

CHETRAJ PANDEY

Ph.D. Student,
Dept. of Computer Science,
Georgia State University, Atlanta, GA, USA.

✉ cpandey1@gsu.edu

🐙 [Github](#)

🔍 [Google Scholar](#)

🌐 [LinkedIn](#)

🌐 [Website](#)

Education

- Jan, 2021 – Present 📖 **Ph.D. in Computer Science**, Georgia State University, Atlanta, GA, USA.
Advised by: [Dr. Berkay Aydin](#)
Current CGPA: **4.16** / 4.30 .
- Nov, 2013 – Aug, 2017 📖 **B.E. Computer Engineering**, Tribhuvan University, IOE, ERC, Dharan, Nepal.
CGPA: 75.64%, Dept. 2nd.

Research Interests

Machine Learning Deep Learning Explainable AI Data Mining Data Science and Analytics

Work Experience

Research Experience

- Jan, 2021 – Present 📖 **Research Assistant**, [Data Mining Lab](#), Georgia State University.
Leading a project on developing deep learning-based models for solar flare prediction and developing novel techniques in computer science to solve the problems in solar physics and space weather forecasting applications.
- May, 2019 – Dec, 2020 📖 **Research Project Coordinator**, Research and Innovation Unit, HCOE.
Supervised research-oriented projects of undergraduate students in computer and electronics engineering, Tribhuvan University, Himalaya College of Engineering (HCOE), Lalitpur, Nepal.

Teaching Experience

- Apr, 2020 – Dec, 2020 📖 **Lecturer**, Tribhuvan University, Himalaya College of Engineering, Nepal.
Spring 2020, BCT Juniors, **Artificial Intelligence**.
Spring 2020, BEX Sophomores, **Discrete Mathematics**.
- Apr, 2018 – Mar, 2020 📖 **Assistant Lecturer**, Tribhuvan University, Himalaya College of Engineering.
Fall 2019, B.Sc. CSIT Juniors, **Artificial Intelligence**.
Fall 2019, BCE Freshmen, **Computer Programming**.
Spring 2019, BCT Juniors, **Artificial Intelligence**.
Spring 2019, BEX Sophomores, **Discrete Mathematics**.
Fall 2018, BCE Freshmen, **Computer Programming**.
Spring 2018, BEX Sophomores, **Discrete Mathematics**.
Spring 2018, BCT Sophomores, **Numerical Methods**.
- Sept, 2018 – Dec, 2020 📖 **Instructor / Co-founder**, [Line Academy](#), [Kupondole](#), Lalitpur, Nepal.
- Dec, 2017 – Apr, 2018 📖 **Part-time Instructor**, Tribhuvan University, Kathmandu Engineering College, Lalitpur, Nepal.
Fall 2017, BCT Freshmen, **Computer Programming**.

Publications

Journal Articles

- 1 **C. Pandey**, A. Ji, R. A. Angryk, M. K. Georgoulis, and B. Aydin, "Towards coupling full-disk and active region-based flare prediction for operational space weather forecasting," *Frontiers in Astronomy and Space Sciences*, vol. 9, Aug. 2022. [DOI: 10.3389/fspas.2022.897301](https://doi.org/10.3389/fspas.2022.897301).
- 2 K. Whitman, R. Egeland, I. G. Richardson, ..., **C. Pandey**, and et al., "Review of solar energetic particle models," *Advances in Space Research*, Aug. 2022. [DOI: 10.1016/j.asr.2022.08.006](https://doi.org/10.1016/j.asr.2022.08.006).

Conference Proceedings

- 1 J. Hong, A. Ji, **C. Pandey**, and B. Aydin, "Beyond traditional flare forecasting: A data-driven labeling approach for high-fidelity predictions," in *Big Data Analytics and Knowledge Discovery*, Springer Nature Switzerland, 2023, pp. 380–385. [DOI: 10.1007/978-3-031-39831-5_34](https://doi.org/10.1007/978-3-031-39831-5_34).
- 2 **C. Pandey**, R. A. Angryk, and B. Aydin, "Unveiling the potential of deep learning models for solar flare prediction in near-limb regions," in *22nd International Conference on Machine Learning and Applications (ICMLA)*, 2023., 2023. [DOI: 10.48550/arxiv.2309.14483](https://doi.org/10.48550/arxiv.2309.14483).
- 3 **C. Pandey**, R. A. Angryk, and B. Aydin, "Explaining full-disk deep learning model for solar flare prediction using attribution methods," in *European Conference on Machine Learning and Knowledge Discovery in Databases: ADS Track, ECML PKDD*, Cham: Springer Nature Switzerland, Sep. 2023, pp. 72–89. [DOI: 10.1007/978-3-031-43430-3_5](https://doi.org/10.1007/978-3-031-43430-3_5).
- 4 **C. Pandey**, R. A. Angryk, M. K. Georgoulis, and B. Aydin, "Explainable deep learning-based solar flare prediction with post hoc attention for operational forecasting," in *Discovery Science*, Cham: Springer Nature Switzerland, 2023, pp. 567–581. [DOI: 10.1007/978-3-031-45275-8_38](https://doi.org/10.1007/978-3-031-45275-8_38).
- 5 **C. Pandey**, A. Ji, R. A. Angryk, and B. Aydin, "Towards interpretable solar flare prediction with attention-based deep neural networks," in *2023 IEEE Sixth International Conference on Artificial Intelligence and Knowledge Engineering (AIKE)*, 2023. [DOI: 10.48550/arxiv.2309.04558](https://doi.org/10.48550/arxiv.2309.04558).
- 6 **C. Pandey**, A. Ji, T. Nandakumar, R. A. Angryk, and B. Aydin, "Exploring deep learning for full-disk solar flare prediction with empirical insights from guided grad-cam explanations," in *The 10th IEEE International Conference On Data Science and Advanced Analytics (DSAA)*, IEEE, 2023. [DOI: 10.48550/arxiv.2308.15712](https://doi.org/10.48550/arxiv.2308.15712).
- 7 **C. Pandey**, R. Angryk, and B. Aydin, "Deep neural networks based solar flare prediction using compressed full-disk line-of-sight magnetograms," in *Information Management and Big Data*, Springer International Publishing, 2022, pp. 380–396. [DOI: 10.1007/978-3-031-04447-2_26](https://doi.org/10.1007/978-3-031-04447-2_26).
- 8 **C. Pandey**, R. A. Angryk, and B. Aydin, "Solar flare forecasting with deep neural networks using compressed full-disk HMI magnetograms," in *2021 IEEE International Conference on Big Data (Big Data)*, IEEE, Dec. 2021, pp. 1725–1730. [DOI: 10.1109/bigdata52589.2021.9671322](https://doi.org/10.1109/bigdata52589.2021.9671322).

Posters

- 1 **C. Pandey**, T. Adeyeha, T. Nandakumar, A. Rafal, and B. Aydin, *Insights into deep learning-based full-disk solar flare prediction with post hoc explanation and evaluation*, 2023, EarthCube 2023 - A Geoscience and Cyberinfrastructure Workshop. [DOI: 10.13140/RG.2.2.34673.97124](https://doi.org/10.13140/RG.2.2.34673.97124).
- 2 **C. Pandey**, M. K. Georgoulis, B. Aydin, R. A. Angryk, and A. Ji, *Exploring heuristics in full-disk aggregation from individual active region prediction of solar flares*, 2022, p. 3457. [DOI: 10.13140/RG.2.2.34673.97124](https://doi.org/10.13140/RG.2.2.34673.97124).
- 3 **C. Pandey**, A. Ji, R. Angryk, and B. Aydin, *Training and Deployment of Predictive Models for Space Weather Forecasting: An Application on Full-disk and Active Region-based Flare Prediction*, Dec. 2021, AGU Fall Meeting Abstracts, SH55A–1825. [URL: https://shorturl.at/bpwZ2](https://shorturl.at/bpwZ2).

Skills and Graduate Coursework

Technical Skills

Programming Language	Python, C, C++, and MATLAB.
Databases	MySQL and PostgreSQL.
Web Development	HTML, CSS, JavaScript, and Django.
Libraries and Framework	Numpy, Pandas, Matplotlib, Scikit-Learn, Pytorch, Tensorflow, and Keras.
Tools and Environment	Git, Github, L ^A T _E X, Docker, Google Cloud Platform (GCP), and HPCE.

Graduate Courseworks

Spring, 2021	Advanced Machine Learning (A+), Database Systems (A), Computer Science Teaching Pedagogy (S), and Seminar in Computer Science (S).
Fall, 2021	Advanced Deep Learning (A), Digital Image Processing (A+), and Fundamentals of Data Science (A+).
Spring, 2022	Advanced Computer Networks (A) and Computer Vision (A).
Fall, 2022	Advanced Topics in Deep Learning (A+) and Advanced Data Mining (A).

Awards and Certifications

Awards and Achievements

Jun 27–28, 2023	Early-career Travel Award , EarthCube 2023, Building Upon the EarthCube Community: A Geoscience and Cyberinfrastructure Workshop.
May, 2021– Aug, 2022	Second Century Initiative (2CI), University Doctoral Fellowship , Georgia State University.
Jul, 2016 – Jun, 2017	4th Committee President , Association of Computer Engineering Students (ACES), Purwanchal Campus, Dharan, Nepal.
Nov, 2013 – Aug, 2017	Full Governmental Scholarship on Merit , Bachelors in Computer Engineering at Tribhuvan University, Institute of Engineering, Dharan, Nepal.

Certifications

Jul, 2020	Neural Networks and Deep Learning, Coursera. [certificate] .
Oct, 2020	Structuring Machine Learning Projects, Coursera. [certificate] .
	Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization. [certificate] .
Mar, 2021	Research Administrators Conduct of Research Course 1, CITI Program. [certificate] .

References

Dr. Berkay Aydin

Assistant Professor,
Dept. of Computer Science,
Georgia State University, Atlanta, GA, USA
✉ baydin2@gsu.edu

Dr. Rafal A. Angryk

Distinguished University Professor,
Dept. of Computer Science,
Georgia State University, Atlanta, GA, USA
✉ rangryk@gsu.edu