

AASHAN JAVED

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RESEARCH INTERESTS

Calibrated uncertainty for frozen foundation models under distribution shift, applied to climate and urban heat. My work asks whether published reliability guarantees survive the shift a deployed model actually meets, and so far the answer has been no.

EDUCATION

National University of Computer and Emerging Sciences (FAST-NUCES)

Bachelor of Science in Computer Science

2020 – 2024

Islamabad, Pakistan

- Awarded the Gold Medal and a place on the Rector's List of Honour for the seventh semester. Batch rank 57 of 285, the top 20 percent.

PREPRINTS

When Does a Frozen Time-Series Foundation Model's Uncertainty Fail, and What Actually Fixes It?

A. Javed

Under review, *Foundation Models for Time Series workshop, NeurIPS 2026 (non-archival)*.

[code](#)

A frozen forecaster's own prediction intervals fall furthest short where the series has drifted most, and the failure tracks **regime shift rather than forecast horizon**. Three static post-hoc conformal variants do not repair that conditional gap; running conformal online narrows it without closing it. The natural rolling-origin implementation leaks its own future into calibration and overstates the recovery, so every result here lags feedback by the full horizon.

RESEARCH EXPERIENCE

Independent Researcher

2025 – Present

Calibrated uncertainty under distribution shift

Remote

- Designed and ran the experiments behind my research end to end: problem selection, literature gap verification, data acquisition, implementation, evaluation and writing.
- Built a model-agnostic, unit-tested conformal prediction library (split-conformal, CQR, Mondrian, adaptive conformal inference) reused across every study.
- Ran an adversarial audit of my own results and found that a masking flag I believed was off had never reached the frozen encoder, so two calls on the same input disagreed. **I stopped the affected work rather than publish on it**. Reproducing a frozen encoder's output before trusting it, and reporting a falsified prediction rather than discarding it, are now fixed steps in how I work.

PROFESSIONAL EXPERIENCE

Founder and CEO

Jan 2024 – Present

Valfirst AI (Valfirst Software (SMC-Private) Ltd), side venture

Pakistan / Remote

- Founded and lead **Valfirst AI**, which builds and operates autonomous AI agents that run real business workflows end to end for operations-heavy small and mid-sized companies, not chatbots but digital workers that respond to leads, qualify customers, and handle repetitive processes.
- Built and deployed **11 live, interactive AI agents** across industries, demoable with no login at valfirstai.com; agents respond to and qualify a lead in seconds, integrate into a client's tools, and report via a monthly scorecard.
- In pilot: running the first paid project, an agent system that manages the digital media operations for Proton Studios.

Machine Learning Engineer (R&D)

Jan 2025 – Present

FortyGuard, urban heat and climate intelligence

Abu Dhabi, UAE (Remote)

- Built the **Large Temperature Model (LTM)**, forecasting street-level (2 m) air temperature at 10 m resolution across the United States.
- Led a collaboration with **NVIDIA** on a custom **CorrDiff diffusion-based downscaling model**, a $255\times$ spatial amplification ($16\times$ finer per axis) taking a 25 km grid to roughly 1.5 km, for high-fidelity urban climate modelling (San Jose region).
- Currently building FortyGuard's geospatial agents. Own multi-source geospatial pipelines (**10M+ observations/day**) and model evaluation and drift monitoring in production, where the gap between reported accuracy and deployed reliability became concrete.

Software Engineering Intern

Jun 2024 – Dec 2024

FortyGuard

Abu Dhabi, UAE (Remote)

- Built dashboards over 100K+ records/day and the data plumbing the temperature modelling later ran on.

Machine Learning Engineer Intern

Jun 2023 – Sep 2023

Payactiv

Islamabad, Pakistan

- Built gradient-boosted risk scoring over 1M+ transaction records, where calibrated abstention mattered more than raw accuracy.

COMMUNITY & SERVICE

FortyGuard Global AI Hackathon '26

2026

Mentor

Remote

- Served as a mentor for a global climate-tech hackathon and led the session “Build with Heat Intelligence” on 19 August 2026, on working with temperature and heat data in applied projects.

Climate Change AI (CCAI)

2025 – Present

Community member and volunteer

Remote

- Active member of the Climate Change AI community; collaborate on and volunteer at its research events.

Alkhidmat Foundation Pakistan

2022

Digital Volunteer, Flood Relief

Pakistan (Remote)

- Supported digital outreach and awareness during the 2022 flood emergency, amplifying relief and donation drives to connect support with affected communities. Recognised with a Certificate of Appreciation.

FAST Community Service Society

2021 – 2023

Head of Information and Communication

Islamabad, Pakistan

- Led communications and volunteer coordination for FAST's student-run community service society, running its social media, announcements, and event promotion, and mobilising volunteers across charity drives and student outreach activities.

Google Developer Groups Islamabad, Youth For Pakistan, peer mentoring

2021 – Present

Community volunteer, campus ambassador, peer mentor

Islamabad, Pakistan

- Helped plan and run developer meetups and workshops, represented Youth For Pakistan on campus for over two years, and continue to mentor students on university admissions and field selection.

TECHNICAL SKILLS

Uncertainty & Evaluation: Conformal Prediction (split, CQR, Mondrian, adaptive), Calibration Assessment, Coverage & Interval-Width Analysis, Distribution-Shift Evaluation, Leakage-Controlled Experimental Design

Machine Learning: Python, PyTorch, scikit-learn, XGBoost, Foundation-Model Representation Probing, Time-Series Forecasting, Spatiotemporal Modelling

Geospatial: Sentinel-2, Landsat C2, Microsoft Planetary Computer, rasterio, Cloud-Optimised GeoTIFF, Local Climate Zones

Research Engineering: Reproducible Pipelines, Docker, CI/CD, LaTeX, Git

Languages: English (IELTS Academic 7.5), Urdu (native)