

MUHAMMAD AHMAD RATHORE

Technical Program Director · National CERT – Pakistan | Hybrid Cloud Migration · GPU/HPC Systems · Data Center Modernization
Islamabad, Pakistan · ahmadrathore@gmail.com · linkedin.com/in/mahmadr · github.com/ahmadrathore

PROFILE

Infrastructure engineer and operations lead with 15+ years spanning hybrid cloud migration, HPC operations, GPU-accelerated computing, and data center modernization — across university research computing, national government infrastructure, and applied ML/AI systems. Comfortable operating at both the hands-on systems level and the budget/compliance/vendor-management level.

TECHNICAL STACK

Cloud: AWS (S3, EC2), OpenStack, hybrid cloud architecture
Orchestration: Kubernetes, Docker, Terraform
Observability: Prometheus, Grafana, ELK stack
HPC / GPU: NVIDIA DALI, cuCIM, Triton Inference Server, TensorRT
Networking / Security: SDN, NFV, Barracuda NG, Cisco SSL VPN, Check Point, AD/DNS/DHCP/ISA
Compliance: HIPAA, CMMC, ISO 27001
Languages: Python, TypeScript, JavaScript, Solidity, Rust

EXPERIENCE

Technical Program Director Aug 2026 – Present

National CERT – Pakistan · Islamabad

- Lead national-scale cybersecurity programs and digital security platforms.
- Drive AI-enabled vulnerability management, VDP, and proactive cyber defense.
- Advance indigenous cybersecurity capabilities, automation, and national cyber resilience.

Cloud and HPC Operations Manager Jan 2024 – Aug 2025

University of New Hampshire · Durham, NH

- Led research cloud, HPC, and data center operations for a research-intensive university, supporting faculty-led grants and studies.
- Directed hybrid cloud migration (AWS, Kubernetes, OpenStack) that modernized legacy data center operations, using Terraform for infrastructure automation.
- Built observability stack (Prometheus, Grafana, ELK) for infrastructure monitoring and incident response.
- Delivered infrastructure compliant with HIPAA, CMMC, and ISO 27001; owned capacity planning, budget forecasting, and vendor management.
- Ran Agile/Scrum delivery cadence; kept senior leadership informed on infrastructure program status.

Postdoctoral Fellow — GPU/HPC Infrastructure Mar 2022 – Jan 2024

Northwestern University, Feinberg School of Medicine

- Built a GPU-accelerated, cloud-based inference framework with Kitware, Inc. for whole-slide pathology image analysis.
- Co-authored HistomicsStream (Python/TensorFlow whole-slide-image reader), delivering a 65% runtime performance improvement over standard tile-reading approaches.
- Optimized AI inference pipelines using NVIDIA DALI, cuCIM, Triton Inference Server, and TensorRT.
- Built an original Girder–Triton interface connecting data-management infrastructure with GPU inference serving.

Ph.D. Researcher — Cloud-Native Edge Infrastructure Mar 2017 – Aug 2021

Networked Intelligence Lab, GIST, South Korea

- Doctoral research on cloud-native edge computing, SDN, and systems visibility/orchestration, including Kubernetes and OpenStack operations.
- Delivered hands-on SDN/NFV and cloud-integrated infrastructure training workshops for international stakeholders (Asi@Connect Training, July 2021).

Senior Software Developer (Security Infrastructure) Oct 2010 – Dec 2014

Air University · Islamabad

- Built and secured VoIP and mail infrastructure for 1,000+ users; managed Active Directory, DNS, DHCP, and ISA Server.
- Deployed and administered Barracuda NG Firewall, Cisco SSL VPN, and Check Point network security infrastructure.
- Secured Microsoft Exchange environments with endpoint protection; conducted infrastructure risk and vulnerability assessments.

SELECTED INFRASTRUCTURE PROJECTS

- HistomicsML / UI / TK (Northwestern · Kitware) — GPU-accelerated digital pathology platforms for whole-slide-image analysis, interactive UI, and quantitative tooling.
- OF@TEIN / Asi@Connect — federated cloud-native edge playground across 14 sites in 10 countries; visibility, orchestration, and monitoring.

- National VDP / NVIMS (National CERT Pakistan) — national-scale vulnerability management infrastructure and platforms.

OPEN-SOURCE CONTRIBUTIONS

- HistomicsStream — contributed fixes/features to Kitware's whole-slide-image TensorFlow reader (github.com/ahmadrathore/HistomicsStream).
- WSI Superpixel Guided Labeling — contributed to this Girder 3 active-learning plugin for the Digital Slide Archive ecosystem.
- Girder–Triton Interface — original project connecting Girder data management with NVIDIA Triton Inference Server (github.com/ahmadrathore/Girder_triton_Interface).

EDUCATION

- Ph.D., Computer Science — GIST, South Korea
- M.Sc., Information & Communication Systems Security — KTH Royal Institute of Technology, Sweden
- B.S. (Hons), Computer Science / Software Engineering — COMSATS Institute of Information Technology

CERTIFICATIONS

Certified Ethical Hacker (CEH), EC-Council · CCNA