Shraddha Singh

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Profile

Data Scientist with 5+ years of experience applying machine learning to sustainability, energy, and infrastructure domains. Skilled in foundation models, cloud-native ML deployment, and explainable AI. Delivered predictive solutions that improved operational decision-making for enterprise clients.

Skills

Programming:	Python (primary), SQL, Git, C++
ML Frameworks:	PyTorch, PyTorch Lightning, TensorFlow/Keras
Cloud & DevOps:	IBM Cloud, Docker, Kubernetes, Flask
Tools:	Jupyter, VS Code, SPSS

Education

M.S., Computer Science (Machine Learning) Georgia Institute of Technology, Dec 2019
B.S., Electrical & Computer Engineering University of Texas at Austin, May 2015

Technical Experience

Data Scientist, IBM Sustainability Software Austin, TX | Feb 2020 – Present

- Adapted weather foundation models for outage prediction and downscaling, showing improvement in downscaling resolution.
- As part of research, designed encoder–decoder modules using Perceiver Transformer architectures for foundation-model pipelines.
- Built real-time anomaly-detection solutions for time-series data streams, reducing false alarms for pilot deployments.
- Developed supervised models to optimize material-ordering decisions; integrated model explainability to increase client trust.
- Created proof-of-concept neural network for energy demand forecasting.
- Presented research on foundation-model applications at the **American Geophysical Union (AGU) Fall Meeting 2024**.

Extreme Blue Data Scientist Intern, IBM Cloud & Storage Systems Durham, NC | May 2019 – Aug 2019

- Implemented and deployed predictive ML models to proactively detect negative server outcomes, improving incident triage.
- Performed exploratory data analysis with Python and the ELK stack to clean and surface operational insights.
- Presented weekly progress updates to IBM executives and stakeholders.

Verification Engineer, IBM Systems Austin, TX | Jun 2015 – Jul 2018

- Performed functional verification for OpenCAPI data link and memory controller units in Power9 and Power9-Axone processors using C++/RTX.
- Automated tests and improved verification coverage and efficiency.

Early Research Experience May 2013 – Aug 2014

- **ESE REU, University of Alabama (2014)**: Evaluated attributes of code reviewers; built labeled datasets in SQL and applied decision-tree analysis in SPSS.

- **Amalthea REU, Florida Institute of Technology (2013)**: Investigated mixture-distribution modeling in RKHS; compared clustering and classification results across algorithms.

Presentations & Publications

- Singh, S. (Presenting Author, 2024). *Downstream Applications on Prithvi WxC: A Foundation Model for Weather and Climate.* Presented at the **AGU Fall Meeting 2024**, Washington, D.C.
- Singh, S. (2024). *Uncertainty quantification of aboveground biomass predictions produced by fine-tuned geospatial foundation models.* Poster Presented at the **AGU Fall Meeting 2024**, Washington, D.C.
- Schmude, J., Roy, S., Trojak, W., Jakubik, J., Civitarese, D. S., Singh, S., Kuehnert, J., Ankur, K., Gupta, A., Phillips, C. E., Kienzler, R., Szwarcman, D., Gaur, V., Shinde, R., Lal, R., Da Silva, A., Guevara Diaz, J. L., Jones, A., Pfreundschuh, S., Lin, A., Sheshadri, A., Nair, U., Anantharaj, V., Hamann, H., Watson, C., Maskey, M., Lee, T. J., Moreno, J. B., Ramachandran, R. (2024). *Prithvi WxC: Foundation Model for Weather and Climate.* arXiv:2409.13598. Available at: `https://arxiv.org/abs/2409.13598`

Community Involvement

- Penguins at IBM BRG — Mascot Co-Chair (2015–2024)
- WiDS Datathon — Team Lead (2021)
- UTCS Anniversary — IBM Representative (2016)
- Teaching Assistant, Intro to Electrical Engineering (2013–2015)
- STEM outreach: "Introduce a Girl to Engineering Day" volunteer (2013)