# David Hawkins

iamdavehawkins@gmail.com
(734) 274-1814

**Professional Experience**

**Mechanical Engineer / Data Analyst** **April 2008 - Present, 7 years**
U.S Environmental Protection Agency, Ann Arbor, MI

- Led a team of four in developing MOVES (EPA emissions model) Test Suite, a Windows GUI Python application to simplify and standardize a QA/testing process. This saved hours of staff time previously spent repeating manual and error prone testing. The test suite is scalable to any number of tests, greatly improved code coverage, and became part of our release process.
- Architected a Python library for myself and other developers to automate model runs. Previously all interaction was performed manually through the end user GUI which only supports one run at a time and demanded lots of staff time. This library is scalable to any number and variety of model runs, executes unsupervised, and condenses millions of rows of results into a digestible report.
- Designed and developed Engine Mapper, a distributable .exe Windows GUI Python application for use in engine calibration to quickly QA, interpolate, and visualize data from an engine dynomometer. This tool's quick reporting allowed testing to be much more thorough and accurate than previously when all analysis was performed manually in Excel.
- Contributed to a new modeling paradigm for EPA's evaporative emissions model by developing new algorithms and higher quality data. In addition to providing increased user customization, this greatly increased our model's resolution, improved accuracy, and influenced national rulemaking.
- Designed Python modules for importing and analyzing data from portable emissions/activity measurement systems, and laboratory data files. The data are homogenized and stored in a MySQL database.
- Led an initiative to move from Excel to Python and R, and serve as a Python mentor for many colleagues. My demonstration of Python as a significant productivity tool led to two forty-hour formal Python trainings for over 30 people. I also host biweekly Python lunch seminars attended by 20-30 colleagues to teach and support our growing user base.
- Led the first implementation of version control (Git) and use heavily in collaboration with other developers and for personal projects. I adhere to style guides, actively seek best practices, use Pylint to discover errors, and cProfile to find bottlenecks.
- Program management of and contributions to multiple evaporative emission test programs. Ensured that these first-of-their-kind test programs collected quality data, finished on time, and under budget.
- Wrote a Python scripts to aggregate thousands of fuel samples from across the country into a MySQL database to be used as a reference for fuel research programs.

**Web Experience**

- Successfully built and launched two sites using the Python Flask framework.
  My personal website - `http://iamdavehawkins.com`
  Professional website for musician - `http://roberthawkinsmusic.com`
- Currently developing a new site using the Python Django framework.
  Happy Hour app (source code) - `https://github.com/iamdavehawkins/happyhour`

**Skills**

| | |
|---|---|
| Proficient | Python, R, Windows/Mac OS |
| Intermediate | Git, MySQL, Unix/Linux, Eclipse IDE |
| Basic | Java, LaTeX, HTML/CSS, AWS |

**Education**

BSE, Civil & Environmental Engineering
University of Michigan, Ann Arbor, MI, April 2009

**Awards**

EPA Science Achievement Award - Chemistry (2012)
*For innovative fuel research that significantly advances the Agency's Understanding of the effects of fuel chemistry on vehicle emissions and their impact on atmospheric chemistry.*

**Publications**

Stuhldreher, M., Schenk, C., Brakora, J., Hawkins, D., Moskalik, A., DeKraker, P. (2015) *Downsized Boosted Engine Benchmarking and Results*
`http://papers.sae.org/2015-01-1266/`

Hawkins, D., Hart, C., Brzezinski, D., & Brown, J. (2014) *Evaporative Emissions from On-road Vehicles in MOVES2014*
`http://www.epa.gov/oms/models/moves/documents/420r14014.pdf`

Giannelli, R., Fulper, C., Hart, C., Hawkins, D. et al., (2010) *In-Use Emissions from Non-road Equipment for EPA Emissions Inventory Modeling (MOVES)*
`http://papers.sae.org/2010-01-1952/`