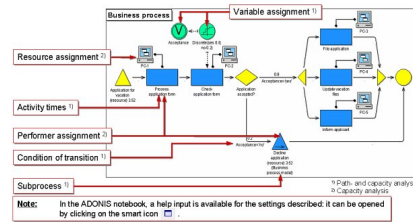
- programvareutvikling

- **Methods and technology for the design, implementation, evaluation, deployment and maintenance of software:**



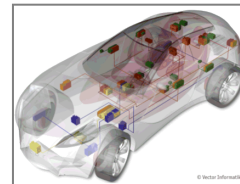
- **Areas for master's thesis projects:**

**Smart city**

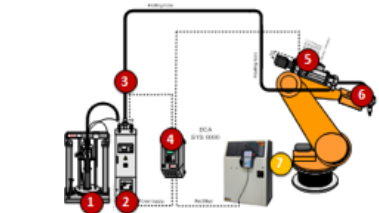


**Healthcare systems**

**Automotive software**

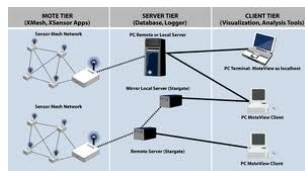


**Mobile and cloud applications**



**Automation software**

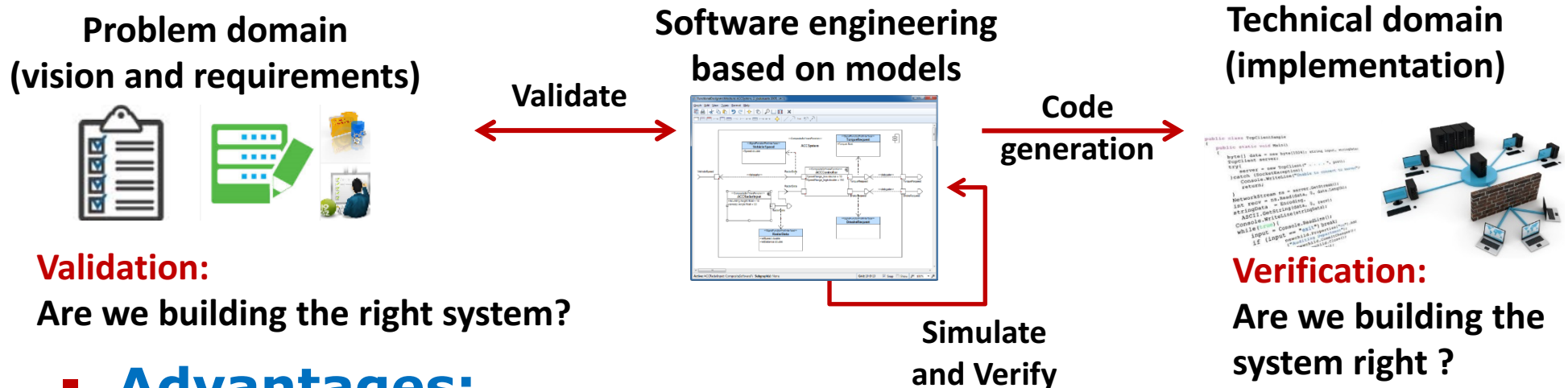
**Robotics software**



**Networked embedded systems (IoT)**

# Model-driven Software Engineering

- A prominent approach to software engineering based on the **construction of models**:

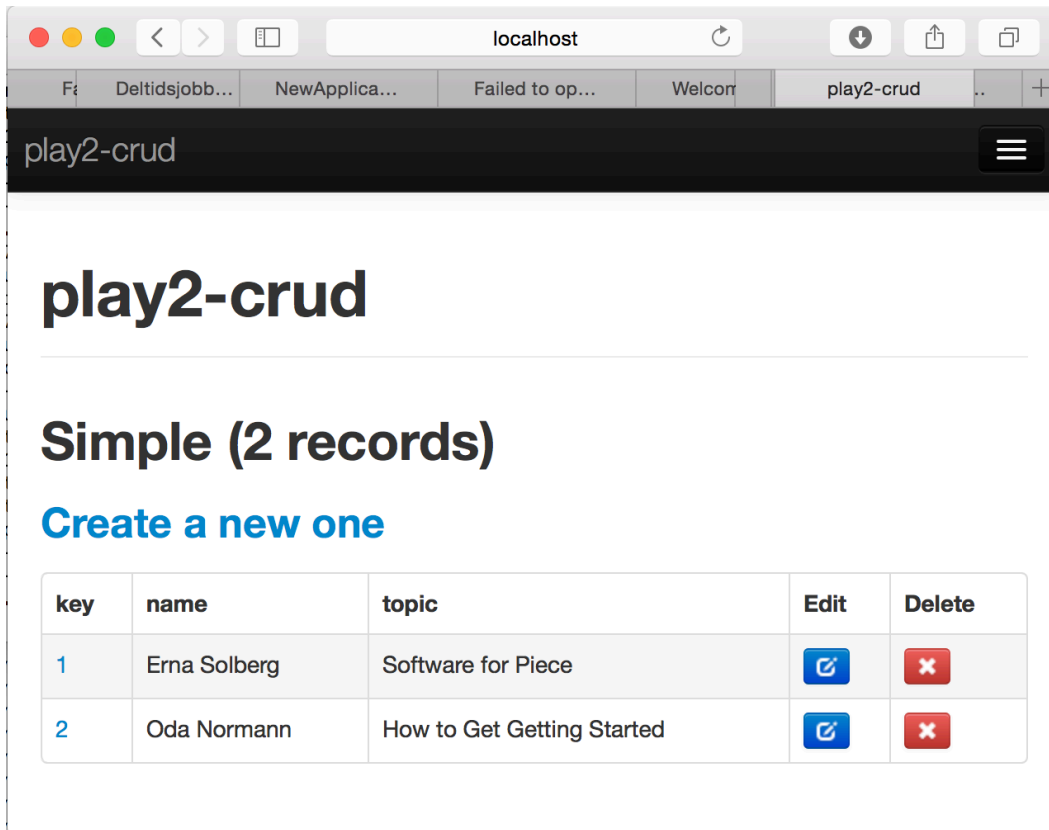


- **Advantages:**

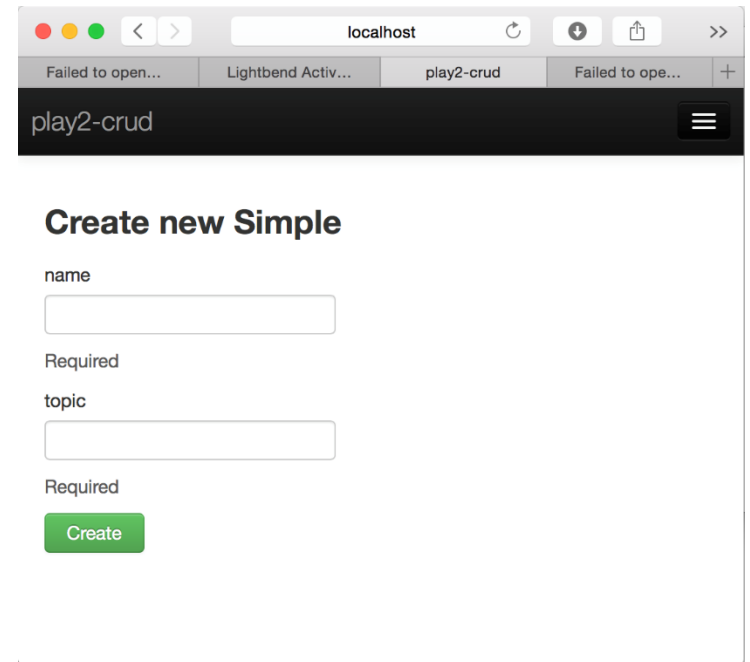
- **Adaptability:** Use of high-level and domain-specific languages for software and system development.
- **Productivity:** Automated code generation for a wide range of platforms based on the same underlying model.
- **Reliability:** Simulation and verification prior to implementation and deployment.

# Simple MDSE: The Play Framework

- A simple CRUD web application based on an object-oriented domain model:



plements BasicModel<Long> {



# Collaboration and Projects

- **Collaboration with several international research group** (Germany, Spain, Canada, France, Sweden,...).
- **Projects with regional and international partners:**
  - *INTROMAT* - [INtroducing personalized TReatment Of Mental health problems using Adaptive Technology](#). NFR IKTPluss Lighthouse Project (2016-2022) (YL).
  - *COEMS* - *Continuous Observation of Embedded Multicore Systems*. EU Horizon 2020 project (2016-2019) (VS).
  - *EDoCS: Model-driven Software Engineering of Doser Control Software* with SCA Solutions (2017/18) (LMK).
  - *Next Generation Electrical Architecture*. VINNOVA project with Volvo and automotive suppliers (2015-2018) (RH).

# SE People @HVL / Supervisors



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- Prof. II. Gabriele Taentzer
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- **PhD students**
- **Post-doctoral researchers**
- **Master's students**