

# Jeff Stafford

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I started my career as a neuroscientist, and made the transition to devops half a decade ago. I have over five years of production operations experience with a number of Canada's most successful tech startups, hospitals, and particle physics facilities. I've also worked as a bioinformatician, and frequently dabble with software projects in my spare time ([example project with over 400 stars on Github](#)). I've also got solid people skills – I've taught at universities, trained and led teams of engineers, and I write fantastic documentation.

## Highlighted skills

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**Programming Languages:** Python, R, Go, Bash. I'll pretend I don't know MATLAB if you ask me about it.

**Linux Administration & Devops:** CentOS / Ubuntu Linux, Hadoop, MariaDB, MySQL / Percona Server, Postgres, Couchbase, Elasticsearch, Solr, Redis, ActiveMQ, RabbitMQ, Apache httpd, HAProxy, NGINX, Apache Tomcat, rpmbuild/debuild, OpenLDAP, FreeIPA, SLURM, Restic, Veler, BorgBackup, Prometheus, Grafana, Hashicorp Vault, Terraform, Ansible, AWS (EC2, EKS, RDS, etc.), GCP, IBM Cloud, Cloud.ca, ELK/EFK logging stacks, CircleCI, Travis CI, Github Actions, Jenkins, Cloudflare, Kubernetes.

**Data Science & Bioinformatics:** Python and R data science stacks (scikit-learn, ggplot2, dplyr, pandas, seaborn, etc.), next-generation sequencing (mRNA-Seq, 16s sequencing, etc.), statistics, supercomputing.

## Education and experience

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### Infrastructure Engineer

October 2020 – Present

Exiger

Toronto, ON

- Performed all operations work for Exiger's flagship [DDIQ](#) product on IBM Cloud and AWS using tools like Ansible, Kubernetes, and Terraform.
- Reverse-engineered and took over active management of Exiger's production-critical, but abandoned data lake (Hadoop+Solr+Java webapp). These changes cut data lake response times over 10x and ended months of business-impacting performance degradation.
- Setup centralized identity management and internal DNS for >300 Linux servers using FreeIPA.
- Developed and implemented new point-in-time and partial-database restore procedure for MySQL databases as large as 7TB, with a restore speed of ~400GB/hour.
- Modernized Exiger's infrastructure provisioning tooling (custom scripts+Terraform 0.11) to a modern gitops workflow using Terraform 1.0+ and Terraform Cloud for Business.
- Fixed **all** of the issues that were constantly paging Exiger's support and operations teams to while on-call. (If I get paged for something, it gets fixed.)
- Won the "Hit the Ground Running" award (most impactful new hire in the 2020-2021 year) at Exiger's first-ever internal tech awards. I'm the only employee to win two awards so far.

### Cloud Engineer

September 2018 – October 2020

VM Farms

Toronto, ON

- Performed all devops work for numerous startups and enterprise clients on VM Farms' web application platforms. Though I can't mention names or former client lists, it is likely that you have used several webapps I've managed without realizing it.
- Managed and operated a fleet of more than 1500 Linux instances on AWS, Cloud.ca, and VM Farms' private cloud using Ansible, Puppet, Terraform, and Kubernetes.

- Performed zero-downtime migrations to Kubernetes on AWS for several high-traffic web applications (>10 million requests per day), and performed all day-to-day operations post-migration.
- Reverse-engineered, documented, and took over active maintenance of VM Farms' public cloud management CLI tools (Python), AMI and rpmbuild pipelines, proprietary continuous deployment tooling (Python), and client-facing web portal (Django).
- Trained three new team members from a junior level (no prior devops experience) to an intermediate level (able to architect new cloud environments on their own and perform production migrations to AWS without downtime).

### Scientific Computing Specialist

January 2016 – August 2018

Centre for Advanced Computing at Queen's University

Kingston, ON

- Built and administered a ~3500 core high-performance computing cluster as part of Canada's national supercomputing infrastructure (Compute Canada).
- Built a Hadoop cluster used by both the Queen's Smith School of Business and University of Toronto Rotman School of Management Masters of Management Analytics programs.
- Performed bioinformatic and data science analyses for academic and industry clients (typically automated genomic sequencing pipelines).
- Lectured at Queen's University, St. Lawrence College, and the University of Ottawa (including for-credit courses). Topics included [R](#), [Python](#), Git, [Bash](#), and [high-performance computing](#). The linked lessons and materials were written by me, with several now under community maintenance.
- Setup and administered high-security Linux servers including those responsible for storing identifiable personal health information for clients like Kingston General Hospital.

### M.Sc. Zoology

Sept 2013 – December 2015

University of British Columbia

Vancouver, BC

**Thesis:** [Juvenile hormone esterase \(\*Jhe\*\) is a conserved regulator of hunger-induced behavior.](#)

- Identified shared genetic changes caused by hunger in *Drosophila melanogaster* (fruit fly) and *Aedes aegypti* (mosquito) through mRNA sequencing.
- Discovered that the *Jhe* gene and Juvenile Hormone act as novel regulators of feeding and sleep behavior in insects.
- [Wrote an R package](#) to enable analysis of *Drosophila* sleep behavior.
- [Produced a set of MATLAB algorithms](#) that allowed quantitative assessment of insect movement behavior from video. This work was later published in Cell (most prestigious journal in the life sciences): <https://doi.org/10.1016/j.cell.2018.07.002>.

### B.Sc. Cell Biology and Genetics with Co-op Certificate

Sept 2008 – May 2013

University of British Columbia

Vancouver, BC

### Scientific Publications

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Jeffrey W. Stafford, Kaylea M. Lynd, Aera Y. Jung, and Michael D. Gordon. Integration of Taste and Calorie Sensing in *Drosophila*. *The Journal of Neuroscience*, 17 October 2012, 32(42):14767-14774. [doi:10.1523/JNEUROSCI.1887-12.2012](https://doi.org/10.1523/JNEUROSCI.1887-12.2012).

Francois Potus, Charles Colin Thomas Hindmarch, Kimberly J. Dunham-Snary, *Jeff Stafford*, and Stephen L. Archer. Transcriptomic Signature of Right Ventricular Failure in Experimental Pulmonary Arterial Hypertension: Deep Sequencing Demonstrates Mitochondrial, Fibrotic, Inflammatory and Angiogenic Abnormalities. *Int. J. Mol. Sci.* 2018, 19(9), 2730. [doi:10.3390/ijms19092730](https://doi.org/10.3390/ijms19092730).