Matthew Zykan
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http://chaosworship.net

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EDUCATION

B.S., M.S. Computer Science
B.S. Computer Engineering
University of Missouri-Rolla — May 2008
(Missouri University of Science and Technology) — Cum. GPA 3.45

DeSmet Jesuit High School – St.Louis, MO
Diploma, May 2001 — GPA 3.6/4.0

WORK EXPERIENCE

08/2017 - present
Android Developer
self-employed

04/2015 - 08/2015
Developer
Xtivia – St. Louis, MO

01/2011 - 08/2013
Developer
Engage – St. Louis, MO

01/2009 - 02/2009
Web Design Contractor
ATB Technologies – St. Louis, MO

06/2004 - 09/2004
Student Programmer
USGS Mid-Continent Mapping Center – Rolla, MO

WORK DETAIL

Xtivia – support ticket form

Technology: C#, ASP.NET

Cloned existing customer support form, created new interface style and graphics for client's brand, and made minor logic customizations.

Xtivia – document bundling application

Technology: C#, ASP.NET

Created small one-page application for generating bundles of documents. Users select documents from a list and enter an identifying code, application creates merged and named PDF document.

Engage – Engage Sports – scheduling engine

Technology: C#, ASP.NET, NUnit, evolutionary algorithms

Developed sports season scheduling algorithm to replace manual process. Algorithm satisfies multiple constraints such as team ranking, fair number of home field games, rest periods, and compact overall season schedule. Underlying combinatorics and graph algorithms covered by unit tests using NUnit.

Engage – Rust Consulting – call center support application

Technology: C#, ASP.NET, DotNetNuke, SOAP, Agile development

Ongoing support and extension of client's internal application for gathering and organizing class action suit claimant information. Client's call center used application to create, search, and edit claimant records. Developed common search module and claimant information form modules which could be reconfigured for different cases.

Engage – Rust Consulting – application deployment module

Technology: C#, ASP.NET, DotNetNuke

Created module to partially automate and improve reliability of deployments of application updates. Module provided summary list of deployed applications, available updates, and pass/fail status of previous update attempts.

Engage – "tfsstat" build server status panel

Technology: JavaScript, jQuery, C#, ASP.NET, TFS, continuous integration

Developed web-based drop-in replacement for unmaintained and buggy Team Build Screen, a continuous integration monitoring application.

USGS – MOSIX conversion of map re-projection utility

Technology: C++, parallel processing, MPI, Unix, MOSIX

For parallelized image manipulation utility, replaced MPI task and communication features with process pools and interprocess communications compatible with MOSIX.

independent – Android Live Wallpaper

Technology: Java, Android, OpenGL
Developed animated backgrounds for Android devices, emphasizing low power consumption.
Tetroid: https://play.google.com/store/apps/details?id=net.chaosworship.tetroidlive
Ribbon Flow: https://play.google.com/store/apps/details?id=net.chaosworship.ribbonflow
Twist Flux: https://play.google.com/store/apps/details?id=net.chaosworship.twistflux
Twist Flux renderer write-up: http://chaosworship.net/2018/01/16/rendering-twisty-thingies/

independent – Ugly Little Sound Board

Technology: Java, Android
A "soundboard" toy application using basic UI components to present a well-curated set of hundreds of sound effects. Improved interface via several rounds of user testing.
https://play.google.com/store/apps/details?id=net.chaosworship.uglylittlesoundboard

hobby – "imgez" special purpose image gallery

Technology: Python, Flask, JavaScript, jQuery, AJAX, SQLite, SQLAlchemy
Emoticon gallery for web-based chat room enabling efficient browsing and searching over a collection of 1,500 images. Developed group-by-similarity display for effective visual scanning. Developed image thumbnailing system for low bandwidth hosting including intelligent frames reduction in animations.
Further detail on grouping system: http://chaosworship.net/2012/12/04/ordering-by-similarity/

hobby – "converG" evolutionary algorithms demonstration

Technology: JavaScript, jQuery, HTML5 canvas, evolutionary algorithms
Simulation with drag-drop UI, basic geometry and physics, and evolutionary algorithm to find and optimize long free-fall trajectories with animated search process display.
Further detail and demo: http://chaosworship.net/ea/converg/

hobby – "flowsolver" puzzle game AI utility

Technology: Python, pygame, graph theory, unit testing
Graphical application for solving puzzles from the game Flow Free. Created graph model of game problem, covered model and online algorithms with unit tests, and implemented efficient heuristic tree search to find solutions with animated search progress display.

hobby – "blatesbox" electronic dice

Technology: C, PIC microcontroller, electronics and digital logic
Design and construction of electronic dice, implementation of satisfactory random number generation in limited hardware.
Further detail: http://chaosworship.net/hardware/blatesbox/

hobby – "pilarm" sunrise alarm clock system

Technology: Linux, Python, pygame, C, PIC microcontroller, electronics and digital logic
Design and construction of sunrise-simulating alarm clock system. Deployed Linux Raspberry Pi system with graphic interface and RGB light circuit controlled by Python clock application. Includes auto-saved alarm settings to recover from power interruptions.
Further detail: http://chaosworship.net/hardware/pilarm/