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Summary I am a software engineer with interests in functional programming, software correctness and computer graphics. I'm a big believer in strong type systems and property testing of specifications - write it once and write it well. I have experience leading a team in building a full-stack application, as well as managing legacy systems.

Skills

- **Functional Programming** - Declarative way is the right way. In places where correctness and longterm maintainability is required the best way about building such system is composing it from small, pure and well understood functions, and relaying on strong type system to guide you to success. I have a very good knowledge of Haskell programming language that shines in exactly such environment.
- **Imperative Programming** - Turing machine is what it is and sometimes it is better to write code in a way that maps more naturally to the hardware. I have a good knowledge of imperative languages like c/c++ that can be used in performance critical applications. I also have a basic working knowledge of most of the other mainstream imperative languages and can be quickly brought to speed if it is required.
- **Relaitonal Databases** - When dealing with large quantities of well structured data, relational databases are still an undisputed king. I have experience with both designing a database structure from scratch, optimizing SQL queries and general maintenance of old systems. I have worked with PostgreSQL, sqlite and others.
- **System Administration** - I have experience with Unix-like systems, in particular deploying to Amazon AWS using NixOS/NixOps and generally administrating such a webserver. I also have experience in basic DevOps, that is scripting a build system for continuous integration, automatically performing testing, etc.
- **Front End** - Front end is not something that I could say I enjoy however I do have experience designing and building front end of application for a client and if it's something that is critically needed I could handle it. I know reasonably well HTML/CSS and I've experimented with Elm and ghcjs.

Projects

- **Computational Geometry** - My latest project, still early work in progress. Ultimately it will be a library containing useful data structures and algorithms from the field of computational geometry in the context of procedural graphics generation. Currently I have implemented algorithm dealing with set operations on polytopes that I've described in depth in a recent blog post.
- **CEF3-Bindings** - One thing that I believe is still missing in the Haskell ecosystem is a good story regarding GUI. On my way to scratch that particular itch I have decided to provide bindings to CEF3 and hopefully in the future, build something more nice and complete on top of that. For now using this bindings together with threepenny-gui is something that could be used instead, something that I have also described in a blog post.
- **Marching Cubes** - It's an old project of mine but it has pretty screen-shots so I've decided to add it here. As the name suggest it is an implementation of the marching cubes algorithm, that is algorithm reconstructing a boundary polygons from a 3 dimensional density function. To checkout the code and pretty pictures follow this github link.

Work Experience

- **Independent Consultant** (2012 - 2017) - The last few years I have spend as an independent consultant and as such had an opportunity to learn a lot and also experience working for different companies on exciting projects (like for example a robotic company, a bit of a highlight from the usual backend jobs). From this experience - besides some industry specific knowledge - I have learned interaction with clients and time management.
- **Diagnostica** (2009 - 2011) - As a head of 3 person team, I was tasked with developing and maintaining a RIS (Radiology Information System) for a radiology clinic. It required designing database and building a front end application that helped medical personnel managing patient and imaging data, internal communication, and also interfaced with certain diagnostic instruments (Magnetic Resonance and Computer Tomograph).

Bonus: Happy Ending Problem This is a little bonus for the mathematically inclined individuals that happened to read this. Since I myself like to be exposed to a neat open problem once in a while I decided that this time I'll do a bit of community service and bring up one here for you. The simple version of this problem was initially proposed by Esther Klein to Paul Erdős and George Szekeres as (paraphrasing): What is the minimal number of randomly selected points on a plane, where no three points lay on a line, that always have a subset of points forming a convex quadrilateral. It is quite easy to provide a solution of this problem by geometric case analysis, however, the generalization of that theorem to any convex polygon resisted all attempts at solution for almost a century. I like it especially because it seems like it should have a straightforward constructive solution yet after a deeper delving it proves surprisingly resistant. Also the story behind the name is quite nice: it was christened "Happy Ending Problem" by Erdős after Klein and Szekeres ended up getting married.