Krishnagopal Halder

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GitHub | Portfolio | Bankura - 722101, West Bengal, India

ResearchGate

Education

Vidyasagar University — Midnapore, West Bengal, India
M.Sc. in Remote Sensing and GIS; ***CGPA: 9.06/10.00*** *(up to 3rd Sem)* — *Nov 2022 – Present*

Bankura Christian College — Bankura, West Bengal, India
B.Sc. in Geography; ***CGPA: 9.33/10.00*** — *Jun 2019 – Aug 2022*

Bankura Zilla School — Bankura, West Bengal, India
HSC- 12th Grade; ***Percentage: 95.80%*** — *Jun 2017 – Mar 2019*
Subjects: [Bengali, English, Geography, Computer Application, Philosophy, Mathematics]

Bankura Christian Collegiate School — Bankura, West Bengal, India
SSC- 10th Grade; ***Percentage: 90.43%*** — *Apr 2016 – Feb 2017*
Subjects: [Bengali, English, Mathematics, Physical Science, Life Science, History, Geography]

Skills

Languages: Python, SQL, HTML, CSS, JavaScript, R, C

Technologies: Google Earth Engine, Planetary Computer, PostGIS, Git, GitHub, Scikit-learn, TensorFlow

Methodologies: Machine Learning, Deep Learning, Geospatial Analysis, Image Processing, Statistical Analysis

Softwares: ArcGIS Pro, ArcMap, QGIS, Photoshop, Adobe Illustrator

Experience

Institute of Crop Science and Resource Conservation (INRES) — University of Bonn, Germany
Remote Intern — *Feb 2023 – Feb 2024*

- Collaborated with Dr. Amit Kumar Srivastava, Senior Scientist at INRES, University of Bonn, on the integration of remote sensing and GIS technologies for the analysis of agricultural landscapes and the prediction of crop yield.
- Conducted comprehensive phenological climate analysis and remotely sensed data preparation to extract valuable insights into agricultural patterns.
- Employed a variety of feature engineering techniques to augment the predictive capabilities of models, thereby enhancing their accuracy and robustness.
- Utilized advanced machine learning (ML) and deep learning (DL) algorithms for precise crop yield forecasting and accurate crop classification.
- Managed and processed large-scale datasets spanning country and continental scales utilizing cloud computing platforms and programming environments.
- Communicated research findings and insights effectively through detailed reports and engaging presentations, thereby contributing to ongoing efforts aimed at advancing agricultural sustainability and productivity.

Awards & Achievements

- **Secured All India Rank (AIR) 36 in Geomatics Engineering Paper** of GATE 2024 conducted by Indian Institute of Science, Bangalore. *(Mar 2024)*
- **Ranked among the top 0.01 percentile students** statewide among 777,000 candidates in the Higher Secondary Certificate (HSC) examination with a test score of 479/500. *(Jun 2019)*
- **Awarded by the Bankura Christian Collegiate School** for achieving over 90% marks in the Secondary School Certificate (SSC) examination. *(May 2017)*

Projects

- **SynPAI**: Synergising Process-Based and Mchine Learning Models for Accurate and Explainable Crop Yield Prediction along with Environmental Impact Assessment. (Website)
  *(Funded by **Biotechnology and Biological Sciences Research Council (BBSRC)**) (Feb 2024 – Aug 2025)*
- **AgML**: Machine learning for agricultural modelling. (Website) *(Jan 2024 – Present)*

Workshops & Seminars

- Indo-German Workshop on **Resilient Food Systems: AI, Remote Sensing, and Crop Models in Harmony (R-FARM)**, University of Bonn, Germany. *(Feb 2024)*
- International Seminar on **Recent Advancement in Geographical Studies - A Multidimensional Outlook**, Department of Geography, Rampurhat College, Birbhum, WB, India. *(Sep 2023)*
- Training Course on **Aquifer Mapping and Management**, Central Ground Water Board, Salt Lake, Kolkata - 700091. *(Feb 2022)*

Publications

[6] **Halder, K.,** Srivastava, A.K., et al., (2024): Improving landslide susceptibility prediction through ensemble Recursive Feature Elimination and meta-learning framework.
*(Under review in **Scientific Reports; IF: 4.6; Q1**)*

[5] **Halder, K.,** Ghosh, A., et al., (2024): Predicting Flood Prone Areas with Sentinel-1 SAR and Machine Learning Techniques.
*(Under review in **Geomatics, Natural Hazards, and Risk; IF: 4.2; Q1**)*

[4] **Halder, K.,** Srivastava, A.K., et al., (2024): Application of bagging and boosting ensemble machine learning techniques for groundwater potential mapping in a drought-prone agriculture region of eastern India.
*(Under review in **Environmental Sciences Europe; IF: 5.9; Q1**)*

[3] Pal, S.C., Patra, S., Biswas, T., Srivastava, A.K., Chatterjee, U., **Halder, K.,** et al., (2024): Highlighting the role of tribal communities in sustainable agriculture to achieve sustainable development goals (SDGs).
*(Under review in **Environmental Sciences Europe; IF: 5.9; Q1**)*

[2] Liu, S., Ren, Z., Srivastava, A.K., **Halder, K.,** et al., (2024): Improving the crop yield prediction accuracy by optimizing the feature engineering workflow in machine learning.
*(Under review in **Ecological Modelling; IF: 3.1; Q2**)*

[1] Srivastava, A.K., **Halder, K.,** et al., (2024): Forecasting Grain Maize Yield in Sub-Saharan Africa: A Hybrid Modelling Approach.
*(Conference paper: **Tropentag 2024**)*

Referees

Amit Kumar Srivastava (Senior Scientist)
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