# Vegard Øye

#### Curriculum Vitae

Software Engineer • Systems Architect • Tech Consultant Sopra Steria • University of Oslo (UiO) Oslo Area, Norway<sup>1</sup>

# **Summary**

Phone: +47 99 79 29 03 • Mail: vegard\_oye@hotmail.com • LinkedIn: https://linkedin.com/in/VegardOye

I am a systems engineer with many years' experience with several languages and projects. My main focus is on full-stack web development. On the front-end side, I have worked with Bootstrap, jQuery, AngularJS, Webpack, Browserify, etc. On the back-end side, I have worked with ASP.NET, Node.js, REST services, Share-Point and PHP.

I have also worked with augmented reality and Microsoft HoloLens, and participated in a project at Oslo University Hospital where we implemented 3D visualization and holograms for Microsoft HoloLens smartglasses. At the University of Oslo I wrote my master thesis on acceleration of image transformations with OpenGL ES. I also hold a Bachelor's Degree in Electrical and Computer Engineering from Sør-Trøndelag University College.

In my projects at Arbeidstilsynet, Verifone, Rikshospitalet University Hospital, The Norwegian Directorate of eHealth, Norges Bank, The Norwegian Department of Defense, Forsvarsbygg, Statsbygg and others I have participated in the design and development of large systems and portal solutions. I am experienced in multiple programming languages, mainly C#/.NET, Java, JavaScript, C++, C, Python, Haskell and Lisp. I am also certified in C#, JavaScript og SharePoint.

<sup>&</sup>lt;sup>1</sup>This document is hierarchically organized. For an outline of the whole CV, simply open the PDF viewer's "Bookmarks" or "Outline" pane. The latest version is available from: https://epsil.github.io/resume/cv.pdf

In my free time, I enjoy working on open source projects. For example, I have written my own playlist generator for Spotify in Node.js (https://epsil.github.io/spotgen/). Check it out for some good tunes!

I am well versed in "best practices" for development, such as TDD, the SOLID principles, *Clean Code*, *Code Complete*, *The Pragmatic Programmer* and *Design Patterns*. See my GitHub profile (https://github.com/epsil) and my website (https://epsil.github.io/) for more information about:

- Open source projects I have worked on in my free time.
- Articles I have written to share knowledge.
- Talks I have given in order to train employees.

Please contact me for references.

#### Media

- PDF version: The latest version of my curriculum vitae in PDF format
- Personal website: Vegard Øye's personal website
- GitHub profile: 24 repositories available

# **Experience**

## **Consultant**

## Sopra Steria

Aug 2015 – Present • 2 yrs 7 mos Oslo Area, Norway

I have worked as a Software Engineer in Sopra Steria for almost three years, with my main focus on systems engineering. From my projects at Arbeidstilsynet, Verifone, Rikshospitalet, Direktoratet for e-helse, Norges Bank, Forsvarsdepartementet, Forsvarsbygg, Statsbygg and others I have gained breadth of experience:

- Delivered 3D visualization and holograms for Microsoft HoloLens Virtual Reality smartglasses.
- Gained experience with technologies like ASP.NET, .NET, C#, front-end and SharePoint.
- Participated in planning, development, installation and configuration of large systems and portal solutions.
- Configured test frameworks and wrote unit tests.
- Specified requirements and wrote documentation.

See below for details on each project.

# **Schema portal**

## **Arbeidstilsynet**

Dec 2017 – Jan 2018 • 2 mos Oslo Area, Norway

A project was commissioned to create a new schema portal for the Norwegian Labour Inspection Authority, optimizing their workflow. The portal was to be integrated with two other services, ID-porten and Altinn.

- Worked with MongoDB and ASP.NET. Also did front-end work in JavaScript and jQuery. Contributed to various development tasks and documentation.
- Responsible for configuring tests on the project, including unit tests, integration tests and system tests.
- Coordinated testing, development and planning in accordance with Sopra Steria's Navigator methodology, which is based on RightTesting<sup>™</sup> and TDD.
- Configured and wrote tests using frameworks like xUnit, FluentAssertions, moq and Selenium. Demonstrated the tests for the client.

Skills: ASP.NET Web API, .NET Core, C#, Docker, Selenium, SERES, jQuery, Git, JavaScript, JSON, TUL, Altinn, RESTful Web Services, Test Driven Development (TDD), Sopra Steria Navigator, Sopra Steria RightTesting™, xUnit, Fluent Assertions, Moq, reveal.js, MongoDB.

# **Lottery app for The Challenge**

## Sopra Steria

Aug 2017 – Nov 2017 • 4 mos Oslo Area, Norway

Sopra Steria organizes an annual competition called "The Challenge". I worked on a team to develop a web application for the drawing of lots.

- Developed an MVC application in ASP.NET. Designed a REST API for obtaining data about lotteries and tickets.
- Wrote classes for storing data in a database using Entity Framework. Configured a Azure database for cloud storage.
- Implemented data import from Microsoft Excel and CSV. Used HangFire to run demanding tasks in a background process.

Skills: C#, Model-view-controller (MVC), Microsoft Azure, .NET, ASP.NET, HTML5, CSS, JavaScript, Hangfire, Team Foundation Server (TFS).

## **Mobile Payment Solutions**

#### Verifone

Feb 2017 – Jun 2017 • 5 mos Oslo Area, Norway Verifone delivers payment systems, software and online payment solutions, as well as service and support for the Nordic market. I joined their team at Økern in order to assist with requirement specification, standardization and documentation.

- Specified requirements and user stories. Migrated requirements from Confluence to Jama and standardized them.
- Documented design of REST APIs and JSON objects using Swagger.
- Worked closely with the client and development resources and contributed with .NET and JavaScript competence.

Skills: Swagger, REST, Atlassian Confluence, Jama.

## **Lindorff Access Remake**

#### Lindorff

Jan 2017 – Feb 2017 • 2 mos Oslo Area, Norway

Lindorff had commissioned a project to improve the web interface for their customers.

- Developed AngularJS components based on sketches from Zeplin.
- Worked with technologies like AngularJS, Node.js, Webpack, JavaScript, CSS3 and HTML5.

Skills: TypeScript, Zeplin, AngularJS, HTML5, CSS, JavaScript.

# Preliminary project: Systems and technical documentation

## The Norwegian Directorate of eHealth

Oct 2016 – Jan 2017 • 4 mos Oslo Area, Norway

The Norwegian Directorate of eHealth wanted to conduct a survey of the documentation of all their computer systems (including the national health services Eresept, Kjernejournal, Grunndata and solutions for the Helsenorge platform). I worked as an architect and consultant along with a project leader on this project.

- Surveyed all systems at The Norwegian Directorate of eHealth, focusing on system- og teknisk dokumentasjon.
- Recommended document structure and compared common tools and frameworks for maintaining documentation.
- Developed a common standard for documentation, as well as a recommendation for "best practice" and the way ahead. The recommendation followed the NORMEN requirements (The Norm for Information Security).

Skills: C#, HTML5, responsive design, universal design, REST/JSON, Atlassian Confluence, Atlassian Jira, Git, NORMEN, Microsoft SharePoint.

#### Media

• Norm for informasjonssikkerhet: Normen, a standard for information security in the health sector, is an agreed-upon set of requirements based on the law.

#### HoloLens for medical visualization

## **Rikshospitalet University Hospital**

Aug 2016 – Sep 2016 • 2 mos Oslo Area, Norway

The Rikshospitalet University Hospital wants to use 3D visualization to improve the planning and execution of liver surgery. Cooperating with staff from the Intervention Department, surgeons and Ph.D. candidates, I worked in team to develop an application for Microsoft HoloLens that doctors can use when planning liver cancer surgery operations.

- Developed a HoloLens application using Unity3D, .NET, C# and Visual Studio. The application made it possible to visualize a liver model with HoloLens smartglasses.
- Implemented a three-dimensional mouse cursor in order to navigate towards the liver model.
- Configured automated tests of the application with Unity Test Runner.
- Participated in regular meetings with the client and Ph.D. candidates to utilize and process MR scanned models to be used in the planning of surgical liver operations.
- Used Kanban as the agile development methodology and Atlassian Jira for project management.
- Participated in a TV program about augmented reality (see link!).

Skills: Microsoft HoloLens, Kanban, .NET, C#, Microsoft Windows 10, Unity3D, Atlassian Jira, Git, Scrum.

#### Media

• NRK TV – Entering Artificial Reality: If you wear a special kind of glasses, you can see artificial figures in the room and move around them. It's like the

figures in Pokémon GO, only more realistic. We test the glasses and enter a whole new world!

#### **NBREM**

#### **Norges Bank**

Aug 2016 – Aug 2016 • 1 mo Oslo Area, Norway

Norges Bank Real Estate Management (NBREM) is part of Norges Bank Investment Management (NBIM), which is the operative manager of the Oljefondet (or Statens pensjonsfond Utland). Norges Bank is moving their entire IT portfolio to the cloud to optimize and standardize the management of their core system. They have also created a new intranet, etablert et nytt intranett, as well as new information architecture and design. Sopra Steria has helped them with this process under the strategy "Cloud & Mobility First".

- Was responsible for setting up SharePoint 2013, configuring the solution and designing content on the intranet.
- Worked closely with the interaction designer and graphical designer to implement visual elements and navigation. Implemented new branding in CSS and configured the site.
- Was responsible for testing of the solution. Contributed to deployment and preparation of acceptance tests.

**Skills:** Microsoft SQL, Microsoft SharePoint, HTML5, JavaScript, SharePoint Designer.

# Security, Health and Work Environment

## **Undervisningsbygg Oslo KF**

Jun 2016 – Aug 2016 • 3 mos Oslo Area, Norway

Undervisningsbygg creates monthly reports on work conditions, incidents and anomalies. They wanted to digitalize their schemas and collect the data in one place where they could collect statistics about it.

- Standardized InfoPath schemas for use with a SharePoint portal.
- Did development, deployment and testing of digital schemas.

Skills: Microsoft InfoPath, Microsoft Office 365, .NET, XML/XSLT, C#, Power BI.

# **Grunndata Register Services**

## The Norwegian Directorate of eHealth

Apr 2016 – Jun 2016 • 3 mos Oslo Area, Norway

The Grunndata department at the The Norwegian Directorate of eHealth manages existing health administrative registers in the health sector (e.g., Fastlegeregisteret, Helsepersonellregisteret, Adresseregisteret and Helsetjenestekatalogen). In 2015, three large projects was initiated which Grunndata delivers data to, which also entails development of new registers. The registers are services that are available on the health network to be integrated with other health systems (e.g., Kjernejournal, eResept, helsenorge.no and several patient journal systems (EPJ)).

- Performed development and configuration of automated tests. Utilized a custom tool that the Directorate has created (corresponds to SOAP UI and Selenium).
- Contributed to specification of functional requirements and automated testing of web solutions built with HTML5/CSS3, JavaScript, ASP.NET MVC5 and SharePoint 2013.
- Contributed to preparation and execution of acceptance tests with Microsoft Test Manager.
- Contributed to efficiency and load testing with Microsoft Visual Studio Ultimate.

Skills: C#, .NET, HTML5, CSS3, Microsoft TFS, Microsoft Test Manager, Re-Sharper.

#### **New intranet**

## The Norwegian Department of Defense

Jan 2016 – Apr 2016 • 4 mos Oslo Area, Norway

The intranet of the Department of Defense was perceived to be static, to have poor usability and to be difficult to navigate. Sopra Steria assisted the Department in establishing and deploying a new intranet based on SharePoint and Wizdom.

- Implemented front-end adaptions with jQuery, HTML5 and CSS3.
- Implemented a design template for SharePoint using SASS.

Skills: Microsoft SharePoint, SASS, JavaScript, Wizdom, Samhandlingsløsninger, HTML5, CSS3.

# **Nettopp<sup>+</sup> Project Portal**

#### Forsvarsbygg

Sep 2015 - Dec 2015 • 4 mos

Forsvarsbygg used SharePoint 2013 for their collaboration platform, but mainly to publicize information. They wanted to integrate data from Agresso and ePhorte with projects and contracts. Sopra Steria assisted with developing more advanced functionality for managing projects and contracts, including collaboration between participants, standardization of processes and economic guidance.

- Contributed to making Nettopp<sup>+</sup> accessible on more devices with responsive design. Solved rendering problems on mobile devices with Bootstrap and Glyphicons.
- Improved efficiency by optimizing the underlying code.
- Implemented automated tests using Selenium. Held a presentation and demonstrated the tests for the client.

Skills: .NET, JavaScript, responsive design, Bootstrap, jQuery, C#, Agile, Microsoft SharePoint, HTML5, CSS3, Selenium.

#### Media

• Testing with Selenium: How to use Selenium, mocha and chai together.

#### Intern

## Statsbygg

Jun 2014 - Jul 2014 • 2 mos

Statsbygg have upgraded their internal collaboration portal from SharePoint 2010 to SharePoint 2013. They use EMC Documentum as their documentation and storage system. Sopra Steria have assisted in planning development, installing, configuring and developing web solutions on the portal.

- Updated the user interface on the portal to make it compatible with Share-Point 2013 when the project was upgraded from SharePoint 2010.
- Configured integration components in SharePoint in order to enable end users to work with documents, tasks, processing etc.
- Surveyed the possibilites for automated testing of JavaScript code with Karma, Mocha and Chai.

Skills: CSS, JavaScript, Microsoft SharePoint, Bootstrap, jQuery, HTML5, CSS3, Jasmine.

#### Intern

#### Cisco

2013 - 2013 • less than a year

Cisco is leading the field in development and innovation of video conferencing. They wanted to commission a project to investigate alternate ways to control a video camera. My mentor on the project was Andreas Aardal Hanssen.

- Developed a touch controller for controlling a video camera.
- Demonstrasjon the controller for the whole department.
- Worked in i Qt Creator og coded in C++, Qt and OpenGL ES.

Skills: OpenGL ES, Qt, Qt Creator, C++.

## **Programmer**

## Google

Jun 2012 - Aug 2012 • 3 mos

Google has an annual "Summer of Code" program where students can participate in software projects. My project was to extend the KDE text editor Kate with additional functionality. My mentor was Erlend Hamberg.

- Programmed a vi emulator for the Kate text editor.
- Worked in Qt Creator and coded in C++.

Skills: KDE, Kate, Qt, Qt Creator, C++.

# **Education**

# **University of Oslo (UiO)**

## Master's Degree, Computer Science, A

2010 - 2015

Activities and Societies: OSI Boksing. OSI Dansing. Sonen. Robotics.

Accelerating Nonlinear Image Transformations with OpenGL ES: A Study on Fish-Eye Undistortion

We study the use of OpenGL ES to achieve hardware acceleration of nonlinear image transformations, in particular, performing fish-eye undistortion. We outline a hierarchy of transformations and describe interpolation methods. We compare several models of barrel distortion. Our code compares five different implementation strategies. Time measurements show that the best efficiency is achieved by accelerating the transformation in the fragment shader. This is also

the setup that provides the greatest flexibility with regard to interpolation. We demonstrate an adaptive interpolation strategy where the most suitable interpolation kernel is chosen depending on to the distortion of the surrounding area.

#### Media

• Accelerating nonlinear image transformations with OpenGL ES: A study on fish-eye undistortion.

# Sør-Trøndelag University College (HiST)

## Bachelor's degree, Electrical and Electronics Engineering

2006 - 2009

Artifical arm for handicapped people

SINTEF commissioned a project to create a prototype of a tounge-controlled mouse cursor which can be used on Microsoft Windows using a standard HID mouse interface. The mouse cursor is triggered by touch sensitive sensors of the type FSR-400 and FSR-402. These sensors are very sensitive, and they have a hysteresis function under continuous pressure. Therefore, an automatic calibration routine was created to alleviate unwanted behavior.

#### Media

- Virtuell arm for funksjonshemmede: Report about a prototype of a toungecontrolled mouse cursor for handicapped people.
- Amplifier: Project 3A: Report for the construction of the 60 W class AB amplifier Project 3A.

## **Skills**

## **Programming**

XML/XSLT, PHP, CSS, JavaScript, C++, Java, Python, C, .NET, Bootstrap, jQuery, C#, SASS, HTML5, CSS3, TypeScript, React.js, AngularJS, JSON, Moq.

## **Technologies**

Microsoft SharePoint, Eclipse, Microsoft HoloLens, Microsoft SQL, Microsoft Test Manager, NUnit, Microsoft InfoPath, Unity3D, Git, Touch Typing, Wizdom, Microsoft TFS, ReSharper, Jasmine, Selenium, Microsoft Office 365, JUnit, Atlassian Jira, Zeplin, Microsoft Azure, Microsoft Visual Studio, Team Foundation Server (TFS), Less, Karma, Twitter Bootstrap, Atlassian Confluence, REST, Jama, Power BI, Docker, RESTful Web Services, MongoDB.

#### **Solutions**

Responsive design, Samhandlingsløsninger, Altinn.

## Frameworks and methodologies

Test Driven Development (TDD), Smidig metodikk, Scrum, Kanban, Modelview-controller (MVC), ASP.NET, WCAG 2.0, Sopra Steria Navigator, Share-Point Designer.

## Interests

- Sopra Steria
- University of Oslo (UiO)
- Sør-Trøndelag University College (HiST)

# **Accomplishments**

## **Certifications**

## 70-483: Programming in C

Aug 2017 – Present Glasspaper

## 70-480: Programming in HTML5 with JavaScript and CSS3

Jan 2017 – Present Glasspaper

## 70-331: Core Solutions of Microsoft SharePoint Server 2013

Oct 2015 – Present Glasspaper

# **70-332: Advanced Solutions of Microsoft SharePoint Server 2013**

Oct 2015 – Present Glasspaper

## **Courses**

# **Independent Coursework**

- Learning React: Functional Web Development with React and Redux (Alex Banks, Eve Porcello)
- React: Up & Running (Stoyan Stefanov)

- Design Patterns: Elements of Reusable Object-Oriented Software (Gang of Four)
- Clean Code: A Handbook of Agile Software Craftsmanship (Robert C. Martin)
- Code Complete: A Practical Handbook of Software Construction (Steve McConnell)
- The Pragmatic Programmer: From Journeyman to Master (Andrew Hunt, David Thomas)

#### Sopra Steria

- Kurs i AngularJS
- Microsoft University SharePoint 2013
- Introduksjon i teamarbeid

## **University of Oslo (UiO)**

- Algoritmer: Design og effektivitet (INF4130)
- Programming heterogeneous multi-core Architectures (INF5063)
- Avanserte databasesystemer (INF5100)
- Kompilatorteknikk (INF5110)
- Distribuerte objekter (INF5510)
- Digital bildeanalyse (INF4300)
- Filosofi og vitenskapsteori (EXPH0001)
- Programmering, grunnkurs (IT1103)
- Grunnkurs i analyse I (MA1101)
- Lineær algebra og geometri (MA1201)
- Logiske metoder for informatikk (INF1080)
- Algoritmer og datastrukturer (INF2220)
- Objektorientert programmering (INF1010)
- Systemutvikling (INF1050)
- Introduksjon til operativsystemer og datakommunikasjon (INF1060)
- Introduksjon til databaser (INF1300)

- Funksjonell programmering (INF2810)
- Programmeringsspråk (INF3110)
- Logikk og beregninger (INF2080)
- Datakommunikasjon (INF3190)
- Modellering og programmering av parallelle systemer (INF2140)
- Databasesystemer (INF3100)
- Operativsystemer (INF3151)
- Formell modellering og analyse av kommuniserende systemer (INF3230)

# Languages

## Norwegian Bokmål

Native or bilingual proficiency

## **Norwegian Nynorsk**

Native or bilingual proficiency

## **English**

Full professional proficiency

#### **Danish**

Limited working proficiency

#### **Swedish**

Limited working proficiency

#### German

Elementary proficiency

#### **Spanish**

Elementary proficiency

#### **Publications**

## **Testing with Selenium**

Dec 15, 2015 • Sopra Steria

How to use Selenium, mocha and chai together.

#### See publication

## Accelerating nonlinear image transformations with OpenGL ES

Jul 1, 2015 • University of Oslo

We study the use of OpenGL ES to achieve hardware acceleration of nonlinear image transformations, in particular, performing fish-eye undistortion. We outline a hierarchy of transformations and describe interpolation methods. We compare several models of barrel distortion. Our code compares five different implementation strategies. Time measurements show that the best efficiency is achieved by accelerating the transformation in the fragment shader. This is also the setup that provides the greatest flexibility with regard to interpolation. We demonstrate an adaptive interpolation strategy where the most suitable interpolation kernel is chosen depending on to the distortion of the surrounding area. We conclude that OpenGL ES is well suited for accelerating nonlinear image transformations, and outline some ways in which greater speed may be achieved with the use of a parallel computing framework such as OpenCL.

#### **See publication**

#### **General Parser Combinators in Racket**

*Aug 30, 2013 • GitHub* 

How to implement a general parser combinator framework which handles left-recursive and ambiguous grammars.

#### **See publication**

## Virtuell arm for funksjonshemmede

May 24, 2009 • Høgskolen i Sør-Trøndelag

SINTEF commisioned a project to create a prototype of a tounge-controlled mouse cursor which can be used on Microsoft Windows using a standard HID mouse interface. The mouse cursor is triggered by touch sensitive sensors of the type FSR-400 and FSR-402. These sensors are very sensitive, and they have a hysteresis function under continuous pressure. Therefore, an automatic calibration routine was created to alleviate unwanted behavior.

#### See publication

## **Lydforsterker: Project 3A**

Apr 1, 2008 • Høgskolen i Sør-Trøndelag

Simulation gave even amplification in the audible range (20 Hz–20 kHz). Measured amplification was 24.9 dB, with an effect of  $2\times55$  W with 8  $\Omega$ . A detailed step-by-step circuit analysis of the amplifier forsterkeren showed an amplification without feedback of 20714 times; calculated amplification with feedback was 23 dB. The power source was a 200 VA 24–0–24 V transformator; preferably a 300 VA should be used instead. The cabinet and the insides are documented with photographs. The amplifier has two amplification circuits, one for

each channel, with a common heat sink. The circuit boards' "silk screen" has some misprints. Due to noise problems, the circuit is slightly modified with extra capacitors. The cooling uses thermal feedback. The input bias current is set by adjusting a potensiometer og should be about 75 mA. The budget was 1000 NOK (\$130), while the costs was 1085,70 NOK, mainly because of expensive output transistors. Testing was done with cheap BD911 and BD912 transistors; the sound quality improved dramatically when replaced with MJL3281A and MJL1302A transistors. The amplifier can be considered to be highly successful in terms of sound, but there is room for improvement: automatisk discharging of the smoothing filter, DC protection over the output segment to protect the speakers in case of a short circuit, a more powerful power source, a larger heat sink, smaller circuit boards og a sharing filter.

#### See publication

## **Projects**

# **Spotify Playlist Generator**

Nov 2016 - Present

An open source project available for free at https://epsil.github.io/spotgen/, the Spotify Playlist Generator (or "spotgen" for short) is a tool for generating Spotify playlists programmatically. It enables the user to convert websites to Spotify playlists, incorporate their own Last.fm listener data, and employ smart algorithms to reorder the tracks. The generator interacts with Spotify's REST API services and is implemented in JavaScript, Node.js and Browserify.

#### See project

## **Graduate Program**

Aug 2015 - Aug 2015

As part of the Graduate program in Sopra Steria, I attended Microsoft University (MSU) for 6 weeks and completed a course in development. I took courses and certifications in HTML5/JavaScript, SharePoint, Scrum, TDD, BDD, Mocha, JUnit and NUnit.

- Practical studies, certifications and an introduction to agile development, testing, development and tools.
- The Graduate program lasted for 12 months and had multiple courses og gatherings.
- Microsoft University lasted for 6 weeks and was completed with two certifications.

Skills: Microsoft SharePoint, Microsoft Office 365, HTML5, CSS3, JavaScript, .NET, C#, JUnit, NUnit, Scrum, Agile, Test Driven Development (TDD), Behavior-driven development (BDD).

# Recommendations

# **Bastian S. Solem**

M.Sc technological leadership, B.Sc Electronics

February 28, 2010, Bastian S. and Vegard were students together

I found that working with Vegard was extremely rewarding. He is probably the smartest and most logical person I have ever had the pleasure to work with. In addition to being annoyingly clever he is also a great team worker. Vegard does a great effort to create a good environment at his work place.

# **Contact and Personal Info**

## **Your Profile**

linkedin.com/in/vegardoye

# **Websites**

github.com/epsil (GitHub profile) epsil.github.io (Personal website)

# **Phone**

+47 99 79 29 03 (Mobile)

# E-mail

vegard\_oye@hotmail.com