



International Conference on Data-Processing and Networking (ICDPN-2025)

Date: 7th – 8th November, 2025

ORGANISED BY : Institute of Technology and Business in České Budějovice,
Near Prague, Czech Republic, Europe (Venue).

***** CALL FOR PAPERS *****

SPECIAL SESSION ON

Regression Learning: Theory, Methods, and Applications

SESSION ORGANIZERS:

Name: Dr. Anima Bag

Designation: Assistant Prof. and Head, Rama Devi Women's University, Bhubaneswar,

Tel: 09090812095;

Email: animabag@rdwu.ac.in, animabag82@gmail.com

ORCID: <https://orcid.org/0009-0003-1810-1168>

VIDWAN: <https://vidwan.inflibnet.ac.in/profile/365850>

WOS: IIS-5046-2023 **Scopus ID:** 57210189441

EDITORIAL BOARD: (Optional)

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SESSION DESCRIPTION:

Regression learning is one of the most essential components of supervised machine learning, widely used for modeling and predicting continuous outcomes. This special session aims to explore

the theoretical foundations, methodological innovations, and real-world applications of regression learning across diverse domains.

The session invites contributions that push the boundaries of current regression techniques, including classical approaches like linear and polynomial regression, as well as advanced models such as support vector regression, ensemble learning methods, deep learning-based regressors, and probabilistic frameworks.

RECOMMENDED TOPICS:

Topics to be discussed in this special session include (but are not limited to) the following:

1. Theoretical Foundations

- Statistical and probabilistic approaches to regression
- Bias-variance trade-off in regression models
- Generalization theory in regression learning
- Optimization techniques for regression algorithms
- Interpretability and explainability in regression models

2. Methodological Advances

- Linear and nonlinear regression techniques
- Regularization methods (Ridge, Lasso, ElasticNet)
- Bayesian regression and Gaussian Process regression
- Kernel methods and Support Vector Regression (SVR)
- Ensemble-based regressors (Random Forest, Gradient Boosting, XGBoost)
- Neural networks and deep learning for regression tasks
- Hybrid and multi-model regression systems
- Time series regression and forecasting models
- Regression with missing, imbalanced, or noisy data
- High-dimensional and sparse regression

3. Tools and Implementation

- Feature selection and dimensionality reduction for regression
- Model evaluation and validation techniques (e.g., RMSE, MAE, R²)
- Scalable regression techniques for big data
- Regression frameworks using Python, R, MATLAB, and cloud platforms
- Automated machine learning (AutoML) for regression tasks

4. Applications of Regression Learning

- Predictive modeling in healthcare (e.g., disease progression, survival analysis)
- Financial and economic forecasting
- Industrial process modeling and quality control
- Environmental and climate data modeling
- Image and video-based regression (e.g., age estimation, pose estimation)
- Natural language processing regression tasks (e.g., sentiment intensity, readability scoring)
- Energy consumption and demand forecasting
- Customer behavior and sales prediction in marketing

SUBMISSION PROCEDURE:

Researchers and practitioners are invited to submit papers for this special theme session on **[session name]on or before[5th Aug 2025]**. All submissions must be original and may not be under review by another publication. INTERESTED AUTHORS SHOULD CONSULT THE CONFERENCE'S GUIDELINES FOR MANUSCRIPT SUBMISSIONS at <https://www.icdpn-conf.com/Downloads>. All submitted papers will be reviewed on a double-blind, peer review basis.

NOTE: While submitting paper in this special session, please specify [**Regression Learning: Theory, Methods, and Applications"**] at the top (above paper title) of the first page of your paper.

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