Benjamin F. Wilson

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Education

M.S., Oregon State University, Corvallis OR — 2021

- Major: Computer Science
- Focus: Programming Language Theory, Computer Graphics, AI
- Thesis: Structuring Teachable Knowledge through Program-Concept Classifications

B.S., Oregon State University, Corvallis OR — 2020

- Major: Computer Science (Computer Systems)
- Cum Laude
- Wrote the educational DSL BoGL with capstone team

Oregon State University, Corvallis OR — 2012

- Studied Mechanical Engineering

San Marin HS, Novato CA — 2011

Professional Experience

Research Assistant, Programming Languages Research Group, OSU, Corvallis OR — 2020 - 2021

- Worked under Professor Martin Erwig
- Researched classification and ordering systems for guiding the presentation of educational programming examples
- Worked on the educational programming language BoGL, written in Haskell, for college & middle school students
- Wrote & maintained OSU's BoGL stack on an AWS EC2 instance, patching issues and keeping the service online
- Researched educational impacts of teaching BoGL to students
- Led development for the Childsplay research group showcase website

Undergraduate Learning Assistant, Oregon State University, Corvallis OR — Sept. 2018 - June 2020

- Undergraduate Learning Assistant (TA) working with Graduate Teaching Assistants and Instructors
- Worked with students in introductory Computer Science courses
- Ran labs and taught students about programming language concepts in C++ (CS 162) and Haskell (CS 160)
- Graded assignments, provided office hours for teaching assistance, and ran late-night study sessions

Core Contributor, Parse Community, Github — Jan. 2017 – June 2018

- Oversaw maintenance & development of the Parse PHP SDK, connecting to the Parse BaaS
- Greatly improved CI to boost coverage to $> 90\%$, making the sdk the most covered repo at the time
- Implemented automatic style enforcement as part of the CI
- Implemented automatic documentation generation as part of the release process
- Independently assisted contributors with code and reviewed pull requests
- Discussed and provided enhancement for the primary server and all outlying SDKs
- Initially worked with Facebook employees to migrate Parse to a community run organization

Head Software Engineer, Axolsoft, Upland CA — Jan. 2015 - Sept. 2017

- Co-founded Axolsoft, a general software LLC, and ran day-to-day operations as the Head Software Engineer
- Developed CRM & administration portals for services and payments with PHP, SQL and the Braintree payments API
- Worked with organizations to plan and discuss project proposals, and to respond to questions and critiques
- Developed front-end customer websites, and the axolsoft.com website, accompanied with logging system for JS errors
- Maintained DL 360 & DL 380 Proliant servers running Ubuntu as part of network infrastructure
- Created emailing system with a PHP email sdk for composing and sending HTML5 emails with DKIM signatures
- Created MySQL database abstraction stack (server and sdk), used to manage Axolsoft and customer data
- Built Steinwise beer suggestion & discovery RESTful API with PHP, SQL and a simplistic weighting net (with accompanying iOS application)

Co-President, Oregon State University App Club, Corvallis OR — 2014 - 2015

- Co-developed a widely popular Android app, 'Corvallis Transit', for predicting when buses will arrive in Corvallis, OR
- Taught iOS and Android development (Obj-C and Java) to OSU students
- Helped run a hackathon alongside Google engineers
- Reviewed and helped students individually with their Android and iOS projects

Score Savers SAT/ACT Prep - Contract Work — 2013 - 2017

- Developed student and account management tools for Score Savers Prep with Parse server and Javascript
- Built Android/iOS student testing app for Score Savers, with SQLite/CoreData and MySQL and SQL/PHP server-side

Contract/Independent Software Development — 2013 - Current

- Wrote 'Banter', a tool in C/OpenGL for performing 3D structure-agnostic data visualization of files
- Created 'Latria', a small cross-platform scripting language in ANSI-C to interpolate language values, latria.uphouseworks.com
- Released 'Hangman Azul', a multiplayer Android hangman game using Bluetooth and OpenGL
- Built Android app 'RentChecker' with Google spreadsheet APIs to automate calculation & notification of rent payments
- Released 'Bit Shooter', a Galaga-style game for iOS/Android with OpenGL, OpenAL and CoreData/SQLite

Scholarship

M.S. Virtual Visit Speaker, Oregon State University, Corvallis OR — 2021

- Volunteer speaker at the first M.S. Virtual Visit for prospective graduate students

VLHCC Conference Paper Co-Reviewer — 2021

Invited Participant - Portland Connect — 2019

- One of 20 undergraduates exclusively invited to showcase OSU's top undergraduate and incoming graduate students

Grant Participation — 2021

- Perham-Mocello, J., Erwig, M. , & Niess, M. (9/1/2019 – 8/31/2022). Child's Play: Learning Computer Science Through Tabletop Games, National Science Foundation, Award No. 1923628, $1,000,000
  - Researcher and developer for the BoGL language and subsequent curriculum

Papers

- Benjamin Friedman Wilson, Martin Erwig, and Jennifer Parham-Mocello. "A tool for scaffolding the teaching of programming concepts". draft, submitted for publication in VLHCC, 2021.
- Jennifer Parham-Mocello, Martin Erwig, Margaret Niess, Chris Kawell, and Benjamin Friedman Wilson. "Virtually unplugged: Using board games for online cs middle school camps". draft, submitted for publication, 2021.

Skills

- Building and maintaining websites, servers, mobile apps and full-stack applications
- Building full-stack applications with experience writing servers specifically in Haskell, PHP, and Node.JS
- NGINX setup, configuration, and management experience
- Designing, developing, deploying and maintaining programming languages (Parsers, Typecheckers, Runtimes, Compilers)
- Using C/C++ with OpenGL for data visualization
- Proficient with: Haskell, Javascript, HTML5, CSS, C++, C, RegEx, NGINX
- Familiar with: GLSL, PHP, Bash, SQL, Java, Obj-C, Python, Lua, C#, x86 assembly
- Leadership experience, running an LLC, clubs, and organizing teams for software development projects
- Teaching programming languages and general CS concepts & techniques
- Comfortable with Git, Github, Vim, Atom, Xcode, Unity, Android Studio, Xcode, PhpStorm, Sublime, Eclipse, Unity & Blender
- Proficient in LaTeX
- Mac - OSX (Snow Leopard up), Ubuntu Linux, Windows (7,8,10)
- Simple VR applications using Oculus

Ongoing Work/Research

- Exploring 802.11n (WiFi 4) implementation fundamentals
- Working on the Functional Domain Specific Shader Language (FDSSL) with a colleague at OSU for composable shaders
- Working on process visualization for software, making execution & memory layout visually apparent on OSX

Interests

- Bouldering and Top Roping (first certified to belay in 2018)
- Creating fascinating images with graphics, particularly with shaders and for data visualization
- Disassembling, repairing, and building electronic and mechanical devices (tinkering)
- Striving to make the perfect pizza from scratch

Qualifications

- English (Fluent)
- Spanish (weakly conversational)
- Familiarity with German culture (wife is German)