Senior Data Scientist – Inferential and Bayesian Modeling

If you are an enthusiastic individual who likes to work on a range of cutting-edge problems in a field that brings together human cognition, consumer behavior, statistical modeling, machine learning and software development, Nielsen BASES is looking for a Data Scientist to join our team in Needham, MA.

• You will be part of a highly focused group of talented and creative scientists and engineers.
• Our work seeks to leverage Nielsen’s vast sales and marketing data assets in building the next generation of machine learning algorithms, to supplement our industry leading success prediction and volume forecasting models for new product launches.
• Our research and development efforts focus on developing new capabilities to meet the expanding scope of our business, as well as improving the performance and scalability of our current optimization and measurement platform.

Position Description

Here at Nielsen, you will be leading the research, design and development of advanced Bayesian algorithms to model customer decision process at the individual level, and the use of these models to make inferences about product performance in the market.

Specific responsibilities include:

• Building next generation inferential models to assess human behavior integrating both Survey and retail market data
• Building anomaly detection algorithms to detect inauthentic responses in consumer surveys and designing models to seamlessly discard this information in the estimation process
• Validating and calibrating current learning algorithms to estimate product volume potential in-market
• Developing and integrating machine learning and simulation pipelines to address core business problems and deliver insights
• Integrating different data sources at different levels of granularity in order to produce more accurate predictive models
• Designing stochastic simulations for testing and validating various models
• Improving the computational efficiency and scalability of various statistical models
• Keeping up with the state-of-the art in relevant areas – Statistics, Machine Learning, Operations Research, Marketing Science, Artificial Intelligence

Requirements

• PhD in Computer Science, Statistics, Marketing Science, Physics, or other relevant scientific field
- Solid understanding of mathematical modeling, probability and statistics, and the design and simulation of stochastic systems
- Proven record of working with statistical learning algorithms such as Maximum Likelihood Estimation (MLE), Hierarchical Regression Models, Mixture Models, Hidden Markov Models (HMMs) and Markov Chain Monte-Carlo (MCMC) sampling
- Deep knowledge of Bayesian inference and statistics is a must; especially, knowledge about MCMC convergence, different sampling techniques, and Bayesian hypothesis testing
- Firm knowledge of classical machine learning techniques such as random forests and boosting trees, SVMs, centroid-based and hierarchical clustering algorithms
- 4+ years of experience with scripting languages, in particular Python and R
- Strong knowledge of Relational Databases and SQL programming is a must
- Experience with cluster computing
- Excellent communication skills and the ability to present complex ideas in a clear and concise manner to a variety of audiences

In addition to the above requirements, the following would be desirable:
- Knowledge of causal inference specially graph based techniques
- Familiarity with Discrete/Combinatorial Optimization techniques
- Experience with cutting-edge techniques in text mining and NLU
- Experience with Web Services and REST APIs
- Experience working in cloud environments, especially Azure
- 2+ years of object-oriented programming experience (Java and C# preferred)

About Nielsen BASES
The Nielsen Innovation Practice / BASES is a forward-thinking, rapidly growing, market research division of the Nielsen Company. This means we maintain an unbeatable client list, create best-in-class solutions and have access to incredible resources—without sacrificing the benefits of a smaller, leaner, close-knit company. We celebrate curiosity and creativity, and encourage openness and collaboration.

We’re highly driven, team-oriented and psyched to use cutting-edge technologies to change how the world’s leading consumer companies innovate.

Through a blend of innovative market research technologies (such as evolutionary algorithms and predictive analytics) and client consulting, we help major consumer products companies dramatically identify breakthrough product ideas, messaging that inspires action, fresh package designs and optimal launch strategies.

Our clients are innovators in the consumer packaged goods, financial services and pharmaceutical industries. They include Global Fortune 500 companies such as Coca-Cola, Procter & Gamble, Unilever, J&J, Nestle and Walmart.
We offer several perks too: competitive salaries, 401k match, tuition reimbursement, professional development, and opportunities to volunteer and give back to the community. Because we think the little things matter too, we offer endless coffee, weekly fresh fruit deliveries, ping-pong, team outings and a casual work environment.