

# Ingimundur Vilhjálmsón

*Embedded Systems Programmer*

Seltjarnarnes, Iceland  
+354 6152133  
ingimundurvi@gmail.com  
ingimundur.com



## Education

- 2018–Present **Delft University of Technology**,  
*MSc in Embedded Systems, graduation in September 2021.*
- 2013–2017 **University of Iceland**,  
*BSc in Electrical and Computer Engineering.*  
*Grade: 7.32 (first class).*
- 2012–2013 **Irvine Valley College, Irvine, California**,  
*GPA: 3.47 (Dean's List).*

## Skills

- Programming Python, C, C++, Matlab, Java, SQL, Bash
- Tools AWS, Git, PyTorch, Django, Apache Spark, Wireshark, Mininet, LTSpice, Android Studio
- OS Linux, Windows
- Hardware ARM Cortex-A (Raspberry Pi), ARM Cortex-M (STM32, nRF)

## Masters Thesis

- Title *Deep Reinforcement Learning for Rapid Communication Network Recovery with Multiple Repair Crews*
- Supervisors Dr.ir. Fernando A. Kuipers and Ir. Jorik Oostenbrink
- Description This thesis introduces a deep reinforcement learning algorithm to find the optimal order of node recovery in a damaged communication network. The objective is to rapidly recover a network damaged by a disaster such that its weighted disconnectivity is minimized over the recovery process. Repair crews, traveling by trucks, are made to carry and deploy units similar to Cells-on-Wheels (COW) at the failed node locations.

## Work Experience

- 2014 – 2016 **City of Seltjarnarnes**,  
*Summer employee doing public maintenance.*

## Projects

- Quadcopter **Embedded Software for a Quadcopter.**  
Created embedded software for a quadcopter, adhering to strict real-time requirements and safety protocols for the course Embedded Systems Lab at TU Delft. It was equipped with an ARM Cortex M0 microprocessor, BLE module, external flash memory, along with motion processing units. It featured several flight modes including yaw-control to prevent the quadcopter from spinning, full-control to resist all external interferences, and height-control mode. Coding was done in C.

- Cloud Computing **Cloud-based Video Conversion System.**  
In the course Cloud Computing at TU Delft I developed an autonomous cloud-based video conversion system on AWS. A front-end was made with the Django web framework, where users upload video files to an S3 bucket and are logged in DynamoDB. An EC2 master instance takes care of scaling EC2 worker instances to fit the conversion demand automatically. The system was made using Python and Javascript.
- Parallel Programming **Advanced Computing Systems.**  
Gained experience in OpenMP, OpenCL, and CUDA from the course Advanced Computing Systems. Projects revolved around implementing and optimizing various compute-intensive algorithms to run on the intelligent systems cluster at TU Delft.
- Android App **Device Localization.**  
Made an Android app in the course Smartphone Sensing at TU Delft that uses Bayesian localization and particle filtering to estimate the location of the phone on the 5<sup>th</sup> floor of EWI.
- Machine Learning **Classifiers.**  
Studied and programmed various classification algorithms in two machine learning courses at TU Delft.
- Networking **802.11 Frame Retransmission Rates.**  
For the course Wireless IoT and LAN at TU Delft, I used Wireshark and a Raspberry Pi 3 to capture Wi-Fi frames of a network at a small music venue for over nine days. The purpose was to examine whether the number of connected users, network traffic, or signal strength had any effect on the retransmission rate of frames. The captured data revealed higher rates of frame retransmissions for increased amount of connected users and also for weaker signals. It was also found that the retransmission rate is dependent on these two factors together.
- LED Strip Display **Persistence of Vision Device.**  
Built a device that spins a row of LEDs with the purpose of displaying images or texts for my final project in the course Embedded Systems at the University of Iceland. The project utilized an ARM microprocessor and was coded in C.

---

## Hobbies and Extracurricular Activities

Besides programming, I enjoy listening to music, watching sports, doing astrophotography, hiking, and spending time with my family.

---

## Languages

Icelandic - fluent  
English - fluent  
Spanish - good

---

## References

- Dr.ir. Fernando A. Kuipers
  - Associate Professor at Delft University of Technology
  - F.A.Kuipers@tudelft.nl
- Ir. Jorik Oostenbrink
  - PhD Student at Delft University of Technology
  - J.Oostenbrink@tudelft.nl