Sebastian Nagel

Senior Software Engineer

I am a software engineer / roboticist getting excited about functional programming languages, compilers/interpreters, distributed systems, micro-service architectures and web technologies.

Experience

since 2016	**Franka Emika GmbH**, *Munich* - ⧉ *www.franka.de*.
2014 – 2016	**KBee AG**, *Munich*.
2013 – 2014	**Kastanienbaum**, *Munich*.

Being involved from the beginning in creating the robot programming environment at Franka Emika, KBee and Kastanienbaum, I covered topics like

o **Programming language design** development of formal syntax and semantics

o **Language tool development** parsers, interpreter, execution engine and type checker for a robot programming language mostly written in Haskell

o **Service oriented architectures** design and implementation of a ZeroMQ based Middleware layer, message description language, message code-generation, Haskell tools and C-library

o **REST API server** Haskell backends using Snap and Servant/WAI

o **Web frontends** design and development of single-page applications in JavaScript ES6 and PureScript using React and Halogen

o **Continuous integration and deployment** setting up and maintaining jobs using Jenkins, Docker containers for distribution and orchestration in multiple environments

o **Hardware and systems programming** interface with hardware devices over Serial/UART or CAN using C++ and Haskell

o **Embedded Linux** maintaining the cross-toolchain build environment e2factory, and creating a just-enough-operating system including tasks like configuring bootloaders, hard drive encryption and networking

o **Planning and coordinating** the development of an open-source C++ library for low-level robot control and ROS interfaces, 4-5 people team in agile Scrum processes ⦿ frankaemika

o **Release management and versioning** of the Panda research product, including legal aspects like open-source license compliance

Education

2011 – 2014 **MSc Robotics, Cognition and Intelligence**, *TU Munich*.
Interdisciplinary course of computer science, mechanical and electrical engineering covering topics like Robotics, Control, Computer Vision and Machine Learning

2008 – 2011 **BSc Computer Science**, *FH Dornbirn*.

Academic

Master thesis *A dynamic, distributed and service-oriented robot control architecture*

Project *Segmenting and classifying GPS traces to identify types of transportation*

Side projects

nginx-jwt nginx C module to issue JSON Web Tokens (JWT) as JSON Web Signature (JWS) payload and verify their presence in headers ⚙ ch1bo/nginx-jwt

hdevtools maintaining and sometimes patching these Haskell developer tools ⚙ hdevtools/hdevtools

ambicam Python scripts using OpenCV on a RaspberryPi with PiCamera to send illumination data to an "ambilight" setup ⚙ ch1bo/ambicam

garmin-otp-authenticator Garmin ConnectIQ Widget to generate HOTP/TOTP one time passwords, basically a SHA1 implementation in the MonkeyC language ⚙ ch1bo/garmin-otp-authenticator

sonected.at Occasional technical consultant work for this personal management platform ⚙ sonected.at

Interests

Mountains Cross-country skiing and hiking the Austrian and German alps in winter and summer

Science Fiction Some authors I like are Daniel Suarez, Ernest Cline, Philip K. Dick

Crypto Currencies Have been using and trading Bitcoin in 2014, lost track and only recently came back to it

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