Joseph Kerkhof

+1 920 376 1248 | joseph@kerkhof.dev | GitHub | Portfolio | Cecil, WI

Education

University of Wisconsin — Oshkosh — Oshkosh, WI
M.Sc. in Data Science; ***GPA: 4.00/4.00*** — *Sept 2017 – Jun 2021*
B.Sc. in Computer Science — *Sept 2011 – Jun 2016*

Oshkosh West High School — Oshkosh, WI
High School Diploma — *Sept 2009 – Jun 2011*

Work Experience

Prodege — Remote, USA
PHP Developer — *Mar 2023 – Current*

- Implemented common NLP tasks using transformers such as named-entity recognition (NER), part-of-speech (POS) tagging, sentiment analysis, text classification, and extractive/generative question answering.

Clockwork — Minneapolis, MN
Senior Software Engineer — *Mar 2019 – Mar 2023*

- Led the development and deployment of new web products using React, Typescript, and Jest unit tests as team scrum master.
- Develop cloud-native apps on AWS using modern tools like Rust, TypeScript.
- Developed software maintenance plans and automation tools to sustainably and regularly reduce technology debt and automate repetitive, time-consuming tasks.
- Load-tested a high-performance website to find bottlenecks in the application and infrastructure layers and remediate them.
- Maintained a proprietary promotion engine powering >350K customer accounts with thousands of daily interactions using PHP.

University of Wisconsin — Oshkosh — Oshkosh, WI
Web Developer — *May 2016 – Mar 2019*

- Championed a migration of disparate Plone websites to a standardized WordPress Multisite on AWS.
- Led a team of 15 Computer Science student developers in design, programming, and standardization of MVC web-based applications using the .NET framework.

Awards & Achievements

National University Admission Exam (YKS): Ranked 75^{th} in Mathematics and Science among ca. 2.3 million candidates with a test score of 489.92/500.

KYK Outstanding Success Scholarship: Awarded to undergraduate students who have been ranked in the top 100 on National University Admission Exam by Higher Education Credit and Hostels Institution (KYK).

Boğaziçi University Success Scholarship: Awarded to undergraduate students who have been ranked in the top 100 on National University Admission Exam by Boğaziçi University.

TÜBİTAK 2247-C Intern Researcher Scholarship: Awarded to undergraduate students who take part in research projects carried out by the Scientific and Technological Research Council of Turkey (TÜBİTAK).

Duolingo English Test (DET): Overall Score: 135/160

Kocaeli Science High School Salutatorian Award: Graduated as the second-highest ranked student in my class.

Projects

Filters and Fractals | *GitHub*

- A C project which implements a variety of image processing operations that manipulate the size, filter, brightness, contrast, saturation, and other properties of PPM images from scratch.
- Added recursive fractal generation functions to model popular fractals including Mandelbrot set, Julia set, Koch curve, Barnsley fern, and Sierpinski triangle in PPM format.

Chess Bot | *GitHub*

- A C++ project in which you can play chess against an AI with a specified decision tree depth that uses alpha-beta pruning algorithm to predict the optimal move.
- Aside from basic moves, this mini chess engine also implements chess rules such as castling, en passant, fifty-move rule, threefold repetition, and pawn promotion.

Rocket Flight Simulator | *GitHub*

- A Simulink project which can accurately simulate the motion of a flying rocket in one-dimensional space.
- The project implements the forces acting on a rocket which are drag, weight, and thrust as subsystems that take time-variant parameters into consideration such as distance from the center of Earth, mass and velocity of the rocket, and air density at different layers of Earth's atmosphere.

Netlist Solver | *GitHub*

- A MATLAB project that uses modified nodal analysis (MNA) algorithm to calculate the node voltages of any analog circuit without dependent sources given in netlist format.
- Added a module that sweeps the resistance of a load resistor, plots power dissipation as a function of load resistance, and finds the resistance value corresponding to maximum power.

CMPE 250 Projects | *GitHub*

- Five Java projects assigned for the Data Structures and Algorithms (CMPE 250) course in the Fall 2021-22 semester.
- These projects apply DS&A concepts such as discrete-event simulation (DES) using priority queues, Dijkstra's shortest path algorithm, Prim's algorithm to find the minimum spanning tree (MST), Dinic's algorithm for maximum flow problems, and weighted job scheduling with dynamic programming to real-world problems.

Skills

Programming: PHP, Rust, JavaScript, TypeScript, MySQL, Shell

Technologies: Git, Linux, AWS

Frameworks: Laravel, React, Jest, Tailwind, Bootstrap

Relevant Coursework

Major coursework: Calculus I-II, Matrix Theory, Differential Equations, Materials Science, Electrical Circuits I-II, Digital System Design, Numerical Methods, Probability Theory, Electronics I-II, Signals and Systems, Electromagnetic Field Theory, Energy Conversion, System Dynamics and Control, Communication Engineering

Minor coursework: Discrete Computational Structures, Introduction to Object-Oriented Programming, Data Structures and Algorithms