Todd William Erickson

Mercer Island, WA - (206) 317-4258 - todd.w.erickson.careers@gmail.com
terickson87.github.io - linkedin.com/in/todd-w-erickson

OBJECTIVE

To start a Software Development career. To apply my 8 years of enterprise engineering experience, collaboration with project management and upper echelons of executive leadership, and leading teams of engineers I have had at Boeing. To follow my diverse passion for the many areas of computer science, from operating systems to React web applications, in an exciting new career.

SOFTWARE SKILLS

Programming: C, C++, Java, MATLAB, Python, Linux shell (bash), SQL (Postgres), JSON, Maven
Web Development: Node.js, React.js, Bootstrap, React-Bootstrap, Flask, HTML, CSS, JavaScript, jQuery
Version Control: Git, GitHub, GitLab, GitLab CI/CD, Bitbucket, Rabbit VCS, TortoiseGit, TortoiseSVN
Scientific Computing: MATLAB, Simulink, Simscape, Easy5
Computer Aided Design: Rhinoceros 3D, V-Ray, SolidWorks, CATIA
CFD: ANSYS CFX, ANSYS Fluent, ANSYS ICEM CFD, SolidWorks Simulation

EDUCATION

University of Southern California, Los Angeles, CA
Master of Science Computer Science, GPA 3.43 Expected December 2020

- Implemented the processes, threads, virtual file system, and the virtual memory of the weenix kernel in C.
- Created 2 Azure cloud news aggregation webapps using The Guardian and New York Times news APIs. Using 1) JavaScript, CSS, HTML, Flask, and Python, and 2) JavaScript, React, react-bootstrap, and Node.js.
- Built a full stack Android news aggregation app using Java with The Guardian and OpenWeatherMap APIs.
- Created an MLP artificial neural network to classify hand-written digits (0-9) using C++ from scratch.
- Built a Little-Go (5x5) AI Go playing agent implementing Monte Carlo and Minimax search using C++.
- Created a multi-process TCP and UDP socket networking system in C and C++.
- Researched and implemented GitLab CI/CD for the UCC Java code counting software, building with Maven.
- Led two other students to create a React app for the COCOMO software cost estimation tool, integrating GitLab CI/CD to perform the DevOps tasks of build, test, and deploy on an Apache server.
- Coursework in analysis of algorithms, complexity analysis, artificial intelligence, neural networks, database systems, data science, operating systems, file systems, virtual memory, the OSI model, socket programming, networking protocols, security systems (in progress), and software management and economics (in progress).
- DEN@Viterbi Scholarship – 4 Units Spring 2019, 4 Units Fall 2019, 4 Units Fall 2020

Master of Science Aerospace Engineering, GPA 3.40 Graduated 2011

- Implemented a 2D pseudo-transient incompressible finite difference CFD code in MATLAB.

Bachelor of Science Mechanical Engineering, Cum Laude, GPA 3.58 Graduated 2010

PROFESSIONAL EXPERIENCE

Boeing Commercial Airplanes **2010-2018**
Propulsion Engineer III 2017-2018

- Development and maintained MATLAB, Simulink, and Simscape based fuel system analysis tools for enterprise wide internal customers using agile principles, subversion, git, and GitLab.
- 2018 Product Development Grand Challenges Competition - Gathered a led a team of 5 engineers to analyze the application of previously gathered novel technologies to the future small aircraft. Determined, developed, and presented net present values, risks, potential mitigations, and future development plans.
- Created updated MATLAB tubing object and tubing object creation classes for use with updated interpreter using object inheritance, abstract classes, heterogeneous arrays, dependent properties, and events/listeners.
- Created MATLAB class-based ISO 10303-21 STEP file interpreter for generating Simulink tubing geometry.

Propulsion Engineer II 2013-2017

- Performed analysis on enterprise wide aircraft fuel systems using MATLAB and Simulink. Researched, created tools for the analysis of, and instructed team members on the effects of fuel properties on fuel systems.
- Modeled and performed certification analysis on the KC-46 aerial refueling system's surge pressures using MATLAB, Simulink, and Simscape. Verified against existing Easy5 based model.
- 2014 Product Development Grand Challenges Competition - Developed a family of 5 single aisle aircraft with 80% parts in common with 4 other engineers. Refactored MATLAB performance software to be class based. Updated them to be capable of finding a configuration's optimal cruise conditions. Led to 5 patents.
- Developed software for estimating the vapor pressure of fuels using MATLAB for use in aircraft certification.
- Took the initiative to learn HTML, CSS, JavaScript, and jQuery and update the Fuels Research group website, to improve client experience and ease site maintenance. Included a jQuery-based fuel property calculator.

Propulsion Engineer I 2011-2013

- Researched and created tools for the analysis of the effects of fuel properties on aircraft fuel systems.
- 2013 Product Development Grand Challenges Competition - Developed a clean sheet 737 replacement aircraft as a part of a team of 5 engineers. Developed MATLAB functions for both estimating the design's cost and performance and performed 3D CFD using ANSYS CFX with turbulence transition modeling. Won the Best Overall Innovation: Product Differentiation award. Led to 3 patents.
- 2012 Product Development Grand Challenges Competition - Developed a wildfire fighting artillery shell with a team of 5 engineers. We won the Bold Ingenuity: Inspired Visionary Creativity award. Led to 2 patents.
- Presented at the Coordinating Research Council Aviation Meetings on the solubility of gasses in fuels.

Propulsion Engineering Intern Summer 2010

- Researched the effects of air solubility on aircraft fuel and engine feed systems.
- Performed directed research on aircraft fuel cell integration and airworthiness.

PATENTS

System and method for augmenting a primary powerplant	Pending	US 20180118364A1
Fire-retarding artillery shell	Granted	US 10429160B2
Laterally reinforced variable pitch rotor	Granted	US 10018058B2
Systems and methods for determining sizes and shapes of geodesic modules	Granted	US 9965582B2
Systems and methods for manufacturing a tubular structure	Granted	US 9957031B2
Integrated pusher turbofan for aircraft	Granted	US 9950800B2
Contra-rotating open fan propulsion system	Granted	US 9835093B2
Vibration dampening for horizontal stabilizers	Granted	US 9828084B2
Fire-retarding artillery shell	Granted	US 9816791B2
Geodesic structure forming systems and methods	Granted	US 9789548B2