

Karter Barnes

Application for ML & Cloud Infrastructure Engineer Intern



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Hiring Team
ForgeField Robotics
South San Francisco
CA

Dear ForgeField Robotics Hiring Team,

I am applying for the ML & Cloud Infrastructure Engineer Intern position at ForgeField Robotics. I am pursuing a bachelor's degree in computer science at Stanford and have been building the kind of systems this role calls for: reproducible data pipelines, model evaluation tools, and monitored cloud infrastructure for robotics projects. I am especially interested in ForgeField's work because reliable infrastructure is essential when AI systems must perform in difficult physical environments.

In the University Robotics Infrastructure Lab, I built a Python pipeline that selected rare gust, occlusion, and near-miss events from 180,000 simulated fleet-log records for training. I ran preprocessing and evaluation jobs with Ray on a GPU-enabled Kubernetes cluster, added Terraform modules for AWS resources, and instrumented the pipeline with Prometheus and Grafana. The resulting dashboards showed queue time, failed tasks, GPU utilization, and incomplete data before demonstrations. I also added GitHub Actions checks for tests, container builds, schema validation, and smoke evaluations, then tested replay results on a mobile robot.

I have also built a regression harness that replayed 420 navigation scenarios against successive model checkpoints and recorded accuracy, latency, and collision-proxy results. Docker made the evaluator consistent across workstations and a CUDA server, while MLflow kept datasets, parameters, artifacts, and results tied together. These projects taught me to treat infrastructure as a product: define a useful deliverable, make failures visible, document how it works, and test it under realistic conditions. I would welcome the opportunity to bring that approach to a scoped project at ForgeField Robotics and to work in person with the team in the Bay Area.

Thank you for considering my application. I would be glad to discuss how my experience with Python, AWS, Kubernetes, Ray, Spark, Terraform, CI/CD, and robotics evaluation could support ForgeField's training and deployment infrastructure.

Sincerely,

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