**Risk Analytics Senior Data Scientist**

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Think that working in the insurance field can’t be exciting, rewarding and challenging? Think again. The Performance and Analytics group in Allstate’s Enterprise Risk and Return Management (ERRM) division is the Risk Analytics team at Allstate. We are passionate about our work, solving some of today’s most complex risk analytics problems applied directly to active and financially material risk management. Here, you’ll have the opportunity to expand and apply your skills in ways you never thought possible. And you’ll have fun doing this! Join a company of individuals with hopes, plans and passions, all using and developing our talents for good, at work and in life.

**Job Summary**

Risk analytics spans a broad set of empirically-based disciplines (applied statistics, applied econometrics, applied mathematics, algorithmics / optimization, and machine learning / data science) applied to and across all the major risk silos (credit, market, operational, underwriting, liquidity, and model risk). We are seeking experts in these fields to apply their training and experience to optimize risk-and-return business decisions in the Performance and Analytics team within Allstate’s Enterprise Risk and Return Management group. The Risk Analytics Data Scientist is responsible for aligning with and contributing to corporate objectives by identifying and developing non-siloed, cross-disciplinary solutions that will enable Allstate to generate profitable market share growth. He/she is accountable for using data and non-trivial statistical/econometric code that in most circumstances, seamlessly and directly translates into material business decisions for the firm. This includes developing original-yet-defensible methods for efficient and effective risk transfer and risk allocation, as well as building predictive models that enable Allstate to make better decisions and win in the marketplace.

We believe that developing ourselves and our colleagues is the best investment Allstate can make. To this end the Performance and Analytics Group 1) sponsors symposiums including topics we develop and apply in our work, such as the capital consequences of algorithm choice when enforcing positive definiteness; new and innovative approaches to extreme value theory with a focus on heavy-tailed distributions; VECM, granger causality, and impulse indicator models for forecasting in scenario analytics and stress testing; and measuring tail dependence in large portfolios with diverse marginals; and 2) strongly encourages and funds attendance of relevant practitioner and academic conferences.

**Job Description**

This role is responsible for leading the use of data to make risk-and-return analytics decisions, with some focus on liquidity risk. This includes, more broadly, the development and management of predictive modeling and the design and development and vetting of original methodology. We place a premium on statistical/econometric empirically-based coding expertise in at least one major relevant language (e.g. SAS, Matlab, Python, R, C++) as this will serve as the basis by which the abovementioned business decisions are made. More specifically, this role will leverage the candidate’s experience with various approaches – both established and derived, original methods – to estimating and managing the major risk types to effectively and efficiently drive capital decisions. We highly value a very strong curiosity factor in exploring / understanding datasets containing covariates with complex relationships, appropriately tempered by the need for provable rigor and scientifically defensible and replicable methods based on modular, transparent, and well-documented code. This role will manage complex projects and require some mentoring as it will have direct reports.

Key Responsibilities

* Uses best practices to implement and develop advanced statistical, econometric, and machine learning techniques to build risk analytics models that directly address material business needs. Familiarity with copulas and related methods is highly relevant.
* Incorporates independent replication and model validation methods into the model development process and understands the necessity for this, as well as the extreme efficiency gains that result from this best practice.
* Knowledge of multiplicity/FDR issues and the ability and expertise to avoid overfitting. Familiarity, if not expertise with regularization methods is highly relevant.
* The ability to boil down, without dumbing down, is critical: communicates effectively to team members, leadership and stakeholders on findings to ensure models are well understood and incorporated into business processes. Provides stakeholders the opportunity to influence the direction of the work via feedback loops.
* Develop and execute non-siloed, cross-disciplinary solutions to complex, non-textbook business challenges.
* Works on data and complex business problems to drive improved risk-and-return business decisions and results by designing, building, and partnering to implement the right models for the right problems (e.g. Hadoop is not necessary (or desirable) for mere gigabytes of data, and random forests is not necessary (or desirable) when OLS conditions are sufficiently met).
* Can identify new areas of data, research and methodology for solving relevant risk-and-return business challenges.
* Collaborates the with team to understand the business’ problems to identify the optimal methodological, and modeling (method+language/platform), approaches.
* Mentors and develops junior data scientists.

Job Qualifications

* Master’s or PhD degree or concentration in a quantitative field such as statistics, econometrics/economics, data science, applied mathematics, computer science, and/or finance.
* Peer reviewed publications & related awards are highly valued / desired, as are technical conference decks.
* Academic honors, top standardized test scores, scholarships and fellowships are highly valued / desired.
* Serving as referee / reviewer / editor of academic and industry journals is highly valued / desired.
* Best-of-breed expertise in working with statistical software such as SAS, MatLab, Python, R, C++.
* Demonstrated expertise using statistical and econometric modeling and/or machine learning techniques to build models of nontrivial size and complexity that have driven company decision making.
* Demonstrated experience incorporating independent replication and model validation methods into the model development process.
* Demonstrated experience and ability developing and executing non-siloed, cross-disciplinary solutions to complex, real-world, non-textbook business challenges.
* Knowledge of advanced modeling techniques, and the experience to know how to select, apply, and test the right models for the right problems.
* Demonstrated ability and experience to provide both written and oral interpretation of highly specialized terms and data, and to present to others with varying levels of expertise to achieve ‘buy-in’ to the right approaches.

The candidate(s) offered this position will be required to submit to a background investigation, which includes a drug screen.

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