P.O. Box 52
Fargo, ND 58107
+1 802-552-0922
+33 7 88 09 10 28
jon@ylixir.io
ylixir
ylixir

# Jonathan Allen

*Software Engineering*

## Objective

Obtain a position which allows enables maximum personal, peer and company growth.

## Related Experience

2016 – present **Senior Software Developer**, *RealTruck Inc.*, Fargo, ND.

Professional Software Development

- Engineer enterprise systems for failure and recovery: provide robust and highly resilient systems.
- Mentor, and lead to broader technical depth while balancing quarterly and political constraints.
- Apply experience gained from open source development to proprietary systems.
- Experience with codebases that are several hundreds of thousands of lines of code.
- Broad background allows me to manage seemingly intractable issues.

1985 – present **Software Developer**.

A lifetime of non-professional software development.

- Breadth of experience crossing many paradigms and technologies.
- Ability to quickly learn and become adept at any "new" technology.
- Ability to evaluate best fit technologies, regardless of political or quarterly constraints.
- Evaluating long term value of technical decisions.

2014 – 2015 **Teaching Assistant**, *North Dakota State University*, Fargo, ND.

Precalculus level algebra

- Prepare and present classroom material.
- Provide one-on-one mentoring.
- Objectively assess and provide feedback for work: homework, quizzes, exams, etc.

2002 – 2003 **Programmer**, *North Dakota Center for Persons with Disabilities*, Minot, ND.

Miscellaneous programming tasks

- Diverse technology stacks consisting of C++, Win32 API, MFC, ASP, MSSQL, Oracle.
- Create and maintain desktop and web applications with a focus on accessibility software.

## References

Jeffrey Barron **Software Engineering Manager**, *jeffrey.a.barron@icloud.com*.

Jake Oster **Senior Software Engineer**, *jacoboster30@hotmail.com*.

## Skills

Expertise C/C++ (and family), JavaScript, TypeScript, git, *nix

Current Focus Elm, Haskell, Rust, Atmel AVR

## Education

2015 **North Dakota State University**, *Fargo, ND.*

Bachelor of Arts in Mathematics

- Elective credits in partial differential equations, combinatorics, graph theory and real analysis.
- Capstone work involving numerical semigroups, Markov bases, and extensions of the natural numbers.

2001-2005 **Minot State University**, *Minot, ND.*

Computer Science, Mathematics, Physics coursework

## Technical Highlights

2019 **Parser Combinator Library**, `https://ylixir.io/phap`.
Implement parsing combinator technology, making it available to the PHP ecosystem.
- Languages: PHP, Haskell
- Technologies: Functional programming

2018 **ETL Pipeline**, `https://realtruck.com`.
Redesign and implement large portions of a product information pipeline responsible for transforming and routing routing many millions of rows of data to tens of systems.
- Languages: Python, PHP
- Technologies: Circle-CI, Nix, Psalm

2018 **Shopping Cart**, `https://realtruck.com`.
Helped to create the front-end for a shopping cart and checkout experience.
- Languages: JavaScript, TypeScript
- Technologies: Vue.js, Webpack, Rollup, Raven.js, Stylus

2017 **Tomato Keyboard Kit**, `https://ylixir.github.io/byatk`.
Managed production of a custom designed keyboard. Created documentation, provided firmware.
- Languages: C
- Technologies: Embedded software, Gerber, electronics, Atmel AVR, cross compiling

2017 **Sales tax system**, `https://realtruck.com`.
Legacy platform unable to conform to legal requirements. Provided custom SDK, allowing integration with modern services, allowing automated legal compliance.
- Languages: PHP
- Technologies: JSON, HTTPS, REST, fault injection

2017 **Implement gift card system**, `https://realtruck.com`.
- Languages: PHP
- Technologies: JSON, HTTPS, REST, discriminated unions

2016 **Complete redesign of ad feed system**, `https://realtruck.com`.
Legacy system described as "the worst part of our codebase". Too fragile to be safely modified, yet bugs routinely caused losses of tens of thousands of dollars. Modernized system while balancing time and priorities of other tasks. Described by management as a "master class in incremental improvement".
- Languages: PHP
- Technologies: Builders, dependency injection, composition, etc.

2016 **yotp**, `https://www.github.com/ylixir/yotp`.
Command line utility for generating one time passwords. Commonly called two factor authentication, this code could be used by a client or server.
- Languages: C#
- Technologies: .net core, Mono, .NET, HOTP, TOTP, SHA1

2015 **diceware**, `https://www.github.com/ylixir/diceware`.
Utility for generating passphrases. These are very secure passwords, which are easy to remember.
- Languages: Lua
- Technologies: diceware, /dev/urandom

2015 **frobmask**, `https://www.github.com/ylixir/frobmask`.
Automates computation of Frobenius numbers. Useful to mathematicians studying numerical semigroups.
- Languages: Lua 5.3
- Technologies: Abstract Algebra

2015 **Lerna**, `https://www.github.com/ylixir/lerna`.
Web browser with lua scripting support.
- Languages: Vala, Lua
- Technologies: GTK3, WebKit, liblua

2013 **ArchNexus**, `https://www.github.com/archnexus`.
GNU Linux distribution for tablet computers.
- Languages: sh, C
- Technologies: Linux, gcc, pacman

2010 – 2011 **Yaed**, `https://www.github.com/ylixir/yaed`.

Cross platform text editor. This was a successful excercise in documentation first, code second.

- Languages: C
- Technologies: GTK-2, GTK-3, GtkSourceView

2008 – 2011 **yCurses**, `https://www.github.com/ylixir/ycurses`.

Ncurses bindings for the D programming language.

- Languages: C, D
- Technologies: nCurses