Benjamin F. Wilson

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Education

M.S. - Computer Science, Oregon State University (OSU), Corvallis OR 2021

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

B.S. - Computer Science, Oregon State University (OSU), Corvallis OR 2020

- Cum Laude
- *Computer Systems option*, ABET accredited, meeting physics & mathematics requirements
- Wrote the educational domain specific language BoGL with capstone team

Oregon State University, Corvallis OR 2012

- Studied Mechanical Engineering

San Marin HS, Novato CA 2011

Experience

Research Assistant, Programming Languages Group, OSU 2020 - 2021

- Worked under Professor Martin Erwig
- Researched classification and ordering systems for guiding the presentation of programming examples
- Worked on the educational programming language BoGL, written in Haskell, for 200+ students
- Engineered OSU's BoGL stack on an EC2 instance, maintaining 24/7 uptime
  - `https://bogl.engr.oregonstate.edu`
- Researched educational impacts of teaching BoGL to students
- Led development for the Childsplay research group showcase website
  - `https://research.engr.oregonstate.edu/childsplay/`

Teaching Assistant, OSU Sept. 2018 - June 2020

- Teaching Assistant (ULA) working with Graduate Teaching Assistants and Instructors
- Worked with students in introductory Computer Science courses
- Ran labs of 20-40 students and taught programming language concepts in C++ and Haskell
- Graded assignments, provided office hours for teaching assistance, and volunteered to host study sessions
- Proctored midterm and final exams, guest lectured when instructor could not attend

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

- `https://github.com/parse-community/parse-php-sdk/`
- Became the primary PHP SDK maintainer as Parse migrated away from Facebook
- Oversaw maintenance & development of the Parse PHP SDK, used by 100's of developers & many companies
- 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

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

- Co-founded Axolsoft, a general software LLC, and ran day-to-day operations
- Developed CRM & administration portals for services and payments with PHP, SQL and Braintree
- Engineered & Developed the following selected web projects (among others):
  - `https://www.axolsoft.com`, (*company website, full-stack with back-end for CMS & other internal systems*)
  - `https://dialectgeek.com` (*Dialect Coaching website, front-end*)
  - `http://getsteinwise.com` (*Steinwise promotional site, full-stack with back-end for handling signups*)
- Developed full-stack solutions for payments and ticketing for government organizations in southern California
- Worked with organizations to plan and discuss project proposals, and to respond to questions
- Developed front-end customer websites, accompanied with logging system for JS errors
- Maintained DL 360 & DL 380 Proliant servers running Ubuntu as part of network infrastructure
- Engineered emailing system with a PHP sdk for composing and sending HTML5 emails with DKIM
- Created MySQL database abstraction (server and sdk), used to manage Axolsoft and customer data
- Built Steinwise beer suggestion & discovery RESTful API with PHP, SQL and an iOS app

Co-President, OSU App Club — 2014 - 2015

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

Software Engineer (Contract), Score Savers Test Prep — 2013 - 2017

- Developed student & 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/PHP
- Was retained for several years to continue system development & maintenance

Independent Software Development 2013 - Current

- Designed and built personal website from scratch
  - `https://www.uphouseworks.com`
- Wrote 'Banter', a tool in C/OpenGL for performing 3D structure-agnostic data visualization of files
  - `https://github.com/montymxb/banter`
- Created iOS application for verifying site meta-tag optimizations, with former accompanying online tool
  - `http://sitecheck.uphouseworks.com/`
- Created 'Latria', a small cross-platform scripting language in ANSI-C to interpolate language values
  - `http://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 of rent
- Released 'Bit Shooter', a Galaga-style game natively built for iOS and Android

Scholarship

M.S. Virtual Visit Speaker, OSU 2021

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

VLHCC Conference Paper Co-Reviewer 2021

- Used web engineering expertise to assist PhD student with review of VLHCC 2021 paper

Invited Participant - Portland Connect 2019

- One of 20 undergraduates invited to showcase OSU's top undergraduates

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.

Ongoing Work

- Working on the Functional Domain Specific Shader Language (FDSSL) with a colleague at OSU
- Taking German Language classes (A1)

Interests

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

Skills

- **Proficient:** HTML5, CSS, Javascript, Haskell, C++, C, Bash, RegEx, full-stack & front-end engineering, testing, CI
- **Familiar:** Python, Typescript, Lua, GLSL, Java, MySQL, x86 Assembly, Obj-C, networking, ML, general biology
- **Technologies:** NGINX, AWS, OpenGL, React, Node.js, Git/Github, Unix, Windows, Android, iOS, LaTeX

References

- Martin Erwig
  - Stretch Professor of Computer Science at Oregon State University
  - erwig@oregonstate.edu
- Jennifer Parham-Mocello
  - Assistant Professor of Computer Science at Oregon State University
  - parhammj@eecs.orst.edu
- Kyle Warden
  - Director of Online Resource Development at Axolsoft
  - kyle@axolsoft.com