Ulrik Landberg Stephansen

I have a background in Biomedical Engineering with specialities in Medical Informatics. I have experience in all phases of the development of database-driven IT systems, from domain modeling and requirements capture to architecture development, as well as actual implementation and testing. I have a broad knowledge of various technologies, primarily open-source platforms in web, PHP, and Java. I am used to working in project-oriented teams, in which you can take advantage of the skills among the team members to achieve better results, but I also work well independently on specific tasks. Though my education I have experience in 3-D medical image analysis and application of model-based segmentation techniques, ad well as pattern recognition methods. I have international experience both as participant in the Engineering World Health Summer Institute in Central America, though my stay as a graduate research trainee at Montreal Neurological Institute, Canada, as well as through travels to Tanzania and Cambodia.

Experience

August 2012 – **Systems Engineer**, *Systematic*, Aarhus.
As a developer on the Electronic Health Record project it is my responsibility to develop specific parts of new functionality in collaboration with a team of developers, testers, UX, and architects. The development process is backed by Scrum, Lean and Systematic's CMMI5 appraised processes.
- Java, Swing
- Oracle, PL/SQL
- JBoss EAP
- Scrum, CMMI5

August 2012 – **AC employee**, *Danish Centre for Health Informatics (DaCHI)*, Aalborg.
October 2012 Extension of the job at student assistant, see below.

April 2011 – **Climbing Instructor**, *DGI-Huset i Nordkraft*, Aalborg.
August 2012 As climbing instructor I was responsible for the safety of climbers when individuals or companies book the climbing wall.

March 2008 – **Student Assistant**, *Danish Centre for Health Informatics (DaCHI)*, Aalborg.
June 2012 My primary function was to develop and maintain smaller conference websites, provide technical support at larger conferences, as well as other technical tasks.
- PHP, MySQL
- HTML, CSS, jQuery
- Drupal, Ægir, Drush
- Apache
- Unix server administration
- MS Access

Education

2012 spring — **Specialities, Medical Informatics**, *Aalborg University*, Aalborg.

10th semester: *Level-set appearance modeling for segmentation of anatomical structures in 3-D medical images*

The project was on developing and implementing statistical models for segmentation of MR and CT images [1].
- MINC file format and toolchain.
- DICOM-RT specification.
- Statistical modeling.
- Model-based segmentation techniques.

2011 Aug-Dec — **Graduate Research Trainee**, *McConnell Brain Imaging Center, Montreal Neurological Institute, McGill University*, Montréal, Canada.

9th semester: *Level-set Appearance Modeling of Human Vertebrae*

The project was on segmentation of human vertebrae from CT using Active Appearance Modeling. Through the stay I have gained experience in model-based segmentation techniques and the MINC file format and toolchain.
- International experience at an internationally recognized research lab.
- MINC file format and toolchain.
- Model-based segmentation techniques.

2010-2012 — **Master, Medical Informatics**, *Aalborg University*, Aalborg.

8th semester: *Airway Tree Segmentation for Optimal Stent Placement Prior to Radiotherapy*
The project was on segmentation of the airway tree from CT [2]. I have gained experience in basic 3-D image analysis and segmentation techniques, as well as the DICOM file format.
- DICOM file format.
- 3-D image analysis.

7th semester: *Automatic Detection of Flow in New Arteriovenous Fistulas*
I have gained experience in practical application of signal processing and classification.
- Digital signal processing.
- Pattern recognition and classification.
- Conducting clinical trials.

2010 fall — **AAU Incubator**, *Aalborg University*, Aalborg.

Course on entrepreneurship, business development, marketing, budgeting and legal aspects.

2010 Jul-Aug — **Summer Institute**, *Duke University*, Costa Rica & Honduras.

As participant in the Engineering World Health Summer Institute i was stationed at an Honduran hospital. My task was to help the local staff maintain their hospital equipment. The Summer Institute is split into one month training and intense spanish course in Costa Rica, followed by one month stay at a hospital in Honduras.
- Inter-cultural experience.
- Understanding of conditions at third world hospitals.
- Practical maintenance of medical equipment.

2008-2010 **Bachelor, Biomedical Engineering**, *Aalborg University*, Aalborg.

6th semester: *DADDY – Computer system for registration of anesthesia*
During the project we developed a clinical database for monitoring quality in anesthesia. I have gained experience in designing and developing registration systems for the healthcare sector, and worked on the usability of such systems. The product has since been developed and has been licensed to the North Denmark Region, where it is being implemented for clinical use.
○ GUI design.
○ UML and Unified Process.
○ Java, Google Web Toolkit (GWT).
○ SOAP webservices.
○ MsSQL.

5th semester: *Forslag til implementering af Dansk Anæstesi Database på ANÆSTESIEN, 1. afdeling, RN*
The project was on analyzing the workflow of quality monitoring in anesthesia using Danish Anesthesia Database (DAD). During the semester I have gained insight into the clinical workflow on danish hospitals.
○ Conducting user surveys.
○ Understanding of clinical practice and workflow.
○ Statistical analysis with SPSS.

4th semester: *Measuring ratio of lung volume to anatomical dead space*
The project was on measuring vital lung parameters using a flow meter and a CO_2 meter. Through the project I have gained experience in digital signal processing and microprocessor programming.
○ Microprocessor programming in C.
○ Serial communication.
○ Digital signal processing.

3rd semester: *Tongue-controlled keyboard*
○ Analog electronics and filtering.
○ Electrical safety.

2nd semester: *Vurdering af musetypens betydning for gener i Musculus Trapezius ved hjælp af sEMG*
○ Designing scientific trials.
○ Interpretation of measurements.

Interests

Frivilligt Drenge- og Pige-Forbund, FDF

I have been a leader in the Danish scout-like organization FDF since 2005. I have participated in a vast number of leadership courses and am currently arranging such courses for young members in the age of 15 to 19 years. I am an instructor on tree climbing courses in FDF, and is a member of the group working on the official homepage. I am also a member of the outdoors committee.

Though my engagement in FDF I have gained experiences leading both kids and adults. I have gained experience arranging and organizing large events and camps. FDF is also a way for me to meet other people with various backgrounds and get to know how they see the world.

- Leadership experience, both kids and adults.
- Communication, teaching.
- Cultural insight.
- TYPO3 extension development.

EWH Aalborg University

I have founded and been a board member of EWH Aalborg University, which is the first Danish chapter of Engineering World Health (EWH). My primary task in the board was to develop and maintain the website. EWH works to improve the conditions at third world hospitals though training of the local maintenance staff, development of cheap and repairable equipment, as well as sending out engineering students to hospitals in Central America and Tanzania.

Outdoor living

I love nature and do hiking, various forms of climbing, and mountainbiking.

Language

Danish	**Mother tongue**	
English	**High level**	*High proficiency oral and in writing.*
German	**Beginner**	*Understands and can participate in short, everyday conversations and reads basic texts.*
Spanish	**Beginner**	*Understands short, everyday conversations and texts.*

Skills

Programming	PHP, Java, JavaScript, Matlab, Python, C
Web	HTML5, CSS3, jQuery, Google Web Toolkit, SOAP
CMS	Drupal, TYPO3
Databases	MySQL, Oracle, MsSQL, MS Access
Servers	Apache, Tomcat, JBoss
Imaging	MINC, DICOM, DICOM-RT
Tools	Subversion, Git, Gerrit, LaTeX, UML, xUnit

- Certified tree climbing instructor according to norms by Klatresamrådet; member of Treeclimbing Denmark
- 12 hour first aid course

References

DaCHI Marianne Sørensen, +45 9940 8809, mars@plan.aau.dk

Transcripts available upon request.

Publications

1 Anne Sofie Korsager, Ulrik Landberg Stephansen, Jesper Carl, and Lasse Riis Østergaard. The use of an active appearance model for automated prostate segmentation in magnetic resonance. *Acta Oncologica*, 52(7):1374–1377, 2013.

2 Ulrik Landberg Stephansen, Ronnie W. Horup, Mikkel Gram, Jens Tranholm Olesen, Jesper Carl, Anne Sofie Korsager, and Lasse Riis Østergaard. Airway tree segmentation for optimal stent placement in image-guided radiotherapy. In *The Fourth International Workshop on Pulmonary Image Analysis*, pages 135–146, 2011.