

Matthew Zykan

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<http://chaosworship.net>

EDUCATION

B.S., M.S. Computer Science

B.S. Computer Engineering

University of Missouri-Rolla

(Missouri University of Science and Technology)

May 2008

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

TECHNOLOGY EXPERIENCE

BASIC, C, C++, C#, Python, PHP, JavaScript, Java

OpenGL, Android, Flask, jQuery, ASP.NET, NUnit, DotNetNuke

Qt, MPI, SQLite, SQLAlchemy

evolutionary algorithms, computational geometry

Agile, continuous integration, git, TFS

electronics, PIC microcontrollers

WORK DETAIL

Xtivia – support ticket form

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

Xtivia – document bundling application

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

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

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

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

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

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

INDEPENDENT WORK

Android Live Wallpaper

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-things/>

Ugly Little Sound Board

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>

“imgez” special purpose image gallery

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/>

“converG” evolutionary algorithms demonstration

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/>

“flowsolver” puzzle game AI utility

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.

“blatesbox” electronic dice

Design and construction of electronic dice, implementation of satisfactory random number generation in limited hardware.

Further detail: <http://chaosworship.net/hardware/blatesbox/>

“pilarm” sunrise alarm clock system

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/>