

# SAMUEL NICHOLS

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## PROFESSIONAL SUMMARY

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Senior Software Engineer and Johns Hopkins-trained Bioinformatician with 3+ years building production-grade genomic analysis platforms and cloud-native data infrastructure. Expert in distributed Python pipelines, AWS architecture, and applied AI tooling for scientific workflows. Proven ability to own full-stack systems from architecture to deployment at scale.

## EXPERIENCE

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### Senior Software Engineer | Edilytics — Lehi, UT | Jan 2022 – Present

- Led end-to-end development of CRISPResso, a production genome-editing analysis platform used across high-throughput sequencing workflows
- Architected scalable Python data pipelines processing large genomic datasets (SAM/BAM), improving throughput and reliability for research teams
- Designed and deployed cloud-native AWS infrastructure (Lambda, Fargate, EFS, S3, ECR, VPC, Elastic Beanstalk) supporting distributed scientific compute workloads
- Automated infrastructure-as-code with AWS CDK, enabling reproducible, zero-downtime deployments across environments
- Built CI/CD pipelines (GitHub Actions) and automated test suites, reducing deployment risk and accelerating release cycles
- Mentored engineers through pair programming, improving team code quality and accelerating onboarding
- Modernized frontend stack (Bootstrap 4→5) and replaced legacy Matplotlib charts with interactive Plotly visualizations
- Refactored Jinja/Python backend using `jinja_partials`, reducing code duplication and improving long-term maintainability
- Redesigned the platform frontend and implemented user management (signup, login, team admin roles) with Stripe-powered payments and subscription billing

### Peoplesoft Software Engineer | BYU Financials Team — Provo, UT | Sep 2020 – Oct 2021

- Built and tested RESTful APIs supporting university financial systems on the University Financials Team
- Wrote optimized SQL queries to retrieve and integrate data from large institutional databases
- Shipped features on an agile cadence across the full development lifecycle

### Student Researcher | Brigham Young University — Provo, UT | Sep 2019 – Apr 2020

- Isolated and fully sequenced a novel *Salmonella enterica* bacteriophage; performed genomic analysis to identify conserved domains and novel proteins

## EDUCATION

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**M.S. Bioinformatics** — Johns Hopkins University | May 2025

**B.S. Computer Science, Minor in Molecular Biology** — Brigham Young University | Dec 2022

## TECHNICAL SKILLS

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**Languages:** Python, Go, Java, JavaScript, SQL, HTML/CSS, C/C++

**Cloud & Infrastructure:** AWS (Lambda, Fargate, Elastic Beanstalk, S3, ECR, VPC, EFS), Docker, AWS CDK, CI/CD

**Bioinformatics:** Genomic pipelines, SAM/BAM processing, samtools, sequencing workflows, CRISPResso

**Frameworks & Tools:** Flask, Plotly, Scikit-learn, MongoDB, Jinja, Postman, Stripe

## LEADERSHIP & SERVICE

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### Secretary, Bioinformatics Research Group | Brigham Young University | Jan 2019 – Jan 2020

- Built the backend of a phylogenetic tree visualization platform using Python and SQLite, supporting research collaboration across the group