Research Poster Template

Author Name[1], Co-Author[2]

[1]First Affiliation, [2]Second Affiliation

Introduction

This template demonstrates a two-column research poster layout with:

- Summary of objectives and background
- Model definition using mathematical equations
- Bulleted methods and results

Method

We assume a linear model for input vectors $x \in \mathbb{R}^d$:

$$f(x; W, b) = Wx + b, \quad W \in \mathbb{R}^{k \times d}, b \in \mathbb{R}^k.$$

The loss function is squared error with ℓ_2 regularization:

$$\mathcal{L}(W, b) = \frac{1}{n} \sum_{i=1}^{n} \|y_i - f(x_i; W, b)\|_2^2 + \lambda \|W\|_F^2.$$

Optimization updates using gradient descent with learning rate η:

$$W \leftarrow W - \eta \nabla_W \mathcal{L}, \quad b \leftarrow b - \eta \nabla_b \mathcal{L}.$$

Experiments

Dataset: Synthetic data ($n = 10^4$, $d = 32$). Training conditions:

- Learning rate: $\eta = 10^{-2}$
- Regularization: $\lambda = 10^{-3}$
- Epochs: 50

Results summary:

- Epochs to convergence: 18
- MSE: 1.23×10^{-2}

Conclusion

- Stable learning achieved with linear model and simple regularization
- Future improvements: nonlinear features and dropout
- Data augmentation and outlier robustness remain open challenges

References

[1] Goodfellow et al., Deep Learning, MIT Press, 2016.

[2] Hastie et al., Elements of Statistical Learning, Springer, 2009.

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