Conrad Mearns

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Results-oriented "Full-Stack" Engineer with a wide background in frontend, ETL, microservices, cloud technologies, embedded development, and rapid prototyping. Passionate for pair programming, mentoring, and DevX practices to accelerate growth. Seeking to solve meaningful problems in the World and Web today.

INDUSTRY EXPERIENCE

Pacific Northwest National Laboratory
Richland, WA + Remote

Data Engineer Level 2
August 2022 - Present

- **Fast Prototyping**: Created an ETL framework that facilitated rapid prototyping of various data-sources, meeting the dynamic demands of data analysts efficiently.
- **Evangelizing CI/CD**: Trained and established CI/CD practices across multiple projects, enabling automated testing with each developer commit, ensuring code quality and reliability.
- **Practical "Microservices"**: Built a framework for functional microservices for embedded development. Functions encapsulated the work of engineers, RF and signal processing experts, and machine learning scientists. The result: a simplified integration path with automated testing and customizable, composable deployment options.
- **Analytics Interface**: Designed and built a fully functional real-time user interface for a novel radio system, enhancing science communication with key stakeholders and expediting system validation.
- **Legacy Maintenance**: Added tests and rewrote critical behavior flow to improve the robustness, performance, and adaptability of legacy cyber-data ETL systems that are responsible for multiple terabytes of writes per day.
- **Signal Processing**: Successfully implemented and deployed signal synchronization and OFDM modulation algorithms, contributing to the signal processing capabilities of the team.
- **Optimization Analytics**: Developed an analytic pipeline to enable comprehensive cross-validation of system optimization, analyzing over 1000 performance metrics per code change.

Data Engineer Level 1
April 2021 - August 2022

- **Strategic Task Management**: Demonstrated strong self-direction according to sponsor requirements and Key Performance Indicators (KPIs). Effectively delegated tasks based on peer's autonomy, efficacy, and career alignment.
- **Enhanced Performance**: Engineered a Python module in C to significantly accelerate processing speed for the d-Dimensional Kolmogorov-Smirnov Test project, enhancing computational efficiency.
- **Collaborative Task Execution**: Collaborated closely with peers, offering technical support and guidance in Linux, Python, C, and integration strategies, contributing to the success of cross-functional projects.
- **Data Wrangling**: Developed a parser for constructing relational networks of commodities within the United States eFCR to map them against other data-sources, aiding in data analysis and decision-making.
- **System Documentation**: Innovated documentation-as-code tools to describe the evolving architectures of deployed systems, ensuring clear understanding, traceability, and maintenance.

Data Engineering Intern
June 2019 - December 2019, May 2020 - August 2020

- **Enhanced Diagnostics**: Designed and implemented a frontend for tracking distributed cloudtrace logs, improving team diagnostics capabilities and enhancing troubleshooting efficiency.
- **Optimization Experiments**: Conducted experiments to determine optimal hyperparameters for columnar storage formats in an AWS Redshift datalake, optimizing data retrieval and analysis.
- **Database Development**: Created new databases to track equipment maintenance and employee training requirements, enhancing operational efficiency and data management.

EDUCATION

Bachelor of Science in Computer Science | 3.35 GPA
University of Idaho, Moscow Idaho
Spring 2016 - Fall 2020

RESEARCH EXPERIENCE

Undergraduate Researcher
Computational and Physical Systems

June 2018 - 2020

Developed and maintained imaging pipelines for automatic data acquisition of Physarum polycephalum experiments.

August 2018 - January 2020

snailj-sciview: A sciview plugin to explore the space of generative snail shells and analyze fractal dimensionality as a marker for morphology differentiation.

Spring 2020

Exploring the limitations of convolution neural networks for classification and parameter regression on digital and MRI scans of snail shells.

TECHNOLOGIES / SKILLS

Professional:

- Programming Languages: Python, Javascript, C, C#, SQL, R, Java, LaTeX
- Hardware: Xilinx, Vivado, Verilog, ARM, x86
- Web Development: Astro, Svelte, React, WebSockets
- Messaging: ZeroMQ, RabbitMQ, Kafka
- Monitoring: OpenTelemetry (C#, Python), Prometheus, Grafana
- Cloud: Docker, AWS (Lambda, S3, DynamoDB, Fargate, ECS, ECR, CDK, Redshift, AppSync)
- Database Tech: Postgres, Greenplum, Flyway, Parquet
- Practices: AGILE, SCRUM, GitFlow, Trunk Based Development, Kanban, Pair Programming, Reflective Listening, Casual Fault Analysis

Hobby

- Manufacturing: 3D Printing, Laser Cutting, CNC
- VR: AFrame, Unity3D
- Hardware: esp32, nrf52840, bno085, atemga, BTLE
- Decentralization: WebRTC, Veilid
- Language Design: Racket, Yacc+Bison, Tree Sitter, unifiedjs, markedjs
- Reproducibility: Nix, NixOS

AWARDS

- PNNL: NSD Outstanding Performance Award
- University of Idaho:
- Dean's List - Awarded Fall 2018 and Spring 2020
- Idaho Opportunity Scholarship - Awarded four times between 2017 and 2020
- Academic Achievement Award Level S - Awarded six times between 2017 and 2020