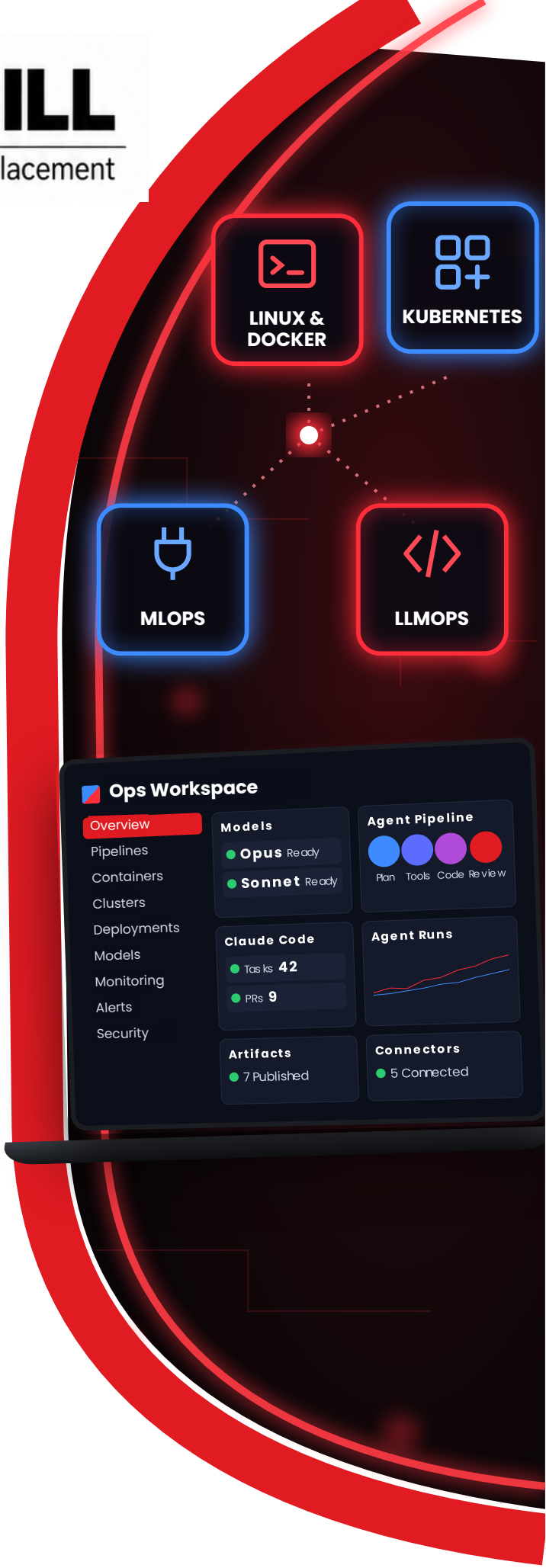
NEXSKILL

Training • Freelancing • Placement

ADVANCE DEVOPS, MLOPS & LLMOPS

MASTER PROGRAM

BUILD. SHIP. SCALE.



16 Weeks • 48 Classes • 7 Modules

Python • Linux • GitHub • Docker • AWS • Terraform • Kubernetes • GitHub Actions • MLflow • vLLM • Langfuse • Guardrails

DURATION
4 MONTHS

Practical • Real-Project Based • Portfolio Focused

3 Classes per Week • Hands-On Labs • Certificate on Completion

INTRODUCTION

ABOUT-THE-PROGRAM

About the Program

Running software, ML models and LLM applications reliably in production.

- **What are DevOps, MLOps & LLMOps?:** DevOps automates how software is built, tested and deployed. MLOps applies the same discipline to machine learning models, and LLMOps extends it to LLM applications, covering serving, evaluation, cost and safety.
- **Why This Program?:** Every company shipping software or AI needs engineers who can run it reliably in production. Combining all three skill sets in one program makes you valuable to software teams, ML teams and AI startups alike.
- **What You Will Use:** Python, Linux, Bash, Git & GitHub, Docker, AWS, Google Cloud, Terraform, Kubernetes, Helm, GitHub Actions, Prometheus, Grafana, MLflow, DVC, vLLM, LangSmith, Langfuse and NeMo Guardrails.
- **Who This Program Is For:** developers, system administrators, ML engineers, students and professionals who want careers in DevOps, cloud, MLOps or AI infrastructure. The program starts from Python, so no prior coding is required.

MEET YOUR INSTRUCTORS

INSTRUCTOR · 01

Mian Ahmad Basit

Founder, CEO, CTO & Strategic Advisor



- **Leadership:** Founder, CEO, CTO & Strategic Advisor building AI, Cloud & Blockchain companies and products.
- **Program Architect:** Instructor & Program Architect for Nexskill's advanced AI programs; CTO @ PBI & Anz Tech.

50,000+	13+	5
Talent Developed	Years Executive Leadership	Continents Reached

Connect on LinkedIn ↗ linkedin.com/in/mianahmadbasit

MEET YOUR INSTRUCTORS

INSTRUCTOR · 02

Zeeshan Ali

Technical Project Manager at P2P Clouds

- **Expertise:** Software Engineer & Instructor specializing in AI, Blockchain, Cloud & DevOps.
- **Industry Delivery:** Leads real-world AI & SaaS projects at P2P Clouds for clients across Pakistan & the Middle East.



10,000+ Contributions	**500+** Delivered Projects	**5,000+** Students Trained
6+ Years Experience	**3** Continents Active	

Connect on LinkedIn ↗ linkedin.com/in/zeeshan-ali-dev

CURRICULUM MAP

Program Modules

16 WEEKS · 48 CLASSES · 3 CLASSES PER WEEK

- **Module 1 — Python for AI**
  Weeks 1–4 · Classes 1–12
- **Module 2 — Linux, Networking & Git**
  Weeks 5–6 · Classes 13–18
- **Module 3 — Docker & Cloud Foundations**
  Weeks 7–8 · Classes 19–24
- **Module 4 — CI/CD, Terraform & Kubernetes**
  Weeks 9–10 · Classes 25–30
- **Module 5 — Observability & MLOps**
  Weeks 11–12 · Classes 31–36
- **Module 6 — LLMOps**
  Weeks 13–14 · Classes 37–42
- **Module 7 — Production AI Platforms & Capstone**
  Weeks 15–16 · Classes 43–48

MODULE 1 — PYTHON FOR AI · WEEKS 1–2

M1-CLS-1-6

Python Core Fundamentals

Building a solid programming foundation from the very first line of code.

- **Class 1 — Setup & Syntax:** installing Python & VS Code, running scripts, variables and data types, operators (arithmetic, comparison, logical, bitwise), input & output.
- **Class 2 — Control Flow:** if-elif-else conditions, for and while loops, break & continue, nested logic, logic-building exercises.
- **Class 3 — Functions:** defining functions, arguments & return values, *args & **kwargs, default parameters, lambda functions, variable scope.
- **Class 4 — Data Structures:** lists, tuples, sets & dictionaries in depth, list/dict/set comprehensions, choosing the right structure.
- **Class 5 — Strings, Files & Errors:** string manipulation, regex parsing, file handling with context managers, exception handling (try-except-finally).
- **Class 6 — Modules & Environments:** modules, packages & imports, virtual environments (venv, conda, poetry), pip & dependency locking.

MODULE 1 — PYTHON FOR AI · WEEKS 3–4

M1-CLS-7-12

OOP, Advanced Python & APIs

Writing clean, production-style Python and connecting it to the outside world.

- **Class 7 — OOP Foundations:** classes & objects, constructors, inheritance (single, multiple, MRO), encapsulation & private attributes.
- **Class 8 — OOP Advanced:** polymorphism & duck typing, abstract base classes, dataclasses & immutability, type hints & static checking.
- **Class 9 — Advanced Mechanics:** iterators & the iterable protocol, generators & yield, decorators with state, custom context managers.
- **Class 10 — Async Python:** asyncio event loop, async/await patterns, tasks, gather & semaphores, non-blocking API calls.
- **Class 11 — APIs & Your First LLM Call:** HTTP/REST fundamentals, JSON serialization, environment variables (.env), calling the Claude API from Python.
- **Class 12 — Git & Project Setup:** Git/GitHub workflow, Python project structure & packaging, mini project: a command-line AI assistant.

MODULE 2 — WEEKS 5–6

M2-CLS-13-18

Linux, Networking & Git

The command-line, networking and version control skills every ops engineer lives in.

- **Class 13 — Linux Fundamentals:** Linux distributions, the file system, essential commands, users, groups & permissions, package management.
- **Class 14 — Processes & Services:** processes & signals, systemd services, cron jobs, logs with journalctl, disk & memory monitoring.
- **Class 15 — Bash Scripting:** variables, conditions & loops, functions, text processing with grep, sed & awk, automating tasks with Bash and Python.
- **Class 16 — Networking Essentials:** IP addressing & subnets, DNS, HTTP & HTTPS, SSH & keys, ports & firewalls, Nginx as a reverse proxy.
- **Class 17 — Git & GitHub:** commits, branches & merges, pull requests & code review, resolving conflicts, branching strategies for teams.
- **Class 18 — AI-Assisted Ops:** using Claude Code & Cursor to write scripts, debug servers, explain logs and generate infrastructure code safely.

MODULE 3 — WEEKS 7–8

M3-CLS-19-24

Docker & Cloud Foundations

Packaging applications and running them on AWS and Google Cloud.

- **Class 19 — Docker Fundamentals:** images & containers, writing Dockerfiles, volumes & networking, containerizing a Python API.
- **Class 20 — Docker Compose & Production Images:** multi-container apps (API, database, Redis), multi-stage builds, image optimization, container registries.
- **Class 21 — AWS Core:** the AWS global infrastructure, IAM users, roles & policies, VPC, subnets & security groups, S3 storage.
- **Class 22 — AWS Compute & Data:** EC2 instances & autoscaling, load balancers, RDS databases, Lambda serverless functions.
- **Class 23 — AWS Containers:** ECR, ECS with Fargate, deploying containers on AWS, domains with Route 53, HTTPS certificates.
- **Class 24 — Google Cloud & Vercel:** GCP basics, deploying containers to Cloud Run, frontends on Vercel, comparing cloud platforms & pricing.

MODULE 4 — WEEKS 9–10

M4-CLS-25-30

CI/CD, Terraform & Kubernetes

Automating delivery and infrastructure, then running workloads at scale.

- **Class 25 — GitHub Actions CI/CD:** workflows & triggers, automated tests & linting, building & pushing Docker images, environments & deployment approvals.
- **Class 26 — Terraform Fundamentals:** infrastructure as code, providers & resources, variables & outputs, plan & apply, provisioning AWS infrastructure.
- **Class 27 — Terraform in Teams:** modules, remote state & locking, workspaces, managing multiple environments, Terraform in CI/CD pipelines.
- **Class 28 — Kubernetes Fundamentals:** cluster architecture, pods, deployments & replica sets, services, namespaces, kubectl essentials.
- **Class 29 — Kubernetes in Practice:** ConfigMaps & Secrets, persistent volumes, ingress, health probes, autoscaling with HPA.
- **Class 30 — Helm, EKS & GitOps:** Helm charts, running clusters on AWS EKS, GitOps with Argo CD, rolling & blue-green deployments.

MODULE 5 — WEEKS 11–12

M5-CLS-31-36

Observability & MLOps

Monitoring production systems and running the machine learning lifecycle.

- **Class 31 — Monitoring with Prometheus & Grafana:** metrics & exporters, PromQL basics, building Grafana dashboards, monitoring Kubernetes clusters.
- **Class 32 — Logging & Alerting:** centralized logging with Loki & the ELK stack, alert rules, on-call basics, OpenTelemetry tracing.
- **Class 33 — MLOps Lifecycle & MLflow:** the ML lifecycle, why models fail in production, experiment tracking & model registry with MLflow.
- **Class 34 — Data & Model Versioning:** DVC for datasets & models, reproducible training, feature stores, model packaging.
- **Class 35 — ML Pipelines & Orchestration:** training pipelines with Airflow & Kubeflow Pipelines, CI/CD for ML, automated retraining.
- **Class 36 — Model Serving & Monitoring:** serving models with FastAPI, BentoML & KServe, batch vs real-time inference, data & model drift detection with Evidently.

MODULE 6 — WEEKS 13–14

M6-CLS-37-42

LLMOps

Serving, observing, evaluating and securing LLM applications in production.

- **Class 37 — LLMOps Foundations:** the LLM application lifecycle, LLM APIs vs self-hosted models, prompt management & versioning, release workflows.
- **Class 38 — LLM Inference Serving:** vLLM, SGLang & llama.cpp, GPUs on Kubernetes, quantized inference (GGUF, AWQ, GPTQ), multi-LoRA serving.
- **Class 39 — LLM Tracing & Observability:** LangSmith, Langfuse & Logfire, tracing RAG and agent pipelines, token, latency & error monitoring.
- **Class 40 — LLM Evals & Testing:** RAGAS & Inspect AI, LLM-as-judge pipelines, regression testing prompts in CI, online evaluation.
- **Class 41 — Cost & Performance:** prompt caching, semantic caching with Redis, LLM gateways & model routing with LiteLLM, rate limiting & token budgets.
- **Class 42 — AI Security & Guardrails:** prompt injection defense, NeMo Guardrails & LLM Guard, PII masking with Presidio, RBAC & data isolation, MCP security.

MODULE 7 — WEEKS 15–16

M7-CLS-43-48

Production AI Platforms & Capstone

Bringing DevOps, MLOps and LLMOps together on real AI workloads.

- **Class 43 — Cloud for AI Workloads:** GPU instances on AWS, SageMaker endpoints, Vertex AI, serverless GPUs with Modal, choosing the right compute for each model.
- **Class 44 — Deploying a Full LLM Stack:** a RAG application on Kubernetes with vLLM, a vector database & Redis, autoscaling GPU workloads, zero-downtime releases.
- **Class 45 — AI Agents in Production:** deploying agents & MCP servers as services, queues & background workers, Claude Code in GitHub Actions for automated reviews.
- **Class 46 — Career & Freelancing:** DevOps & MLOps interviews, AWS & Kubernetes certification paths, freelancing on Upwork & Fiverr.
- **Class 47 — Capstone Build:** build a complete production platform for an AI product, with mentor reviews along the way.
- **Class 48 — Capstone Demo & Certification:** live demo, architecture write-up & GitHub portfolio, practical assessment, Advance DevOps, MLOps & LLMOps Certificate award.

PROGRAM OUTCOMES

- Write Python automation scripts and work confidently with Linux, Bash, networking, Git and GitHub.
- Containerize applications with Docker and deploy them on AWS and Google Cloud.
- Automate delivery with GitHub Actions and manage infrastructure as code with Terraform.
- Run production workloads on Kubernetes with Helm, EKS and GitOps.
- Monitor systems with Prometheus and Grafana, and run the full ML lifecycle with MLflow, DVC and model serving.
- Serve, trace, evaluate and secure LLM applications with vLLM, Langfuse, RAGAS and guardrails.
- Deploy complete AI platforms on GPU cloud and Kubernetes and earn the Advance DevOps, MLOps & LLMOps Certificate.

FINAL CAPSTONE

- Build a complete production platform for an AI product: AWS infrastructure with Terraform, a Kubernetes cluster deployed through GitHub Actions and GitOps, an ML model tracked in MLflow and served with drift monitoring, and an LLM application served with vLLM, traced in Langfuse and protected by guardrails, with dashboards, alerts and a live demo to earn the Advance DevOps, MLOps & LLMOps Certificate.

NEXSKILL
Training - Freelancing - Placement
BUILD YOUR FUTURE WITH NEXSKILL
MORE THAN A DEGREE

ALUMNI SUCCESS STORIES

NEXSKILL-ALUMNI

Success Stories

Real Nexskill students, now building careers in tech.



Muhammad Hashim

Full Stack AI Developer

Age 13 · One of Pakistan's youngest

Full Stack AI · n8n · AI Integration

View LinkedIn Profile



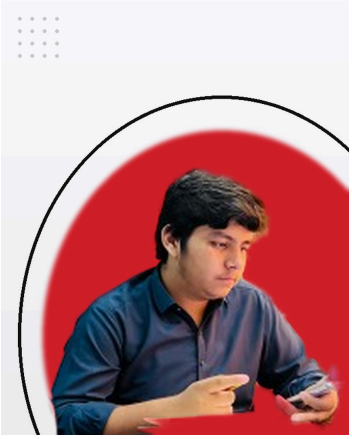
Kashan Iqbal

Senior Software Developer

Flacron Enterprises

Program: Blockchain · Batch B2

View LinkedIn Profile



Faizan Ahmad

Web & AI Developer

P2PClouds

Nexskill Alumni

& Many More...

Nexskill alumni are working as software engineers, AI developers and blockchain developers at companies like Flacron Enterprises and P2PClouds, building their own products, and earning as freelancers on Upwork and Fiverr. The next success story could be yours.

ENROLL NOW Call / WhatsApp 0309-6663330/1 · www.nexskill.com