# Andrew C. Jensen

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## WORK EXPERIENCE

**Caterpillar Inc,** Software Control Engineer, Peoria IL *Nov 2018 - Present*

- Designed self-optimizing embedded software controls for internal combustion engines resulting in more optimal engine performance and 50% less calibration time. (C, 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,** Engine Performance Engineer, Peoria IL

- 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 planning 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. (C/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*

- Re-wrote GPS telemetry algorithm resulting in savings of $1mil/yr and reduced server load.
- Engaged component teams to translate customer requirements into software design requirements.

## EDUCATION

**B.S. Mechanical Engineering**, GPA: 3.9/4.0 *Fall 2013 - Spring 2017*

*University of Illinois at Urbana-Champaign (UIUC),* Illinois

- Key courses: Signal Processing and Control, Dynamical Systems, Robotics, Fluid Dynamics, Mechanical Design

## PROJECTS

**Breathe,** Website (Python/Flask) 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.

## EXTRACURRICULARS

**Center for Academic Resources in Engineering:** Academic Tutor *Spring 2015 - Spring 2017*

**University of Illinois Bands:** Marching Band Drumline / Basketball Band *Fall 2013 - Spring 2017*

**The Ill Harmonic (Men's A Cappella):** Music Director / Founding Member *Fall 2013 - Spring 2014*

## TECHNICAL SKILLS

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

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