# Matthew K. Robinson

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Overall Summary:

I am a Software and Machine Learning Engineer with 5 years software engineering experience. I've been hired to build green field, cloud native applications by companies in DNS domain registration, large-scale public health data administration, and innovative geospatial data processing and visualization applications for NASA IMPACT. With my experience I am able to build scalable ML-enhanced applications that fit technological capabilities to real-world opportunities and contexts.

## Professional Experience

SAIFCheck.ai                                                                                    Remote
**Senior Technical Advisor**                                                  February 2024 - Present
*Designs and Builds NLP Application in the Ethical AI space….*

- Leads scoping, design, and ongoing implementation of a generative machine learning system at SAIFCheck.ai, leveraging existing foundational models with by-hand fine tuning to meet tight deadlines and budget constraints.
- Selects cloud services for their scalability and flexibility, integrating multiple Large Language Models (LLMs) with a focus on evaluation and observability to ensure robust system performance.
- Employs long-term strategic thinking in system architecture, balancing immediate project constraints with future scalability and adaptability requirements.
- Conducts regular video demonstrations to maintain full transparency with team members, facilitating open communication and collaborative problem-solving.
- Actively seeks technical guidance and expertise from seasoned machine learning engineers, valuing insights from academic and theoretical perspectives to enhance technology implementation.

Development Seed                                                                                Remote
**Application Developer**                                                          June 2022 - Present
*Builds scalable, open-source web applications….*

- Develops scalable, open-source web applications enhancing accessibility to NASA's vast earth observation data sets.
- Engineers sophisticated frontend and backend solutions using React and FastAPI, enabling seamless scientific collaboration across major space and scientific agencies in Europe and America.
- Actively contributes to Open Source projects that leverage low-level data processing and memory formats
- Leverages expertise in machine learning, systems design, and cloud computing when creating efficient platforms for scientific data analysis.
- Collaborated closely with stakeholders at NASA IMPACT, employing a data-driven approach to deeply understand both internal and external user requirements.
- Leads initiatives to integrate machine learning models into web applications, designing and deploying large-scale data pipelines.
- Engages with the earth science and cloud infrastructure communities to establish and promote best practices and innovative tools for cloud-native development, focusing on improving scalability and efficiency of scientific data analysis platforms.
- Committed to professional growth and collaborative success within a fully distributed, global team.
- Participates in internal initiatives focused around SLAs, observability, and production maintainability.

Proof IO                                                                                        Remote
**Founder/Lead Technical Consultant**                                    May 2022 - Present (Inactive)

*Proof IO started with a freelancer contract that I got after being laid off from an AWS Engineer role.*
*After my first successful freelance engagement, I decided to create a formal entity so that I can work with other software engineers, data scientists for technical work, and so that I can focus on client relationships.*

- Architects software systems to support state-of-the-art machine learning applications tuned for anomaly detection in specific use cases.

- Implements Fullstack data analytics software for anomaly detection using Vue.js, Python, and Kubernetes.
- Follows MLOps standards to develop anomaly detection applications with FastAPI, Python, PyOD, Scikit-learn, and other libraries as needed.
- Tunes compute infrastructure using advance configuration templates for Kubernetes, Nginx, and Gunicorn/Uvicorn;
- Integrates software systems seamlessly with existing client infrastructure.
- Collaborates with frontend engineers and a data scientist to explain our solutions and help build buy-in for the client's peers and stakeholders.
- Use Confluence, Jupyter Notebooks, Slack, and Agile methodologies to work as a team and stay coordinated.

BitFocus **Remote**
**AWS Engineer** **May 2021 - March 2022**
*Assisted Bitfocus with transitioning from on-premise to cloud deployment, creating proofs of concept along the way.*

- Architects scalable web application infrastructure for the company during growth periods;
- Specializes in serverless, fully-managed infrastructure in the public cloud; though competent in hybrid architectures;
- Drafts project plans, resource estimates, and implementation schedules for software engineering and infrastructure development projects;
- Operates daily to define multiple concurrent projects with only minimal direction and oversight;
- Develops infrastructure using multiple Infrastructure as Code languages (Python, Go, Terraform, YAML, Docker syntax, bash, and Amazon State Machine Lang);
- Maintains consistent communications with my team members, executives, and leadership in a 100%, remote fully distributed team spread across multiple United States and European time zones;
- Provides product support through comments, internal documents, Slack channels, and, highlights important issues while supporting and troubleshooting deployment and production issues;
- Assists the company within migrating their existing infrastructure into the serverless, scalable environment while ensuring minimal interruption of mission critical processes; and
- Collaborates with team mates and reports progress using Jira, Monday, and Agile methodologies.

Sav.com **Remote/Chicago, IL**
**Python Developer** **February 2020 - April 2021**
*Built the first ICANN accredited 100% Serverless DNS Registrar in 2020.*

- Architected web applications using Python and serverless deployment architectures;
- Developed software in multiple languages (Python, jQuery, PartiQL, SQL, Amazon State Machine Lang, JsonSchema#4, Socket/TCP, Bash/Shellscript);
- Maintained positive communications with customers to inform new features, database driven automations, and production release environments as part of the software development cycle;
- Provided product support, highlights important issues while supporting and troubleshooting deployment and production issues;
- Utilized system dashboards to monitor metrics, triggers, and establish alarm states.

All Chicago **Chicago, IL**
**Training Coordinator/Python Developer** **March 2018 - March 2020**
*Transitioned from software trainer to contributing to software related projects at one of Chicago's central public health administrative organizations.*

- Implemented data ETL solutions in Python using Pandas for data visualization;
- Built Python API services to connect with third-party interfaces using Flask framework;
- Created data dictionary to support AWS cloud migration of on-premise SQL database;
- Managed Git/GitHub version control and documentation for multiple team projects; and
- Maintained Python scripts and SQL stored procedures utilized for reporting dashboards, data matching against data sets from Managed Care Organization (MCO) systems, and data requests.

General Assembly                                                           Chicago, IL
**Software Engineering Immersive Fellow**                      March 2019 - June 2019

- Completed a 500+ hour software engineering program over the course of 12 weeks, including six week foundational training in algorithms, complex data structures, and computer science thinking; and
- Built Full Stack applications with modern front- and back-end programming languages and tools including: HTML5, CSS3, JavaScript, jQuery, Express, MongoDB, Node, React, Git, GitHub, Python, Flask, and Agile/Scrum.

Robert Bosch Llc, Robert Bosch Gmbh                               Chicago, IL
**Innovation Management Intern**                          December 2016 - March 2018

- Supported strategic internal business teams in Corporate Innovation Office (Chicago), Advanced Engineering Development (Mount Prospect, IL), and Autonomous Mobility/Shared Mobility (London, UK);
- Implemented an internal innovation program that streamlined 20 technology innovations across the Bosch global organization through the pitch and funding process, including implementation of a digital communication strategy;
- Coordinated university partnerships and 'Hackathons' in Chicago, IL and London, UK with three US institutions and participated in code reviews for proofs of concept related to Autonomous Mobility/Shared Mobility; and
- Lead Guided Discovery workshops for Advanced Engineering at Dremel (a retail goods business unit) resulting in a new product launch strategy for the marketing team with an expanded role for business development.

## Education

Intensive Machine Learning Engineering Program                          Remote
                                                         October '22 - February '23

Columbia College Chicago                                               Chicago, IL
Awards: Albert P. Weisman Award                    Bachelor of Arts in Media Management '17

## Technical Skill Set

- I am able to move beyond Jupyter Notebooks and use an industry-standard Machine Learning software development stack to build, package, and deploy state-of-the-art ML models as containerized web applications in cloud-based production environments, in addition to tools and skills listed below.
  - Machine Learning/Artificial Intelligence
    - Model requirements
    - Model training
    - Model evaluation
    - Model monitoring
    - Model deployment
    - Data structures
    - Classification
    - Clustering
    - Transformers
    - ML web apps
    - Containerization
    - Mlops
    - AWS Sagemaker Inference Endpoints
    - AWS Sagemaker Model Repository
    - Recommendation systems
    - Bayesian inference (probability)
    - Natural Language Processing
    - AI/ML API and Systems Design
    - Apache Airflow
- Fullstack-engineering
  - Python
  - FastAPI
  - React
  - GatsbyJS
  - Bash (Shell)
  - Jupyter
  - PDAL/GDAL
- Cloud
  - Terraform
  - AWS (Lambda, Opensearch, ECS, EC2, Fargate, RDS, NoSQL/DynamoDB)
  - AWS CDK
- DevOps
  - Docker
  - Kubernetes
  - Hashicorp Vault