

# Oskar Wickström *Senior Software Engineer*

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## Profile

With a thorough understanding and experience in system design, software implementation, automated testing, a plethora of languages and tools, and the Web, I am comfortable in many settings of software projects. Combined with a strong eye for user interface design, and a wide experience in cloud deployment and architecture, I work efficiently in many modern software stacks.

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## Qualities

- Broad range of interests and strengths — languages, tools, and platforms.
- Focused on balancing business needs with elegant design maintainable code, and quality assurance.
- Perceptive, enthusiastic and a very fast learner.

## Specialities

- Software Architecture and Design
  - Automated Testing
  - Web Development
  - Programming Languages
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## Research

- **Quickstrom: Property Based Acceptance Testing with LTL Specifications** (preprint)  
Liam O'Connor, Oskar Wickström  
Programming Languages Design and Implementation (PLDI 2022)
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## Selected Writing

- **Property-Based Testing in a Screencast Editor** (book)  
Oskar Wickström  
Leanpub, August 2019
  - **Specifying State Machines with Temporal Logic**  
Personal website, May 2021
  - **Time Travelling and Fixing Bugs with Property-Based Testing**  
Personal website, November 2021
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## Experience

### Ingka Group

#### Senior Software Engineer

Real-time and batch-oriented analytics of high-throughput IKEA sales data, for historical, real-time and predictive insights. Large datasets made instantly available to thousands of colleagues through modern reactive web applications.

TECHNOLOGIES USED: Kotlin, TypeScript, React, Apache Beam, Bigtable, BigQuery, Google Cloud.

REMOTE / MALMÖ, SWEDEN

October '19 – Now

### Symbiont

#### Software Engineer

Symbiont is the market-leading smart contracts platform for institutional applications of blockchain technology. My role covered the architecture, maintenance, and testing of the *Assembly* platform tooling.

TECHNOLOGIES USED: Haskell, Kubernetes, Go, Clojure, Jepsen, Google Cloud, AWS.

REMOTE

October '18 – August '19

### Mpowered

#### Tech Lead

Mpowered provides a suite of SaaS products that simplify B-BBEE compliance for South African companies. In the role of tech lead, I was responsible for the gradual migration and regression testing when moving from Ruby and Rails towards Haskell, including the company's core calculation engine, and new features in the system. Furthermore, I have worked on a CI and deployment chain using Nix and NixOS, providing a polyglot and fully declarative configuration for the multi-service system.

TECHNOLOGIES USED: Haskell, NixOS, nixops, PostgreSQL, MySQL, Ruby on Rails.

REMOTE

July '17 – October '18

## Empear/CodeScene

MALMÖ, SWEDEN

### Software Developer, Partner

Feb '16 – May '17

Empear delivers software analysis tool suite [CodeScene](#), and related professional services, with an aim to revolutionize our ability to predict quality issues, identify team productivity bottlenecks and avoid unexpected maintenance costs in large software projects. I worked over the entire set of products, ranging from cloud deployment scripts, databases, distributed system design, and third-party integrations, to front-end web, interactive visualization, and graphical design.

TECHNOLOGIES USED: Clojure, Haskell, Elastic Beanstalk, CloudFormation, Route53, RDS.

## Jayway

MALMÖ, SWEDEN

### Backend Developer, AWS Consultant

Dec '15 – Feb '16

I consulted on a migration from a legacy ECommerce site deployment to using Amazon Web Services, with auto-scaling, load-balancing, and multi-AZ deployment.

TECHNOLOGIES USED: EC2, CloudFormation, Route53, RDS.

### Web and Backend Developer

Sony Mobile, Dec '14 – Dec '15

This project built a micro service architecture style system and platform for a media backup and library service. Focus on scalability, extensibility and loose coupling between components in the system, all leveraging the AWS infrastructure as much as possible. The core system provides the basic functionality and the platform part enables other teams and projects to plug in their functionality to enhance the experience or to feed their systems with data. Also responsible for developing a single-page web application using the aforementioned backend.

TECHNOLOGIES USED: Java, Clojure, NodeJS, Haskell, AWS, Kinesis, S3, SNS, SQS, and more.

### Web and Backend Developer

Sony Mobile, Aug '13 – Dec '14

I worked with signature applications for Sony on Firefox OS, both as a developer and as tech lead for an team of 4-6 developers. We built multiple applications using various front-end technologies. I was also responsible for developing the in-house GUI components library featuring a set of reusable components and base styling for the suite of Firefox OS apps.

TECHNOLOGIES USED: Firefox OS, AngularJS, HTML5, Less, CSS3, Javascript, Browserify, React, and more.

### Software Development Consultant

IKEA IT, Oct '12 – Aug '13

Infrastructure development and maintenance at IKEA IT, working primarily with in-house application frameworks and core services. I was responsible for the migration of one of the central business services, going to the latest backward-incompatible infrastructure.

TECHNOLOGIES USED: Java, Oracle.

## Stickybit

Malmö, Sweden

### Software Developer

ST-Ericsson, Mar '12 – Jul '12

Worked as a consultant and on internal projects. Primary project was a translation tool for hardware component design using Java, Spring, JavaCC. I also worked on a GUI application in .NET which generated documents from arbitrary data sources using an embedded IronPython runtime for easy customization.

## AddPro

Malmö, Sweden

### Software Developer

Malmö Redhawks, Feb '12

Internship at AddPro. I built a mobile site in EPiServer for the Malmö Redhawks hockey team, extending their existing CMS solution.

## Footprint Design

Kristianstad, Sweden

### Web Designer, Web Developer

Various Clients, Jan '11 – Jan '12

Footprint Design was a web design and web development company in ran myself during 2011. Primary tools for building the web applications were PHP, MySQL, Wordpress, jQuery, HTML5 and CSS3.

*References can be given on request.*

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## Talks

- **Property-Based Testing The Ugly Parts: Case Studies from Komposition**  
flatMap(Oslo), May 2019
- **Domain Modeling with Haskell Data Structures**  
Øredev, Malmö, November 2018
- **Writing a Screencast Video Editor in Haskell**  
Lambda World, Cádiz, October 2018

- **Declarative GTK+ Programming in Haskell**  
LambdAle, London, September 2018
- **Fast and Fearless Evolution of Server-Side Web Applications**  
f(by), Minsk, December 2017
- **Finite-state machines? Your compiler wants in!**  
CodeMesh, London, November 2017  
Lambda Days, London, February 2018  
BOB konferenz, Berlin, February 2018

*Full list with abstracts available at <https://wickstrom.tech/talks.html>.*

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## Open Source

- **Quickstrom**  
Quickstrom autonomously checks any type of web application. Run thousands of tests and find complex bugs.
- **LTL Visualizer**  
An interactive visualizer for linear temporal logic (LTL).
- **gi-gtk-declarative**  
Declarative and purely functional programming model for GTK+ user interfaces, extending the haskell-gi family of packages.
- **Komposition**  
The video editor built for screencasters. A structural video editor written in Haskell using GTK, GStreamer, and FFmpeg.
- **Haskell at Work**  
A screencast focused on practical Haskell programming.
- **Hyper**  
A PureScript framework using row polymorphism to enforce correctly stacked middleware in HTTP server applications.
- **PureScript Spec**  
A testing framework for PureScript, inspired Haskell's hspec.

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## Education

EC Utbildning	HELSINGBORG, SWEDEN
<b>Systems Development</b>	2011 – 2012
S:t Sigfrids Folkhögskola	VÄXJÖ, SWEDEN
<b>Jazz &amp; Improvisation</b>	2009 – 2010

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## Other Merits

In 2016, I received the [LUF OSS Junior software engineer scholarship](#) at Lund University.