Company Profile

Morgan Stanley is a leading global financial services firm providing a wide range of investment banking, securities, investment management and wealth management services. The Firm’s employees serve clients worldwide including corporations, governments and individuals from more than 1,200 offices in 43 countries.

Job Description:

Electronic trading: using advanced mathematics and computers to make money.

The job focuses on optimization, probability, control theory and data modelling to solve problems we face in automated trading. For example, what is the optimal time to wait before buying a hedge? If you buy too quickly you’ll impact the price but if you wait too long you could lose money due to volatility. When should you liquidate a portfolio and at what speed? How do you distribute your trades across multiple venues to optimise the revenue? How should real time, stochastic variables be incorporated into an algorithm that prices financial instruments? What right price for instrument given a large vector of market variables?

Applicant Description:

Three things: Optimization, Automated Control and Data Modelling.

Optimization and Control: We are looking an expert, (for example you wrote your doctoral thesis) in one of the following or closely related topics: applying the HJB equation, stochastic control theory, LQR, LQG, dynamic programming, model predictive control optimal stopping and/or convex programing.

Modelling of Data: Candidate should be familiar, with several statistical/ machine learning techniques such as; generalized linear models, SVM, hidden Markov models, random forest and/or expectation maximization

Skills required

- Ph.D. in Operations Research, Engineering (with a focus on control theory), applied mathematics, theoretical physics, econometrics or similar degree.
- In depth understanding of modern optimization algorithms
- Experience with control algorithms/theory
- Good working knowledge of basic probability
- Some experience with the statistical modelling of data.
- Several years of programming experience: Java, C++, Python or Fortran (ha).
- Good sense of humour
- Previous finance knowledge not required
Morgan Stanley is an equal opportunities employer. We work to provide a supportive and inclusive environment where all individuals can maximise their full potential. Our skilled and creative workforce is comprised of individuals drawn from a broad cross section of the global communities in which we operate and who reflect a variety of backgrounds, talents, perspectives and experiences. Our strong commitment to a culture of inclusion is evident through our constant focus on recruiting, developing and advancing individuals based on their skills and talents.