



## Contact

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[Homepage](#) [↗](#)

[Code Artist](#) [↗](#)

## Languages

English, German,  
Malayalam, Tamil, Hindi

## Programming

Go, Python, Ruby,  
C++, C, C#, JavaScript,  
Objective C, Swift  
[github.com/sillyfellow](https://github.com/sillyfellow) [↗](#)

## General

Vim, Rails, Git, CLI,  
AWS Services,  
PostgreSQL, PostGIS,  
L<sup>A</sup>T<sub>E</sub>X, Wireshark, GDB,  
GNU Make, Emacs

## Strengths

Algorithms,  
Analytical, Quick  
learner, Mentoring,  
Energetic, Industrious,  
Resourceful

## Reference

Mr. Andreas Leicher –  
CTO at a former  
employer  
[Email](#) [↗](#)


## Academic Credentials


- 2006–2010 **Doctorate** in Computer Science (**Algorithms**) Magna Cum Laude  
Technical University of Munich **TUM**, Germany  
*Thesis: Counting in the Jacobian of Hyperelliptic curves*
- 2003–2005 **Master** of Technology, Computer Science 8.9 / 10  
IIT, Indian Institute of Technology, Madras, India  
Advanced algorithms, algebra, ...
- 1999–2003 **Bachelor** of Technology, Computer Science First Class  
University of Calicut, India  
Introduction to CS, Algorithms, Compiler Design, ...


## Quick Overview


**$O(n)$  Algorithms/Complexity** ★★★★★★★★★★  
**Stuff that matters**

With a doctorate in efficient Algorithms, and having applied them in numerous practical situations, thinking about efficiency is second nature to me. To my colleagues, I am the go to person when it comes to optimisation.

 **Programming Languages/Platforms** ★★★★★★★★★★  
**Backends, Frontends, Tools, C, Go, Python, ...**  
I've built various backend solutions (monoliths, and micro-services), standalone services implementing genetic algorithms, and some versatile command line tools for IOT developers.

 **Cloud Tech / Dev-Ops** ★★★★★★★★★★  
**Create and manage cloud solutions**  
My expertise extends to CI, deployment, and maintenance of solutions in various solutions like AWS {ec2, lambda, elastic beanstalk etc.}, Heroku, and also private clouds.

 **System/Software Architecture** ★★★★★★★★★★  
**Keep the foundation steady, the rest can be reworked easily**  
Be it entity relationships, APIs, or component interaction, nothing teaches you as experience does. With plenty of experience in system design, I have mastered the art of making a system clean, with leaving room for future expansion.

 **Command Line Interface, Vim** ★★★★★★★★★★  
**Favourite Toolkit**  
The quickest prototyping happens here. The powerful unix utilities `grep/cut/sed/join/find/etc.` are my go-to tools, before jumping into coding. `curl` stays handy to test all APIs faster than anything else. And Vim lets me power through any codebase.

## Selected Projects - Freelancer

March. 2016–

**The Code Artist - Consulting and Development**  
Chief Consultant, Code artist, Dev Ops

Mainz, Germany

**GO BACKEND MICROSERVICES:** Currently designing and building a collection of micro-services for the cloud infrastructure of multi-billion dollar firm. As an experienced GO developer, I also act as a mentor to the rest of the team with internal developers. Automated CI (Travis) and deployment to Kubernetes.

**Go (Golang), TravisCI, K8**

**GO BACKEND ( RESTFUL API ) SERVER:** Completed an full RESTful API backend server in Golang, for processing large files. (eg. large image processing, project report generations involving multiple roles - with simple ACL, stages, statuses, etc.) (Continuous delivery)

**Go (Golang), CircleCI, AWS, S3**

**CLI TOOL FOR IOT DEVELOPERS:** A Golang + Rails project where the client (go) communicates with server (rails) for code generation for embedded iot devices. The server handles request and processes them in queues (sqs/job-handling/etc.)

The tool (Go) interacts with the server purely via RESTful API.

Closely worked with client through every step of the project with short sprints.

**Ruby on Rails, Go (Golang), CircleCI, Heroku, S3, SQS**

**C++ REVENUE MANAGEMENT** Concluding a six month project on a revenue management simulation for global logistics firms based in Europe. The challenges include processing huge amounts of data combined with revenue management optimisation and inventory control. Various **optimisation algorithms** are employed to maximise the revenue.

The core, process heavy part of the project is implemented in C++, which interacts with R for user interactions.

**C++, R**

**PROCESS OPTIMIZATION TOOL:** A tool to solve an NP-Hard problem on process optimisation, using **genetic algorithms**. Can be run as daemon or directly from CLI, to accept the dependency graph of the problem to produce the optimal solution to the optimisation.

**Go (Golang), Python**

The key-points here are the sophistication of the base algorithm and the optimisation growth using clever mutations through generations in **genetic algorithm**.

**KENKEN IN PYTHON** Working on a pet project to implement the game/puzzle **Kenken™** for arbitrary levels of complexity, in a flask-server to be served for a frontend-mobile-app via RESTful api.

**Python, Flask, RESTful**

**GAMIFIED E-LEARNING:** A white labelled, gamified Learning app was built for companies which want to train employees & partners.

The app contains lessons being served from the server, and gaining points & premiums by correctly answering quizzes.

Lead a team of four developers, Created the whole server infrastructure with dev/staging/production environments – with possibility to change the domains without a new release.

**Ruby on Rails, React Native, JavaScript, AWS, Heroku, CircleCI**

<https://itunes.apple.com/us/app/mavenport/id1174847132>

<https://play.google.com/store/apps/details?id=de.mavenport.app>

**MARKET-PLACE SERVERS:** Working on building a Marketplace platform for covered by NDA in German market, for a Berlin based startup. The platform is a pure (responsive) web app, which combines elements of gamification.

Ruby on Rails, JavaScript

**OAUTH/SSO BACKEND SERVERS:** Completed a mobile app project with premium shop

1. Built and recruited the development team with on-site and remote members
2. Designed and created the technical architecture for OAth/SSO/App servers
3. Created the backend (RESTful API) systems (RoR and Go) with provisions for SSO/Auth/App related separate services.

3 Servers: Ruby on Rails, 1 server: Golang, App Development in Java & Swift, Dev Ops

**DESIGN, BUILD, AND LAUNCH:** Analyse/Evaluate the clients' needs and desires, generate the best fitting design and model. Assemble technologies for the optimal MVP, mentor the team-members to build it, and transform the concept into pure binary. Utilise the expertise in Dev Ops to get the product placed in the stores and the cloud.

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## Employment Details

2014–2016

**Lead Developer / Senior System Architect - Gamified apps**  
Mainz/Frankfurt, Germany

**STARTUP:** Play pivotal role in making decisions in a fast paced atmosphere of a startup.

- Determine the architecture and approach for the projects.
- Make release plans/schedules.
- Decide the methodology and confirm that the standards are met.

**MENTOR/TECH-LEAD:** Guide and assist the members of the team to achieve their potential

- Interview candidates; On-board the new hires.
- Assure the optimal performance of local and remote teams, by delegating relevant tasks.

**ALL ROUNDER:** Have been managing and performing in both cross functional, and remote teams; Get involved in developing new features in all spectrum of technology in the firm, as required.

**Delta Sync:** Played leading role in the team to develop means to speed up (10x) the sync of game elements between the apps and the server.

**Season Migration:** Designed and deployed seamless transition of the apps via gamified seasons.

**LEAD DEVELOPER:** Owner of the Rails/Go platforms, gamification engine, API end points, and the web portal. (PostGIS, Ruby on Rails, Golang, {Java/Coffee} script)

**MAPTO{BIKE, HIKE, SNOW}:** Maintain the existing, and develop new features in the scalable, extensible platform with which multiple apps communicate. The server handles the calculations for the gamification elements - geo-tracking, contests, quests, etc.

**GAMIFIED BATTLES:** Designed, developed and deployed private battles from inception. In battles, users challenge each other and compete in their own sports. Implemented battle invitations to attract new users.

**ADVENTURES:** Designed the action based adventures for the apps, and led the app teams as well as developing the server.

**DEV OPS:** Manage AWS based server/deployment.

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2010–2014

**Security Developer - *Communication archival***

Karben, Germany

**EMAIL IMPORT/ARCHIVE SOFTWARE:** Spearheaded the development of multi-tiered software to collect/convert various forms of communication to MIME. With the huge quantity of the data, the project was enjoyably challenging from technology as well as algorithms perspective. (C#, Reporting Tools)

**FOUR STAGE LINUX SECURE BOOT:** With trusted GrUB as framework, created a secure, four stage, Linux boot system which uses a Trusted Platform Module, and RSA signature verification. (C, Assembly)

**ENCRYPTION LIBRARY WITH OPENSSL BIO:** Designed and developed an encryption library with configurable layers of encryption and compression - generating digests on the fly, for future integrity checks. (C, C++)

**POSTGRESQL MIGRATION BYPASS:** Scalable tool for migration of old psql databases to new PostgreSQL, with drastic reorganisation of the data - with provision for plugging in various data conversion methods, for individual fields. (C)

**SIDE PROJECTS:** Glibc iconv + pInvoke for global encoding converter for .Net; Standalone DRM decryption server; XSLT bypass for Amazon S3; Lotus Notes to MIME converter tool; etc. (C#, Java, C, Lotus-script)

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2006–2010

**Doctoral Candidate**

Munich, Germany

Technical University Munich *Chair for Efficient Algorithms*

**RESEARCH & DISSERTATION: COUNTING IN THE JACOBIAN:** Researched on methods to speed up the computation of cardinality of Jacobian of hyperelliptic curves. The counting was aimed at finding the feasibility of building a secure cryptosystem using the curve.

The research concentrated on primordial group order counting and baby-step, giant-step methods. Also taken into consideration were the chances of different attacks based on the size of jacobian. New, improved algorithms were designed and a system was implemented in order to do faster computations. (Python, SAGE, Magma, Maple in Linux/Solaris).

[http://wwwmayr.in.tum.de/personen/sadanand/local\\_files/phdthesis.pdf](http://wwwmayr.in.tum.de/personen/sadanand/local_files/phdthesis.pdf) ↗

**TEACHING: ALGORITHMS, DATA STRUCTURES, PYTHON:** Taught and assisted in courses on Algorithms, Data Structures, and Introduction to Computer Science in various semesters. Completely designed and conducted the course “Python for fine programmers” in two semesters.

<http://wwwmayr.in.tum.de/personen/sadanand/#Teaching> ↗.

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2005–2006

**Microsoft India (R&D) – *Microsoft Dynamics***

Hyderabad, India

Software Design Engineer

**MS-CRM, MS-OFFICE INTEGRATION (FIRST VERSION OF OFFICE/CRM PLUG-INS):** Was the sole designer and developer in bringing MSCRM features to MS Word and MS Excel, using visual studio tools for office. The work included building GUI for MS-Office, which used Platform-APIs to communicate with CRM. (C#)

**DUPLICATE DETECTION:** Initiated the duplicate detection module design for Microsoft Dynamics CRM 4.0. The task consisted of investigating SQL stored procedures for digest generation for records. (C#)

## Honours and Selected Publications/Talks

- “Gamification im Outdoorsport” – talk at [WebMontag Frankfurt, June 2014](#) ↗.
- “Lightweight Cryptography: Hyperelliptic Curve Cryptography” – Talk at “**Bundes Sicherheits Institut**” (National Security Institute), Bonn, Germany. (March 2009)
- German Research Foundation (DFG, Germany) scholarship for doctoral studies.
- German Academic Exchange Service (DAAD, Germany) scholarship for master thesis.
- 99.68 percentile score in GATE (Graduate Aptitude Test); All India Rank of 118 in GATE (IIT).
- Best project in Bachelors (2003) – “Porting Valgrind from Linux to FreeBSD” – Computer Science & Engineering, Government College Thrissur, India.
- “Process Tracing using `ptrace` - Parts I, II and III”, Linux Gazette: Issues 81, 83 & 85. (<http://www.tldp.org/LDP/LG/issue85/sandeep.html> ↗)
- “GCC-Inline-Assembly-Howto” (2002) (<http://ibiblio.org/gferg/ldp/GCC-Inline-Assembly-HOWTO> ↗)
- “Valgrind Howto”, (2003) (<https://www.linux.com/learn/docs/ldp/807-Valgrind-HOWTO> ↗)