EMIL SEBASTIAN RØMER

Software Engineer at Ramboll Denmark & M.Sc. Software Engineering

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EXPERIENCE

Software Engineer
Ramboll Denmark
06-2017 – Ongoing Copenhagen

- **Designing simulation software for Facilities Management.** My main responsibility have been the full-stack development of a web-based simulation software for strategic planning of maintenance procedures in facilities. This includes many meetings with various stakeholders for requirement engineering as well as the design, implementation, test and validation of both software and the results it produces.

Student Programmer
SDU, Mærsk McKinney Møller Institute
09 2015 – 06-2017 Odense M

- **Building low-energy portable Bluetooth trackers for occupancy detection.**
- R&D'ed state-of-the-art solutions to improve indoor occupancy detection.
- Prototyped custom circuits,
- Programmed the AtMega328P in C++
- Conducted real life tests in local schools.

Intern
Ramboll Denmark
08-2016 – 12-2016 Copenhagen

- Researching simulation models for building decay.

Student Programmer
Powel Denmark
12-2013 – 08-2015 Kolding

- Developing systems dealing with nationwide utilities infrastructure.

3'rd Level IT Support (Volunteering)
Roskilde Festival
06-2013 – 07-2017 Roskilde

EDUCATION

M.Sc in Software Engineering
University of Southern Denmark
09-2014 – 06-2017

Focus of study: Advanced software design, data analytic and AI
Thesis: *Decision Support Systems for Budget Optimization of Building Management*
In collaboration with Ramboll Denmark, The Capital Region of Copenhagen & The Municipality of Hillerød. **Grade: 12 / A**
Results: GPA: 11.1 / A

B.Sc in Software Engineering
University of Southern Denmark
09-2012 – 06-2015

Focus of study: Requirement engineering, software- architecture & design patterns, software-maintenance & tests and process-design & development
Thesis: *Recognizing and Visualizing Energy Consumption Patterns of Buildings Using Data Mining.* In collaboration with the municipality of Odense. **Grade: 12 / A**
Results: GPA: 9.9 / B

PROGRAMMING LANGUAGES

Python	●●●●●
Java	●●●●●
C#	●●●●○
C++	●●○○○
R	●●●●○
mySQL	●●●●●
PostgressSQL	●●●●●
Microsoft SQL	●●●●○
PL/Sql	●●●●●
SMap	●●●●●

PROJECTS

Occupancy detection
As a RnD project at the institute for Energy Informatics, i worked on building portable devices for occupancy detection. The prototype devices was build on ATMega328P processors on a custom cirtuit from my own design. In this project we used a RN41 bluetooth modules to sniff on traffic from other devices. The hipothesis here was that with a network of multiple of theses portable devices, it would be possible to either triangulate or fingerprint locations of occupancs, with a higher accuacy than GPS tracking in a indoor setting.

Occupancy detection
At the institute for Energy Informatics, based on multiple datasources (camera-feeds from every building entry, individual CO2-, Water-flow- , humidity- and electricity sensors in room every room), I assited a PhD student in developing a deep neural network that would extract and provide information of how many people were in the building at any given time, there location and try to predict the context/activitites of the occupancs

Motion sensor
In a 4-month semester project, a team and I developed a sensor that registered people walking on a stair. Through the use of an Arduino, data would be collected on a server.

Wifi Fingerprinting
Through the use of WiFi sniffing and statistical machine learning, in collaboration with a team, we dynamically built models of buildings and estimated the location of the sniffing phone.

GIS and power-grid
At Powel, i worked with topological analysis' of the nation-wide electricity grid, mostly for fault detection, but also briefly for risk assesments.

Domain specific languages for building dashboard wep applications
In order to deal with the high requirements of customizable dashboard applications for data exploration and visualization, a fellow student and I developed a prototype DSL for building custom dashboard applications

Augmented spray can
By augmenting the physical surroundings through a phone, together in a team, we turned a smart phone into a spray can, where everyone could *tag* everything everywhere

LANGUAGES

Danish	●●●●●
English	●●●●●
German	●○○○○

SKILLS

IFC4 ADD2	●●●●●
.DWG	●●●●○
Web Development	●●●●●
DSL	●●●●●
Component-Based sw	●●●●○
Linux	●●●●○
Artificial Intelligence	●●●●●
Machine Learning	●●●●○
Simulation Modelling	●●●●○
Distributed Computing	●●●●○
Embedded	●●●○○
IoT	●●●●○
NoSQL	●●●●○
NewSql	●●●●●

INTERESTS

In my spare time, I usually draw or take up different IoT projects around the house.
Further I enjoy cooking a great meal for my girlfriend and friends,
-especially I have a passion for Mediterranean styled food which culminates in many trips and cooking classes.

RECOGNITIONS & PUBLICATIONS

Danfoss Engineering Tomorrow 2016
Winner: Bachelor thesis on energy consumption pattern recognition.

Publication
Clustering and Visualisation of Electricity Data to identify Demand Response Opportunities: Poster Abstract in collaboration with M.Sc Almir Mehanovic, Ph.D Jakob Hviid and Ph.D Mikkel Baun Kjærgaard.