

Andrew C. Jensen

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WORK EXPERIENCE

Caterpillar Inc, Software Control Engineer, Peoria IL

Aug 2020 - Present

- Designed self-optimizing embedded software controls for internal combustion engines resulting in more optimal engine performance and 50% less calibration time. (Matlab)
- Applied machine learning to efficiently predict engine system performance and optimize control parameters. (Tensorflow, Julia)
- Led a team to create an engine simulation web app used daily by 30+ engineers. (Python, Django)
- Established and maintained an internal engine simulation and optimization library later adopted by 4+ applications. (Python)
- Designed a pattern matching algorithm to derive engine design parameters from measured data. (Python)
- Invented a novel way to control engines without an engine speed governor. (patent pending)
- Increased collaboration by standardizing APIs between embedded software, analytics, and engine design teams.
- Broadened team's technical capabilities by leading 15+ person bi-weekly software development learning sessions.

Caterpillar Inc, Software Calibration Engineer, Peoria IL

Dec 2018 - July 2020

- Optimized engine software for 7 machine and industrial applications.
- Created engine software parameter optimization tool and used it to calibrate 3 production engines. (Python)
- Reduced lab equipment failures 90% by integrating 5 datasources into a predictive maintenance dashboard.

Caterpillar Inc, Rotational Engineer, Peoria IL, Champaign IL, Seguin TX

June 2017 - Nov 2018

- Led a team to design, develop, and deploy an app that has connected over 500 new employees and managers with career development opportunities across the company.
- Strengthened new employee engagement by initiating and leading in-person quarterly meetings for 100+ people.
- Developed dashboards and data pipelines to help engineers evaluate engine field data. (Tableau, SQL)
- Designed, tested, and demoed two control algorithms included on Cat's articulated dump trucks. (Matlab, patent pending)
- Established data pipeline and dashboards for Caterpillar's tractor business. (Tableau, Python)
- Coordinated design and manufacturing teams to resolve design issues at Cat's engine factory.

Caterpillar Inc, Intern, Lafayette IN

Summer 2016

- Developed an application used by 20+ engineers to help them manage engine performance data.

Caterpillar Inc, Intern, Peoria IL

Summer 2015

- Saved an estimated \$1 million per year by optimizing Caterpillar's GPS data processing algorithm.

EDUCATION

B.S. Mechanical Engineering, GPA: 3.9/4.0

Fall 2013 - Spring 2017

University of Illinois, Urbana, IL

- *Key courses:* Discrete Structures, Control Systems, Robotics, Fluid Dynamics, Mechanical Design
- *Extracurriculars:* STEM Tutor, Marching Band, Men's A-Cappella Group (Founder, Lead Arranger)

PROJECTS

Breathe, Website (Python, Flask, Google Cloud) breathe.acjensen.com

Spring 2021

- Created a website to help people combat anxiety and loneliness with a breathing exercise and a live visitor count.

Multi-Terrain Robot, Mechanical Design course project at UIUC

Spring 2016

- Designed and fabricated a quadrupedal "walker"; optimized its movement with simulation.

Rubik's Cube Solver, Android application (Java)

Spring 2014

- Designed an app to teach users how to solve a Rubik's cube, given the state of their own cube.

TECHNICAL SKILLS

Languages: Python, Go, C++, Julia, Matlab

Other: Git, Bazel, Flask, Django, Tensorflow, Jekyll, HTML/CSS, Google Cloud