Alexander Hahn

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Education

- **Cornell University** — Ithaca, New York
  Bachelors - Mathematical Physics — *September 2010 - May 2014*

Skills Summary

- **Languages**: R, Haskell, Python, Bash/Unix Commandline tools & scripting, SQL/kdb, Scala, OCaml
- **Technical**: Emacs, Linux, Git/Travis, Tmux, AWS (S3, EC2, Batch, CloudWatch), MOSEK, Docker, Vim, nix, IntelliJ
- **Quantitative**: Statistical Modeling, Quantitative Trading (Execution), Portfolio Construction/Analysis (constrained optimization), Data Processing, Forecasting, Scientific Computing with Linear & Non-linear Numerical Methods

Experience

- **Bot Lab LP (Schonfeld external fund)** — New York, NY
  Quantitative Trader — *April 2019 - Present*
  - **Overview**: Built a ∼ daily frequency US Equities statistical arbitrage strategy alongside a Citadel quant portfolio manager (main pm) and Stanford CS PhD (Infra Engineer) exclusive to Schonfeld Strategic Advisors. Managed three additional employees with a 100MM initial allocation.
  - **Research/ Strategy**:
    • **Alpha** - Design and analysis of forecasts across 5 thematic buckets: Market Data, Fundamental, Sentiment, Microstructure, and Cross Asset. Lead the development of three of our eight main signals. Helped maintain, update, and retrain the full suite of sub-signals as well as their formulation into a master signal as needed. In sample correlation with the one day forward return of 3%, out of sample, 2%, and in Live 2.5%.

    High level areas of research: Changes to the response (forward return residualized to usfast, changing frequencies/ multiperiod models), applications of statistical learning techniques to individual alphas as well as alpha combination, evaluating potential new alpha datasets.

    • **Portfolio Construction** - Encoded linear constraints (bounded industry/style factor exposure, locates, trading limits, position limits, gmv utilization, etc), quadratic constraints (risk, plus many experiments requiring semidefinite programming), and the objective in MOSEK. Started with a minimal working optimizer and added in complexity/ awareness with time (and substantial backtesting!). For example went from a simple but sufficient quarter spread cost assumption to a tuned, stock dependant, cost with impact estimate model. Trained additional factors to add into risk model, tested through back test, and deployed as needed/ requested by investors. Eg, stay at home vs covid recovery factor, election factors, China exposures related factors, Ukraine/ Russia factors. Assisted in implementing and running our backtesting framework. Achieved a consistent 90-95% idio risk portfolio (to USFAST).

    • **Trading** -
    Operational: worked with our infrastructure engineer to implement our live trading interface. Traded over 12 billion USD via 4 execution brokers over the last 3 years across ∼ 4000 unique publically traded US Equities. As the firm's quant trader I had final sign off responsibility to review and submit all trading baskets Bot Lab sent to the execution brokers via Schonfeld's OMS (JSON interface to fix). Currently this entails reviewing and subnmitting 3 baskets of orders per day, open auction, intraday, close auction.

    Research: I developed models to anlayze and determine: allocation amongst brokers, allocation amongst trading algos, static schedule logic (trade windows, algo instructions, auction participations), etc. Additionaly reviewed execution performance/ TCA's with brokers (and Schonfeld) quarterly and incorporated findings into internal work/ trading decisions.

- **Bridgewater Associates** — Glendinning/Westport, CT
  Investment Engineer & Production Integration Engineer — *Dec 2016 - March 2019*
  - **Macro Economic Model Updates**: Systemized Volume, Open Interest, and Greek Estimates of Brazilian options/futures contracts into Bridgewater's Data and Backtesting platform. Previously the system was a mixture of Excel and manual bloomberg data entry. I overhauled the system to improve and port the logic into Bridgewater's Scala based production platform.
  - **Production Integration Engineer - Team Lead**: Led a team of six Engineers to assist the Research Department in utilizing Bridgewater's main Backtesting/Signal Generation Platform (Lightspeed), and diagnostic tools (Fusion - advanced UI charting tool). Supported Production Modules and operations team in running live/ production issues. Supported Researchers' various use cases and implementations of logic into the platform. Added functionality to the Investement Engineer/Associate userfacing API as needed.

- **Nomura** — New York, NY
  Technology Analyst — *August 2014 - November 2016*
  - **Automation and Support of Structured Products**: Worked on a team to systemize Nomura's Equity Linked Bond business enabling the growth of the book. Helped implement the STP (straight through processing) of notes from issuance to expiration (or redemption). This included pricing/valuation, periodic coupon/ payment analysis, risk analysis / hedging (index and dynamic). Worked alongside a trader and desk quant to help support the growth of the portfolio to 24 large notional Notes with tenors varying from 1-10 years.
  - **Security Master**: Supported Nomura's Reference database. Rationalized and help maintain consistency between numerous security identifiers.