Carl Johnell

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About

Final year MSc student in Computer Science at Chalmers. Previously worked as a software developer for 2.5 years, after having completed a BSc in Software Engineering at BTH. I'm interested in systems programming and algorithms / math.

Education

MSc in Computer Science, Chalmers University of Technology
September 2018 - Present · Gothenburg, SE

GPA 4.7 / 5.0

Miscellaneous Courses, Lund University
January 2018 - June 2018 · Lund, SE

Preparation for master studies.

BSc in Software Engineering, Blekinge Institute of Technology (BTH)
September 2012 - June 2015 · Karlskrona, SE

Professional Experience

Summer Internship, Qualisys
June 2019 - August 2019 · Gothenburg, SE

Qualisys develops hardware and software solutions for motion capture based on optical tracking of reflective markers. I used C++, Python, Unity, and applied quaternions and methods from linear algebra during the development of three new projects:

- Open source Lab Streaming Layer (LSL) Python application that can stream marker and rigid body positions as LSL data. The app was added as a submodule to the official LSL git repository. See github.com/qualisys/qualisys_lsl_app and github.com/sccn/labstreaminglayer.
- Unity project for synthetic data generation for training deep neural networks, analogous to github.com/openai/orrb. The project was developed in close cooperation together with the lead of their machine learning efforts for markerless tracking (no physical markers).
- OpenVR driver that makes it possible to override the default tracking system of HTC Vive VR headset with Qualisys' motion capture system. See github.com/ValveSoftware/openvr.

Contracted Student, Fraunhofer-Chalmers Centre for Industrial Mathematics (FCC)
January 2019 - May 2019 · Gothenburg, SE

Spent half a day a week at FCC to help with minor tasks on an in-house project. I resolved issues with the CMake build scripts, transferred Go code to the new module system, and created a text-diff proof of concept application using JavaScript, WebSockets, and C++.

Software Developer, Compuverde (acquired by Pure Storage)
August 2015 - January 2018 · Karlskrona, SE

Designed, implemented & improved several features in the Software Defined Storage (SDS) product. Main development was in C++; various test and utility scripts were in Python. I learned a lot about storage, virtualization, multitude of different networking protocols, multithreading, server programming, and more.

Some of my contributions:

- Worked on the server implementation of several different networking protocols: Kerberos, LDAP, NFS, NNTP, NTLM, RPCSEC_GSS.
- Implemented an Amazon S3 server compatible with a subset of the official API.
- Created a plugin for OpenStack Block Storage (Cinder) in Python.
- Developed a REST API for easier management and administration of a storage cluster.
- Implemented dynamic configuration of VLANs and routing tables in Linux, which allowed for better network traffic isolation in multi-tenant setups and between the control and data planes.
- Improved the main build script which reduced the time of incremental debug builds by 90%.

Summer Internship, Ericsson
June 2015 - August 2015 · Karlskrona, SE

In a group, developed an internal tool used to compose and visualize different use cases supported by Ericsson Charging System. The tool was a web application and I was the main developer of the backend-side in Java.

Software Developer, Malvacom
June 2014 - December 2014 · Karlskrona, SE

Part-time work during studies. Android development and Python web development.

Skills

Programming languages: C, C++, Go, Java, JavaScript, Python
Technologies: CMake, Docker, Git, HTML5 / CSS3, Linux / Unix, LLVM, OpenGL, SQL

Personal Projects

Dingo, github.com/cjo5/dingo

Compiler for a C-like programming language with easy interop from and to C. Written in Go.