Lærke Karen Krohne

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Through my educational background and previous work I have specialized in advanced machine learning and statistical modelling of neuroimaging data, in particular functional magnetic resonance imaging (fMRI). Furthermore I have a profound interest in Bayesian statistics as well as model development and validation.

WORK HISTORY

2017 – PRESENT

PhD student, Causal Fingerprints of Brain Connectivity

Department of cognitive systems at DTU Compute and DRCMR

- Developing new causal models of brain connectivity
- Implementation of a novel validation protocol using online TMS-fMRI

2016 - 2017

Research Assistant

Danish Research Centre for Magnetic Resonance (DRCMR)

- Developing and optimizing novel unsupervised decomposition methods
- Working on state informed (EEG) closed loop brain stimulation (TMS)

2011 – 2014

Student Counselor

Technical University of Denmark (DTU)

Counseling and advising of current and prospect bachelor and master students at all DTU's programs. Furthermore using my flair for structure and organization to develop workshops and seminars

- Much experience with counseling as well as developing/facilitating presentations and workshops for both small and large groups (>500 people), in Danish and English.

2013 – 2014

Teaching and presentation development

LearningLab DTU

Lecturing at DTU LearningLab (1st semester students) and used my experience as a student counselor to help developing new learning material for DTU LearningLab.

- Vast teaching experience, including lecturing and facilitating group work and discussions for university students

2010 – 2010

Teaching assistant

Sanderum Skolen and Egehuset i Voldsmose

Teaching and organizing study plans for special needed children and teenagers.

Similar experiences also obtained from voluntary work with autistic children in a boarding school in Bristol (2009-2010)

EDUCATION

2014 – 2016

Master of Science in Neuroscience and Neuroimaging, GPA: 11.3 /12.0

Aarhus University and Chinese Academy of Sciences (CAS), (Beijing)

- Specialization in neuroimaging, in particular magnetic resonance imaging (MRI)
- Machine learning and advanced statistical modeling
- Well versed in neuroanatomy, physiology and molecular neurobiology

Selected Coursework: Advanced MRI, Neuroimaging hardware design, Machine Learning (Coursera course, Associate Professor Andrew Ng, Stanford University)

2011 – 2014

Bachelor of Science in Engineering, Medicine and Technology, GPA: 9.4 /12.0

Technical University of Denmark (DTU) and University of Copenhagen (KU)

- Mathematical modelling of physiological processes
- Thorough knowledge of human anatomy, physiology and pathophysiology

Selected coursework: Introduction to Medical Imaging, Continuous time signals and Linear Systems, Introduction to Medical Imaging Analysis, Pathophysiology

RESEARCH PROJECTS

2015 – 2016

Functional Connectivity during Theory of Mind and Empathy tasks, using Machine Learning in Subjects with Schizotypy

- Institute of Psychology (Beijing) and DRCMR (Denmark) - Master's thesis

- Development and optimization of unsupervised decomposition method for functional connectivity analysis (Multi-subject Archetypal Analysis)
- Using support vector machines to predict subjects with high schizotypy
- Organized and taught one day workshop about the applied methods of the thesis

2013 – 2013

Early Detection of Markers for Neurodegenerative Diseases -

DTU and Danish Center for Sleep Medicine (Glostrup hospital)– Bachelor project

- Developed semi-automatic sleep-wave detection algorithm based on wavelet transformation and advanced feature extraction
- Conference paper and two poster presentations

LIST OF PUBLICATIONS

Krohne, LK, Hansen, RB, Christensen, JAE, Sorensen, HBD & Jennum, P *'Detection of K-complexes based on the wavelet transform', IEEE Engineering in Medicine and Biology Society*. Vol. 2014, pp. 5450-5453.

VOLUNTARY WORK

2014 – 2016

Student representative and member of Teaching Committee

Sino Danish center and Chinese Academy of Sciences

Elected student member, responsible for improving the quality of the education and continuously evaluating the program.

Similar experience obtained being the student representative on my bachelor as well as in high school (2006-2013)

2013 – 2015

Founder and President of Engineering World Health, DTU

Establishment of the EWH chapter at DTU (www.ewh.dtu.dk)

- Start-up and project management and – development of a new organization
- Presenting and organizing events to promote the organization

EWH DTU has in the past 3 years send 22 students on exchange to developing countries to repair medical equipment, and has a variety of workshops, projects and courses running.

2010 – 2012

Project manager at Danish-Belarusian group, Red Cross Youth

Establishing an exchange project between young people from Denmark and Belarus. Vast experience with international project management and cooperation obtained.

2008 – 2009

Founder and project manager of Red Cross Youth, Bornholm

Founding group and establishing activities for young refugees from Myanmar.

Today the group runs several activities, including a homework café, and adventure club.

SKILLS AND AWARDS

AWARD & GRANTS:

2017 Amager og Hvidovre Hospitals forskningsmidler, main applicant, 100.00 kr., "Modelling and validating causal connectivity in the human brain"
2016 PhD Stipend (half) from Department of Applied Mathematics and Computer Science DTU, 818.000 kr.
2016 Winner of **Excellent International Students Evaluation** of all institutes of CAS (Chinese Academy of Sciences), 2.000 kr.
– Award for high grades, extracurricular activities and excellent master thesis achievements
2014 Funding for two years master study in China (total 111.000 kr.),
Knud Højgaards Fond, Direktør Ib Henriksens Fond, Dansk Tennis Fond, Oticon Fonden, Direktør Einar Hansen og hustru Vera Hansens Fond

CONFERENCES & WORKSHOPS

2017 Oral symposium at the International Consortium of schizotypy Research (Beijing)
2014 Conference paper, presented at 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), (Chicago)
2013 Poster presentation at 31st Danish Annual Congress in Biomedical Engineering
2011 Invited lecturer, Red Cross camp "Human trafficking Prevention Kit" (Serbia)

SOFTWARE:

Advanced: MATLAB, LaTeX, Statistical Parameter Mapping (SPM)
Moderate: R (statistics), LabView,

LANGUGAGES:

Danish and **German** - mother tongue, **English** – fluently (spoken and written), **Chinese** (mandarin) - basic communication skills

COMPETENCES:

- Machine Learning and connectivity modelling
- Strong international profile and vast management and start-up experience
- Diligent, independent and responsible