Eirik **Marthinsen**

Software developer/physicist

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Father, husband, hobby skier and passionate software developer

Summary

- 9+ years experience of developing multiphysics simulation software in C++
- Responsible for building, testing, monitoring software
- Using Python as goto language for all small and medium sized tasks

Skills

Programming C/C++ • Python • LaTeX • Bash
Techical skills Git • Docker • Linux • Jenkins • Visual Studio
Languages Norwegian (native) • English (fluent) • German (beginner) • Persian (beginner)

Projects

Brilliant / VessFire (C++) *Petrell, etc*
Development of inhouse multiphysics (CFD++) simulation engine *2012 - Present*

- Adding features, thermodynamic models, command parsing, binary result file IO, +++
- Responsible for testing, automation (Jenkins) and build system etc.
- Modernizing legacy C++ code to modern safe and performant C++17 code (Clang-Tidy, etc)
- Implementing new license system with OAuth2 using cpprestsdk
- Cross platform Windows and Linux, compiling with Intel, MSVC, GCC and Clang
- C++ libraries Eigen/MKL, Sqlite, CppRestSDK, SQLite, Curl, GoogleTest
- Using tools like Visual Studio, Clang-Tidy, Clang-Format, Valgrind, address/UB sanitizers

PyBrf (Python) *Petrell, etc.*
Python package with mulutiple command line tools for Brilliant simulations and result analysis *2018 - Present*

- Binary result file parser using numpy to store large data sets
- Using modern Python 3.6
- Extensively tested with PyTest
- Ensure high code quality with pylint type hints and MyPy

BrilliantGUI / VessFireGUI (Qt/C++) *Petrell, etc.*
Development of simulation case editor and result viewer (3D visializations and graphs) *2018 - Present*

- Upgrade legacy codebase from Qt4 to Qt5 and on the road to Qt6
- 3d visualization with Qt OpenGL, plots with QwtPlot

Fire Integrity Analysis of Flanges (Python, Brilliant, C++) *Diff. petroleum companies*
Create 3D parameterized simulation models and analyze the results *2017 - 2020*

- Automate the whole process of generatiing simulation models and run simulations (Python)
- Result analysis and presentation with Python using NumPy and Matplotlib
- Import from and export to Excel using python with xlsxwriter

Rupturing of pipes, High Temperature Material Testing (Python) *Oil and gas company*
ANALYZE EXPERIMENTAL VIDEOS OF PIPES EXPOSED TO FIRE TO *2016 - 2017*

- Using Python with OpenCV to fetch video file and read each frame
- Analyze each image frames brightness to detect pipe edges

Work Experience

Petrell AS *Trondheim, Norway*
SENIOR ENGINEER *2012 - Present*

- Developing inhouse multiphysics simulation software
- Performing fire-, structural integrity- and CFD simulations with the inhouse softwares Brilliant and VessFire
- Customer support, license

Internships at Petrell, Idéportalen, St. Olavs *Trondheim, Norway*
2008 - 2011

Education

NTNU *Trondheim, Norway*
MASTER OF SCIENCE IN APPLIED PHYSICS *2006-12*

- Master thesis: *Modelling of thermal radiation for use in fire simulations* (at Petrell)
- Specializing in numerical physics
- Broad background in mathematics, physics, and data science.