# Sebastian Nagel

## *Product Owner / 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

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| 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

- **Robot programming language design** created formal syntax and semantics, parsers, type checker and interpreter for a robot programming language mostly written in Haskell

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

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

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

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

- **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

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

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

- **Planning and coordinating**
  - A cloud platform with web application, integrating a robot system with over-the-air (OTA) updates and asset delivery, two teams of 5-6 developers each ⧉ https://franka.de/world.
  - An open-source C++ library for low-level robot control and ROS interfaces, 4-5 people team in an agile Scrum process ⭘ frankaemika.

## Education

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| 2011 – 2014 | **MSc Robotics, Cognition and Intelligence**, *TU Munich.*<br>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

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| ⬀ Master thesis | *A dynamic, distributed and service-oriented robot control architecture* |
| ⬀ ML project | *Segmenting and classifying GPS traces to identify types of transportation* |

## Skills

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| Using daily | Haskell, JavaScript, Docker, Linux, Nix, AWS |
| Used to | Purescript, C, C++, Golang, Python, Java |
| Want to use | NixOS, Rust |

## Side projects

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| 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 |
| ambicam | Python scripts using OpenCV on a RaspberryPi with PiCamera to send illumination data to an "ambilight" setup ⌼ ch1bo/ambicam |
| 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 |
| sonected.at | Occasional technical consultant work for this personal management platform ⬀ sonected.at |

## Interests

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| Mountains | Sport-, alpine- and ice-climbing, cross-country skiing and hiking the alps |
| 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 |