Frederik Warburg

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Education

2020 - 2023 **PhD in Uncertainty Quantification in Deep Learning** Danish Technical University
We aim to model uncertainties using Bayesian Deep Learning in Place Recognition. I am supervised by Søren Hauberg (Danish Technical University), Javier Civera (University of Zaragoza) and Søren K. S. Gregersen (Danish Technical University).

2018 - 2020 **MSc in Mathematical Modelling and Computing** Danish Technical University
I graduated from the honours program, which is an elite education with a more challenging course of study. During my studies I found a special interest in machine learning and computer vision. My current average grade is 11.9 / 12.0.

Spring 2019 **MSc Computer Science** University of California, Berkeley
I received Sparnord Fonden's FinTech Entrepreneurial Scholarship to study at UC Berkeley in the Spring 2019. I received a GPA 4.0 / 4.0. Besides my studies, I followed and won an entrepreneural track held by Innovation Center Denmark in Silicon Valley.

2015 - 2018 **BSc in Mathematics and Technology** Danish Technical University
I have obtained a solid mathematical foundation and advanced programming skills. I achieved an average grade of 10.3 / 12.0 placing me in the top 10 % of students at the university. I completed my BSc half a year faster than the standard time.

2014 - 2015 **BSc in Mathematics** Lindenwood University
After high school, I studied at Lindenwood University, MO, USA for one year. I was elected student senator, and as such I raised $7700 for an outdoor study area. I achieved an average grade of 3.8 / 4.0.

Publications

Summer 2020 **Mapillary Street-Level Sequences: A Dataset for Lifelong place recognition** CVPR
We curated and validated a large dataset using Mapillary images. The substantial size and diversity of the dataset makes it relevant for training of deep neural networks for place recognition.

Spring 2018 **Intensity Mapping for Mask Projection based Photopolymerization** ASPE, Berkeley
We presented a method for mapping the intensity field of the projected light in a photopolymerization system. We showed that the de-facto assumption about uniformly distributed light is invalid and we implemented a method for making the projection more uniform.

Experience

2019 - 2020 **Research Intern Place Recognition** Mapillary
I comprise a largest dataset for lifelong place recognition using images from Mapillary's crowds source image database. I evaluated several state-of-the-art deep learning place recognition methods for this dataset.

Fall 2019 **Teaching Assistant in Software Startup Studio** Danish Technical University
I teach DTU students about Google's 5 days SPRINT methodology and methods within modern software development.

Summer 2019 **Research Fellow in Deep Learning** ETH Zurich
I received ETH's Computer Science Summer Research Fellowship. I worked at Marc Pollefeys' Visual Computing lab at ETH. Under the supervision of Martin Oswald, Viktor Larsson and Mihai Dusmanu, I investigated a novel k-max pooling technique in several computer vision domains, including 3D reconstruction and super resolution.

2018 - 2019 **Data Scientist** Beep Analytics
We use machine learning to create a predictive tool that delivers data driven insights about repair parts for airplanes. The tool will provide improved maintenance and cost savings for airplane companies.

Summer 2018 **Research Assistant in SLAM** University of Zaragoza
Under the supervision of professor Javier Civera, I worked with lifelong place recognition in SLAM. I comprised a large dataset for lifelong place recognition using images from Google Street View. I used state-of-the-art deep convolutional neural networks to post-process the data and to test the difficulty of the dataset.

Spring 2018 **Teaching Assistant in Machine Learning and Data Mining** Danish Technical University
I taught DTU students about machine learning concepts and methods within both supervised and unsupervised learning.

2017 - 2018 **Data Scientist and App Developer** Danish Technical University
We scraped, cleaned, analyzed and presented data in an app that provides key-insights about the university's company collaborations. One feature of the app was an interactive graph representation where professors and companies were nodes and collaborations were edges.

Summer 2017 **Software Developer Summer Intern** AutoDesk
I developed the data structure and the interface of a template selector that will radically change the work-flow of AutoDesk Fusion that has more than 100.000 users.

2016 - 2017 **Student Ambassador** IBM
I was responsible for the relationship between IBM and DTU. I facilitated guest lectures and hackathons while communicating technical content about IBM products to DTU students and professors.

2015 - 2016 **Mentor** MentorDanmark
I taught high school students in mathematics and physics.