CCSU

DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

Friday, September 18
3:00 – 4:00 PM
Maria Sanford, Room 101

TEMPORAL DRIFT IN GENERALIZED LINEAR MODELS FOR INSURANCE CLAIM PREDICTION

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Abstract: This study investigates the presence and impact of temporal drift in generalized linear models (GLMs) used for insurance claim frequency and severity prediction within a motor vehicle insurance portfolio. While GLMs remain the industry standard due to their interpretability and regulatory acceptance, they are typically developed under the assumption that relationships between predictors and outcomes remain stable over time. In practice, however, insurance portfolios naturally evolve. These changes introduce temporal drift, which can degrade model performance and lead to mispricing if not properly identified and addressed. Using a policy-level dataset spanning multiple years, this study applies a structured modeling and evaluation framework based on the CRISP-DM methodology. Claim frequency and claim severity are modeled using GLMs, with pure premium derived as the product of the two components. Model performance is assessed using appropriate metrics, with particular emphasis placed on calibration and out-of-time predictive accuracy.

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