

# Jacob Jon Hansen

## Résumé

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Age: 25



## Education & Accomplishments

2016–2019 **M.Sc Mathematical Modelling and computation, DTU.**

Currently finishing last term on my master, focusing on machine learning and artificial intelligence. GPA: 11 (-3 to 12)

2013–2016 **B.Sc Electrical Engineering, Technical University of Denmark (DTU).**

Control, robotics, algorithms, automation and programming.

### Master Thesis

Title *Golf club detection and classification using deep learning for embedded devices*

Description Made in cooperation with TrackMan. Full machine learning project, from data collection to production. Subjects: Deep learning, active learning, siamese networks, data management, web scraping and modelling.

### Bachelor Thesis

Title *Camera based detection and control of pan-tilt mounted laser point*

Description Project on controlling a laser pointer with computer vision and a PID controller through servo motors. Subjects: 3D printing, motor parameter estimation, hardware design, controller design, computer vision, Raspberry Pi, Python, C and embedded hardware.

2018 **Participant of the annual ECMI modelling week.**

DTU's representative at the annual mathematical modelling week in Serbia, held by the European Consortium of Mathematics in Industry. Report: [link](#)

2017 **Winner of Oticon Audio Explorers.**

Made a design of a wireless communication system that won the Audio Explorers competition. Price was a fully paid trip to New York City.

2014 **Engineering Project, Precision Controlled Air Condition System.**

Received a grant to go to Shanghai to implement a control system for the Danish company Vikinor. Subjects: Control, hardware-in-the-loop, MATLAB and LabView.

## Projects

**NLP** In the course "*Advanced Machine Learning*" I did a project on matching educational material from Gyldendal to learning goals defined by the Ministry of Education. We used Facebook's fastText to create document embeddings. We got offered jobs at Gyldendal as a result of the project.

- RL** In the course "*Deep Learning*" I did research on creating agents capable of solving minesweeper. We tried both policy gradients, Q-Learning and evolutionary strategies. The project was awarded top grade. [github.com/jakejhansen/minesweeper\\_solver](https://github.com/jakejhansen/minesweeper_solver)
- AI** Project in the course "*AI and multi-agent systems*" on creating reasoning agents using symbolic AI techniques. Capable of solving grid-world like environments such as Sokoban
- CV** In the course "*Advanced Image Analysis*" I did a project on single image object detection and 3D path reconstruction using deep learning. Project won 2. best poster. **Poster Link**
- Data** Projects in the course "*Tools for Big Data*". Subjects: Unix, Git, SQL, MapReduce, Feature Hashing, LSH and analysing reddit / Wikipedia datasets.

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## Work Experience

- 2018 – 2019 **Student Assistant, TrackMan**, Copenhagen.  
Worked on player tracking in Baseball for use in MLB games. Subjects: Computer vision, web scraping, deep learning, TensorFlow
- 2016 – 2017 **Student Assistant, Deeplearning.dk**, Copenhagen.  
Small startup of Ph.d's from DTU with visits at Stanford, MIT and Harvard. Worked on combining LIDAR and camera data on a Nvidia Jetson TX2 board. Hardware design of conveyor belt, shown at NIPS 2017 and is now on display in Microsoft Technology Center in Copenhagen. Subjects: Computer Vision, Keras, depth data, LIDAR and linux.
- 2017 **Teaching Assistant, DTU**, Kongens Lyngby.  
TA in "*02633 Introductory Programming*", where I taught Python and MATLAB.
- 2015 – 2017 **Student Assistant, Oticon**, Smørum.  
Amplifier Quality department, conducting QA tests on various components. Did a large programming project of a monitoring system for climate chambers. Subjects: MATLAB, electronics, hacking and automation.
- 2013 **Department manager and sales representative, Elgiganten**, Holbæk.  
Responsible for the entertainment section (movies, music and games) in a large electronic retailer. Subjects: Warehouse management, customer support, sales and work delegation.
- 2007-2012 **Dishwasher, waiter, reviewer for gadget website and store worker.**  
Various jobs, always been working and loving to contribute.

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## Software

- Proficient **Python (openCV), MATLAB**
- Familiar **Java, C, R, javascript (d3), SQL, LabView, Bash**
- OS **Previously macOS and Windows, now mainly Linux (Ubuntu + i3-gaps)**
- DL **Keras, TensorFlow and FastAI (PyTorch)**

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## Personal

Very reflecting and highly motivated by being around other great people. Love hiking, mountains and up for bungee jumping anytime.