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# SPMODEL: SPATIAL MODELING IN R

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A PREPRINT

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## Abstract

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**Keywords** Spatial covariance · Linear Model · Autoregressive model

## 1 Introduction

Here we describe the general role of spatial modeling, discuss existing software, and argue spmodel is a valuable contribution.

## 2 Background and Usage

### 2.1 Spatial Linear Models

- REML citations (Patterson and Thompson 1971; Harville 1977; Wolfinger, Tobias, and Sall 1994)
- SV-WLS citations (Cressie 1985, 1993)
- SV-CL citations (Curriero and Lele 1999)

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### 2.1.1 Anisotropy

## 2.2 Spatial Autoregressive Models

## 2.3 Prediction

## 2.4 Neighborhood Indexing for Big Data

### 2.4.1 The local list

## 2.5 Random Effects

## 2.6 Partition Factors

## 2.7 Initial Values and Known Values

## 2.8 Simulating Gaussian Random Variables

## 3 Discussion

## Data and Code Availability

## Acknowledgements

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