

## Professional Experience

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Washington, DC	fermPlot	Mar 2023 – Present
<i>Founder</i>		
<ul style="list-style-type: none"><li>• Founded and currently operate fermPlot, a company developing a bioprocess platform for data processing and visualization.</li><li>• Built the fermPlot web application, which enables users to upload, visualize, and analyze bioprocess data, with a focus on flexibility and user experience. <b>Live Demo:</b> <a href="http://app.fermplot.com">app.fermplot.com</a>. <b>Technology:</b> Python, Dash, Plotly, Pandas, NumPy, JavaScript, Docker, Gunicorn, AWS EC2, Nginx, PostgreSQL, Git, pytest, and Locust.</li><li>• Implemented a CSV parser to handle data uploads, with an option for manual or automatic data grouping and labeling.</li><li>• Built an interactive plotting feature allowing users to select datasets and plot data across up to four axes.</li><li>• Developed feature to convert common CSV formats to normalized tables in PostgreSQL.</li><li>• Orchestrated application server deployment using GitHub Actions, Terraform, Ansible, and Docker.</li></ul>		
Emeryville, CA	Lawrence Berkeley National Laboratory – Advanced Biofuels and Bioproducts Process Development Unit (ABPDU)	Aug 2017 – Oct 2021
<i>Senior Research Associate / Bioprocess Engineer</i>		Jan 2020 – Oct 2021
<ul style="list-style-type: none"><li>• Worked with over 30 industry partners, ranging from early-stage start-ups to large multinational companies, to develop and demonstrate fermentation and downstream processes.</li><li>• Led tech-transfer and process development projects with industry partners, supervising research associates and bioprocess engineers. Mentored interns and student research assistants.</li><li>• Developed procedures to standardize data export and parsing to integrate with custom databases and LabKey.</li></ul>		
<i>Research Associate / Associate Bioprocess Engineer</i>		Nov 2018 – Jan 2020
<ul style="list-style-type: none"><li>• Developed and demonstrated fermentation processes for industry and Department of Energy (DOE) programs.</li><li>• Used models to estimate the fuel properties of potential target molecules for genetic engineering projects to identify promising biofuel candidates. Included on a patent application for production of cyclopropane molecules.</li></ul>		
<i>Intern / Student Research Asst.</i>		Aug 2017 – Sep 2018

## Education

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Baltimore, MD	Johns Hopkins University	Aug 2020 – Aug 2022
<ul style="list-style-type: none"><li>• M.S., Biotechnology, Concentration in Bioinformatics, GPA: 3.94</li><li>• Relevant Coursework: Advanced Genomics and Genetics Analyses, Gene Expression Data Analysis and Visualization, Bioinformatics: Tools for Genome Analysis, Next Generation DNA Sequencing and Analysis, and Bioassay Development.</li></ul>		
Berkeley, CA	University of California, Berkeley, Extension	Jan 2019 – Feb 2020
<ul style="list-style-type: none"><li>• Advanced Biosciences Certificate, GPA: 4.0</li><li>• Relevant Coursework: Biochemistry, Cell Biology, and Biostatistics.</li></ul>		
Berkeley, CA	University of California, Berkeley	Aug 2009 – Jun 2013
<ul style="list-style-type: none"><li>• B.A., Philosophy, GPA: 3.60</li></ul>		

## Projects

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- **SRA Alignment Pipeline** (2023). Nextflow pipeline for downloading SRA FASTQs, performing quality control, aligning reads to reference sequences, and calling variants. This project is available at: [github.com/eoksen/sra\\_alignment\\_pipeline](https://github.com/eoksen/sra_alignment_pipeline). Technologies: Nextflow, Python, Bash, R, Docker.

## Journal Articles, Inventions, and Conference Presentations

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- **Full list:** [ethanoksen.com/publications](http://ethanoksen.com/publications)

## Skills

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### Software and Technologies

- Programming Languages and Scripting: Python, R, JavaScript, Bash
- Data Analysis and Processing: Python – Pandas, NumPy, SciPy; R – dplyr, tidy, base R
- Dashboards, Visualization, and Notebooks: Dash/Plotly, R Shiny, Matplotlib/Seaborn, ggplot2, Jupyter Notebook
- Containerization and Version Control: Docker, Git, GitHub
- Database Management: PostgreSQL, MySQL, SQLite
- Cloud Services and Application/Server Orchestration: AWS (EC2, S3, ECR), Terraform, Ansible, Nginx, Gunicorn
- Operating Systems and Environment: Linux (Debian), macOS, Windows

### Bioinformatics

- Workflow Management: Nextflow
- Guide RNA Design: Benchling, CHOPCHOP
- Cloning, Primer Design, and Codon Optimization: Benchling
- Bioinformatics Libraries for R and Python: Bioconductor, BioPython
- Genome Alignment and Assembly: bbmap, Bowtie2, BWA, HISAT2, SPAdes
- RNA-seq Analysis: Cufflinks, DESeq2, HISAT2, HTSeq, TopHat
- Pre-Processing and Quality Control: FastQC, fastp, MultiQC, Trimmomatic
- Data Handling and File Conversion: bcftools, bedtools, samtools
- Variant Calling and Genotyping Tools: FreeBayes, Delly
- Variant Annotation Tools: Annovar, SnpEff, SnpSift

### Laboratory

- Laboratory Information Systems: LabKey, Benchling
- Molecular Biology: DNA/RNA extraction and purification; PCR, qPCR; Illumina NGS; cloning workflows; Protein expression and purification; Flow Cytometry and cell sorting
- Lab Automation: Hamilton/Eppendorf liquid handlers, Sartorius AMBR 250 and Biolector for high throughput screening
- Data Collection and Integration: LabView
- Analytical Instrumentation: GC-MS, LC-MS/RI/UV, UV-Vis spectrometers