Henrik Lindgren

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Education

Linköping University — Linköping, Sweden
M.Sc Electrical Engineering - Mechatronics specialization — Jan 2020 - Jun 2021

Southampton University — Southampton, England
M.Sc Electrical Engineering - Semester abroad — Sep 2019 - Jan 2020

Linköping University — Linköping, Sweden
B.Sc Mechanical Engineering — Aug 2016 - Jun 2019

Experience

Volvo cars — Göteborg, Sweden
Control system engineer — Aug 2021 - Present

- Designed, implemented, tested and calibratied control strategies for controling the AC-refrigerant and heating system of Volvos and Polestars next generation of electric cars. EX90 and Polestar 3
- Model development in Simulink and testing of C code in python. Exploring data and modelling using python and it's libraries to improve or observe performance of the controlers and overall system.

Scania — Södertälje, Sweden
Thesis worker — Jan 2021 - Jun 2021

- Researching the capabilities of hybrid data-driven and model-based diagnosis. Working together with Scania to explore the effectiveness of data-driven methods compared to standard techniques.
- Designing and applying a Recurrent Neural Network in an industrial setting to model system states and sensor equations.

Volvo Cars — Linköping, Sweden
CDIO Student project — Aug 2020 - Dec 2020

- Designed and Modelled a nonlinear MIMO MPC and Kalmanfilter to control throttle and variable valve timing of a volvo engine. Implemented through d-space a real test bench engine.
- Designed a trajectory linearization function and multiple optimization functions.
- Project overview: http://www.isy.liu.se/edu/projekt/tsrt10/2020/volvo/

Newton Nordic — Linköping, Sweden
Research Engineer — Jun 2020 - Oct 2020

- Succesfully modelled a highly nonlinear 3-axis camera gimbal. System identification, exploring techniques such as Grey box/black box modelling and machine learning.
- Researched the possibilities of controlling a camera gimble with the use of a system model instead of the current manual tuning. A proof of concept showing promising results.
- Article: https://liu.se/en/news-item/modellen-funkade-inte-men-det-gjorde-sommarjobbet

Skills

Programming:	Python, Matlab, C, C++, Git, Simulink, Docker, Linux, Latex
Advanced Control Theory:	MPC, LQR, H-infinity, Nyqvist
Filtering:	Kalman, Extended Kalman, Unscnted Kalman, Particle filter
Other:	Sensor Fusion, SLAM, Machine learning, RNN
Languages:	Swedish, English — Native/Bilingual

Latest Projects

Selfbuilt NAS media server *Linux Ubuntu Server, Docker, Yaml, networking, VPN, reverse proxy, ZFS, home assistant* — https://jellyfin.henriklindgren.com
Hosting my own domain, henriklindgren.com with https and login credentials my NAS is using ubuntu server as an OS to host multiple docker containers and packages. Also enabling an endless aomount of projects.

Discord Image generation bot *Python, Docker, Stable-diffusion, GPU, NAS, Discord API*
Developed and maintain a 24/7 active Discord bot hosted on my NAS. Features text-to-image capabilities, allowing users to generate custom visuals. Freely available for integration across various Discord servers.

Citizenship

Dual American and Swedish Citizen