Halvor Ødegård Teigen

Software Engineer

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Profile

Halvor Ødegård Teigen works as a backend developer with a parallel focus on DevOps. He has a solid academic background with a Master's degree in cybernetics and robotics from NTNU. Through his four years of professional experience, he has demonstrated proficiency in Java, Kotlin, Go, Spring Boot, Kafka, and React. He has also gained experience in various roles such as team lead, tech lead, and fullstack developer as a part of interdisciplinary teams with agile development methodologies.

Halvor is committed to continuous growth and has invested time in several certifications and courses. He has completed courses in both Java, Kotlin and AWS, is ISTQB-certified in several test areas, and is Kafka-accredited through Confluent.

As a person, Halvor is easy going and eager to learn with an "Everything can be learned"-mentality. He has shown the ability to take responsibility and ownership of tasks, and is devoted to delivering work he can be proud of in hindsight. He keeps up to date with the state of the art, both within and outside of his own professional field, and his wide range of experiences has given him the ability to cooperate with different personalities and contribute to holistic solutions from an interdisciplinary perspective.

Key qualifications

Backend	Kotlin, Java, Go, Spring Boot, Kafka
Cloud & DevOps	AWS, Kubernetes, Docker, Serverless, GitLab, GitHub
Database	PostgreSQL, Hibernate, Sqlc
Test tools	Kotest, JUnit, Mockito, Mockk, Postman/Bruno, Testcontainers
Other	Machine learning, Optimization

Relevant courses and certifications

- Kotlin for Java Developers
- Java SE 12 Programming
- GitLab Certified CI/CD Associate
- Confluent Kafka Fundamentals Accreditation
- AWS Certified Solutions Architect - Associate
- ISTQB Certified Tester, Foundation Level

Work experience overview

See 'Work experience details' below for more detailed info on each experience.

10.2024–present	**Hafslund Vekst** - Software Engineer
08.2021–10.2024	**Sopra Steria** - Software Engineer, DevOps
05.2020–08.2020	**Geilo Entreprenør** - Construction worker
06.2019–08.2019	**Kongsberg Maritime** - Summer intern, developer
01.2018–06.2019	**Norwegian University of Science and Technology (NTNU)** - Teaching Assistant
02.2017–12.2017	**Lumenia AS** - Sales representative
03.2017–09.2017	**Retail House Norway AS** - Promoter
07.2015–06.2016	**The Norwegian Army** - Military service, HMKG
06.2014–08.2018	**Geilo Entreprenør** - Construction worker
05.2015–05.2015	**Liodden Camping** - Web Developer
2014	**Ødegård Teigen Hytteutleie AS** - Web developer
2012–2013	**Expert Geilo** - Store employee

Project overview

See 'Project details' below for more detailed info on each project.

05.2025–present	**Hafslund Kraftmarked - KundeAPI** - Backend developer
10.2024–present	**Hafslund Fleksibilitetstjenester** - Backend developer, Interim Tech Lead
05.2024–10.2024	**BarentsWatch Lukkede Tjenester** - Fullstack developer
08.2022–04.2024	**Statnett - DevOps and Test automation** - Developer, Team lead
03.2022–07.2022	**Sopra Steria Service development - Test Data Service** - Researcher, Developer
09.2021–02.2022	**Norwegian Public Roads Administration - Syntopia** - Data Scientist, Backend developer
01.2021–06.2021	**NTNU - Master Thesis** - Author, Developer
08.2020–12.2020	**NTNU - Specialization Project** - Author, Developer
06.2019–08.2019	**Kongsberg Maritime - SmartShip** - Developer
01.2019–05.2019	**NTNU - Project, Real Time Elevators** - Developer

Education

08.2016–06.2021 **Master of Technology, Cybernetics and Robotics**, *NTNU - Norwegian University of Science and Technology*

Halvor has a master's degree in cybernetics and robotics from NTNU with specialization in autonomous systems. Halvor's main interest has been to combine machine learning and control theory, and he wrote his master thesis about the use of machine learning in off-shore wind turbines.

09.2019–03.2020 **Exchange Abroad**, *University of California, Santa Barbara (UCSB)*

Halvor spent his fourth year abroad at University of California, Santa Barbara. He took courses in machine learning, computer vision, nonlinear control theory, as well as subjects in other non-engineering fields.

Volunteer work

Volunteer UKA-17: Halvor volunteered during the UKA festival in 2017 where he worked as a bartender at Samfundet in Trondheim. (2017)

Courses

- Kotlin for Java Developers 05.2023
- Cyber Security Academy Foundation 11.2021
- Presentation Techniques - Foundation 10.2021
- Digital Presentation Techniques - Foundation 08.2021
- Architecting on AWS - Amazon Web Services 08.2021
- Java SE 12 Programming 08.2021
- Learning assistant training (LAOS) 04.2019
- 77-853: MOS: Microsoft Office OneNote 2010 05.2014

Certifications

- Professional Scrum with Kanban (PSK I) 01.2024
- GitLab Certified CI/CD Associate 08.2023
- Professional Scrum Developer I (PSD I) 05.2023
- Professional Scrum Master I (PSM I) 01.2023
- DP-100 Azure Data Scientist Associate 10.2022
- AZ-204: Azure Developer Associate 09.2022
- PRINCE2 Agile Foundation 07.2022
- Certified Tester AI Testing (CT-AI) 05.2022
- Confluent Kafka Fundamentals Accreditation 04.2022
- DP-900: Microsoft Azure Data Fundamentals 02.2022
- AZ-900: Microsoft Azure Fundamentals 02.2022
- AZ-900: Microsoft Azure Fundamentals 01.2022
- IREB Foundation Level Certified Professional for Requirements Engineering 10.2021
- ISTQB Foundation Level Certification Agile Tester 10.2021
- AWS Certified Solutions Architect - Associate 09.2021
- ISTQB Certified Tester, Foundation Level 08.2021
- 77-853: MOS: Microsoft Office OneNote 2010 05.2014

Publications

09.2021 *Comparing deep reinforcement learning algorithms' ability to safely navigate challenging waters*, Frontiers in Robotics and AI.

Presentations and courses

- Techday 2023: Testautomation and testdata at Statnett 04.2023
- RUBIKS 2022: Differentially private synthetic data using deep learning 06.2022
- Lightning Talk at Testdagen ODIN: How to generate representative synthetic test data at Statens Vegvesen 11.2021
- Teaching Microsoft OneNote to high school students 05.2014

Languages

Norwegian Native speaker

English Fluent

Work experience details

Employer: **Hafslund Vekst**
Position: Software Engineer
Duration: 10.2024–present

Halvor is employed as a Software Engineer in the Fleksibilitetstjenester team in Hafslund Vekst AS.

Employer: **Sopra Steria**
Position: Software Engineer, DevOps
Duration: 08.2021–10.2024

Halvor was employed as a Software Engineer in the software development division of Sopra Steria, specifically in the DevOps department.

Employer: **Geilo Entreprenør**
Position: Construction worker
Duration: 05.2020–08.2020

The job consisted of construction work such as driving construction equipment, laying power and water lines, as well as developing plots.

Employer: **Kongsberg Maritime**
Position: Summer intern, developer
Duration: 06.2019–08.2019

Halvor worked on the summer project SmartShip in the "Autonomous Control" group. Together with a team of about 12 students, he developed an autonomous ship. A scaled-down model of the Yara Birkeland ship was equipped with algorithms for autonomous waypoint following and obstacle avoidance. Halvor's main responsibility during the project was implementing object detection using radar imaging.

Employer: **Norwegian University of Science and Technology (NTNU)**
Position: Teaching Assistant
Duration: 01.2018–06.2019

Halvor worked as a teaching assistant in Procedural and Object-Oriented Programming (C++) for two semesters (spring 2018 and spring 2019). He guided students attending the course and approved their assignments.

Employer: **Lumenia AS**
Position: Sales representative
Duration: 02.2017–12.2017

Halvor worked with selling promotion to companies through advertisements in compendiums at NTNU.

Employer: **Retail House Norway AS**
Position: Promoter
Duration: 03.2017–09.2017

Halvor worked as a promoter for various products for Retail House Norway.

Employer: **The Norwegian Army**
Position: Military service, HMKG
Duration: 07.2015–06.2016

Halvor did his military service in His Majesty The King's Guard the year after high school.

Employer: **Geilo Entreprenør**

Position: Construction worker

Duration: 06.2014–08.2018

The job consisted of construction work such as driving construction equipment, laying power and water lines, as well as developing plots.

Employer: **Liodden Camping**

Position: Web Developer

Duration: 05.2015–05.2015

Developed the website for Liodden Camping using the software Adobe Muse.

Employer: **Ødegård Teigen Hytteutleie AS**

Position: Web developer

Duration: 2014

Development of website (not current site) using Adobe Dreamweaver. Mainly with html and css.

Employer: **Expert Geilo**

Position: Store employee

Duration: 2012–2013

Summer job in an electronics store the summer of 2012 and 2013.

Project details

Hafslund Kraft

Assignment: Hafslund Kraftmarked - KundeAPI

Competencies: Go, PostgreSQL

Roles **Backend developer:** Halvor is a backend developer on the KundeAPI initiative within Hafslund Kraftmarked. KundeAPI aims to create a unified API interface for customers to exchange data and trade volumes through Hafslund Kraft.

Hafslund Vekst

Assignment: Hafslund Fleksibilitetstjenester

Competencies: Kotlin, AWS, Timescale

Roles **Backend developer:** Halvor is a backend developer for the new business initiative Hafslund Fleksibilitetstjenester, which operates as a start-up within Hafslund. The team consists of five people. The product focuses on a holistic approach to smart control of electrical loads and producers. This is done through spot price arbitrage, peak-shaving, and trading in both Statnett and local flexibility markets.

BarentsWatch

Assignment: Lukkede Tjenester

Competencies: Java, React.js, OpenAPI, TypeScript

Roles **Fullstack developer:** Halvor worked across the entire stack with development in Java for the backend and React+TypeScript for the frontend. He was responsible for the implementation of new functionality from start to finish, as well as error corrections and improvements in the solution. He worked closely with the users, thus also had customer-related contact, requirements gathering and training as areas of responsibility.

Statnett

Assignment: TOD - Test automation and data

Competencies: Apache Kafka, Test automation, Test data, Java, Spring Boot, REST API, Event-driven architecture, Docker, Red Hat OpenShift, GitLab CI/CD, Amazon S3, Customer contact, Team leadership, Requirements analysis, Kubernetes

Roles **Developer:** Halvor followed the project throughout its entire lifecycle from inception to the maintenance phase. It started with requirement analysis and system architecture design to ensure a solution that met the needs of the customer teams. He then worked with development in Java, both with and without the Spring boot framework. This consisted of the development of several applications, as well as the implementation of a Java framework that was adopted by the development teams in Statnett. Technologies that were used included Kafka, REST API, MSSQL database, and Amazon S3. Halvor also had the main responsibility for the development of GitLab Pipelines and Ansible deploy for automated integration tests.

Team lead: In march of 2023, Halvor took over the role as team lead while still being a developer in the team. As a team lead, Halvor had the overall responsibility for the team and their deliveries. He was responsible for planning and following up the deliveries and continuously ensuring that they were in line with the needs of the customer. This also involved securing financing and coordinating several customer teams which Team TOD delivered to. As part of an agile delivery team, Halvor held the role of Scrum Master during the common Scrum ceremonies.

Sopra Steria - internal

Assignment: Service development - Test Data

Competencies: General Data Protection Regulation (GDPR), Service development, Data modeling, FastAPI, Sales, SQLAlchemy, React.js, Python, Pandas, Artificial intelligence (AI), Presentation skills, Differential Privacy

Roles **Service developer:** Halvor established a strategy and a roadmap for further test data investment in Sopra Steria. This involved assessing and mapping different approaches to test data, identifying solution options, establishing and commercializing various service packages, and contributing with internal and external visibility. Halvor has been the driving force behind the establishment of three service packages: Discover Test Data Privacy Insight, Accelerate Data Generation and Accelerate Test Data Management. He has also been on a number of customer visits, and lectured at both internal and external conferences - including Testdagen ODIN.

Halvor's work has revitalized the test data area in Sopra Steria, and ensured that the field has clear and relevant service initiatives within analysis, masking, generation and management of test data. His work has been crucial in ensuring that Sopra Steria has a strong value message within the test data area in the market, which complies with the privacy requirements, and is in line with the GDPR legislation.

Researcher: In connection with the development of a Proof-of-Concept and the definition of service packages, Halvor explored various approaches and technologies to solve the challenges associated with a solution for data generation. This included, among other things, surveys of frameworks, providers and technologies that could be relevant, as well as discussions and negotiations with relevant subcontractors.

Developer: Halvor developed a Proof-of-Concept in Python for one of the services in question, Accelerate Data Generation. Functionality was developed for interaction with databases through SQLAlchemy, analysis and generation of synthetic data with SDV, built an API with FastAPI and a simple frontend in React for visualization of generated data from the API.

Norwegian Public Roads Administration

Assignment: Syntopia

Competencies: SQL, Python, Pandas, Atlassian Bitbucket, Java, Spring Boot, Pytest, JPA, Hibernate, Jenkins, General Data Protection Regulation (GDPR), Postman, Test data

Roles **Developer:** Halvor worked in an agile development team where he developed and designed a data generation tool that would create large amounts of synthetic data to effectively test a large IKT portfolio in Statens vegvesen. Halvor performed data flow analyzes to investigate the complex connection between the various IKT systems, which clarified the needs and solution space for the test data solution. Synthetic data were generated based on analyzes of current data and statistical models, so that the data was in accordance with GDPR legislation. Halvor also worked with the integration of the synthetic data up against the national synthetic population register - Tenor.

The tool was written in Python, and SQL was used to retrieve and insert data into databases. Communication with the Oracle databases was done using the cx_Oracle library and Pandas and NumPy were used for data analysis. Jira and Bitbucket were used to integrate DevOps workflows. The test library Pytest was used to test that the generated data maintained its integrity with respect to references and limitations given by the database schema.

Halvor planned and conducted workshops with testers and developers within the Norwegian Public Roads Administration to map their needs and requirements for the solution. He also conducted workshops with external actors with the purpose of gaining experience from other similar projects.

Backend developer: Halvor contributed to the development of a plugin-based system (Syntopia) for the administration of test data across the IKT systems in Statens vegvesen. Halvor implemented search and deletion of data in databases based on given criteria through the existing plugin framework. The project was developed in Java using technologies like the Spring framework, hibernate, JPA, JSON schema, and was deployed via OpenShift. Confluence and Jira were used for documentation and work tracking.

Norwegian University of Science and Technology (NTNU)

Assignment: Master Thesis

Competencies: Python, Machine learning, Git, Simulation, Artificial intelligence (AI), LaTeX, Matplotlib, NumPy, Mathematical modeling

Roles

Project description: Halvor's master thesis focuses on stabilization of off-shore windturbines using machine learning, specifically Safe Reinforcement Learning. Off-shore windpower is becoming increasingly important on the path towards a more sustainable world. Due to high wind speeds and large waves, the turbines experience extremely large destabilizing forces, thus active stabilization can increase both safety and efficiency.

Traditional control methods require mathematical models of the turbine dynamics. These are known to be complicated and hard to derive control laws for. This master thesis takes an alternative approach by using Reinforcement Learning, where an agent teaches itself the dynamics and the optimal action in a given state. The lack of guarantees on constraint satisfaction is a root problem in machine learning, thus the thesis combined Reinforcement Learning with Predictive Safety Filtering to ensure constraint satisfaction.

The thesis was written as a joint master thesis with one other student. The thesis was also nominated for Norwegian Open AI Lab's "Best AI Master's Thesis Award 2021".

Developer & Author: The implementation is in Python and the OpenAI Gym framework. An extensive report is also written, which includes both results and the required theoretical background.

Norwegian University of Science and Technology (NTNU)

Assignment: Specialization Project

Competencies: Deep Learning, Machine learning, Artificial intelligence (AI), LaTeX, Python

Roles

Project description: Halvor's work on the specialization project explored various Deep Reinforcement Learning algorithms and investigated their performance in the application of path-following and obstacle-avoidance for autonomous vessels. This was done through training of multiple agents for each algorithm as well as extensive generalization testing. A custom performance function was developed to create a quantitative measure of performance for comparison of the selected algorithms. The project also led to a publication in the journal Frontiers in Robotics and AI.

Developer & Author: The implementation is in Python and the OpenAI Gym framework. An extensive report is also written, which includes both results and the required theoretical background.

Kongsberg Maritime

Assignment: SmartShip

Competencies: C++, Scrum, Azure DevOps, Multidisciplinary team, OpenCV, Robotics, Artificial intelligence (AI), Radar technology

Roles

Project description: Halvor worked on the summer project SmartShip in the "Autonomous Control" group. Together with a team of about 12 students, he developed an autonomous ship. This was a colaboration between three groups: Autonomous control, Cyber security and Shore control center. A scaled-down model of the Yara Birkeland ship was equipped with algorithms for autonomous waypoint following and obstacle avoidance. Halvor implemented the object detection using radar imaging for use in the obstacle avoidance algorithm.

On this project, Halvor worked mainly with technologies such as the ROS framework, C++, OpenCV, Azure boards and repos, as well as position and velocity estimation using Kalman filters.

Developer: Development of software and algorithms for autonomous vessels, as well as real world testing by regularly lauching a scaled-down ship model. Programming mainly in C++ and using ROS. Halvor both worked on a team of 5 people, and cooperated with the other groups on the project.

Norwegian University of Science and Technology (NTNU)

Assignment: Project - Real Time Elevators

Competencies: Golang, User Datagram Protocol (UDP), Real-time systems, Fault tolerance

Project description: As part of the subject TTK4145 - Real-time programming, Halvor carried out an elevator project where the goal was to program an arbitrary number of elevators to cooperate optimally over a given number of floors. A central part of the project was also to make the system fault-tolerant so that unforeseen events such as loss of power or network connection for one of the elevators did not affect functionality. Physical models of elevators with associated control panels were used. The lifts communicated over the network so that several units could work together. Logic for handling orders was implemented with the programming language Go and for the transfer of information over the network the protocol UDP was used.