Alexander Ford Hahn

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Experience

Nomura Securities International, Tech Analyst August '14 - August '16
New York, NY
Recently finished the third leg of a 1.5 year long automation project. Phase I automated the Nomura America's Fixed Income OTC Derivatives trading desk front to back flow. From pricing/ valuation functions, Cash and Settlement processes, to record keeping and financial ledger postings, I was a tech analyst working alongside numerous areas of the firm. Phase II focused on Nomura America's Equity OTC Derivatives trade flow. With the completion of the first phase and team re-orgs I was promoted to be the lead tech analyst of the project and managed the entire project through the SDLC project framework. Similar to phase I I worked with the full spectrum of the firm, from the derivative quants, traders, Risk, Ops, Product Controllers, to a multitude of tech teams. Some more common tasks included investigating and updating pricing and valuation models, constructing xml messages and file feeds, creating test scripts/ harnesses, Oracle SQL table design, and other FOBO automations for full STP. The completion of NHA Derivatives Phase I&II automation helped Nomura increase operational efficiency and reduce/ refactor headcount. Phase III focused more on automating complex exotic notes and bonds, hedged with various derivative swap models to create custom tailored financial products for clients.

Cornell Mathematics Department, Teaching Assistant August '13 - May '14
Cornell, Ithaca NY
Two years math center teaching experience with over 100 undergraduates. The majority came for Calculus 1 & 2, Linear Algebra, Multivariable Calculus, and Differential Equations. As per my concentration in mathematical physics/scientific computing I was allocated more towards the physics undergrads and their relevant courses: ODE and PDE solver techniques, linear algebra, Lie Theory, and Matrix computation algorithms (Numerical Methods). Furthermore, I TA'ed a mechanics 101 course and assisted in laser cavity cooling research during the summer of 2013 through Cornell at The University of Shanghai for Science and Technology.

Education

Cornell University B.A. May 2014, **Major**: Mathematics **Concentrations**: Mathematical Physics, Scientific Computing, Numerical Analysis, **High School**: Nyack High School (2006-2010) National Merit Scholar

Skills/Technology

General Purpose Languages (by experience): Python, C++, OCaml
Domain Specific Languages: MATLAB, LaTeX, SQL, Bash/Shell Mathematica
Other: Advanced VIM user, Emacs for OCaml for various reasons, advanced excel user
Implementation of many of "Numerical Recipes in C++" by Professor Teukolsky and "Matrix Computations" by Professor Van Loan)

Coursework

(* *denotes graduate (PhD) level courses*)

- Quantum Physics (various)
- Functional programming and Data Structures (OCaml)
- Quantum Information Processing* (quantum computing)
- Matrix Lie Groups
- Data Structures & Object Oriented Programming (Java)
- Numerical Analysis (Linear and Nonlinear EQ's, MATLAB)
- Computational Physics* (C++, Mathematica)
- Honors Intro to Mathematical Analysis
- Numerical Analysis (ODE's and PDE's, MATLAB)
- Multivariable Calculus for Engineers
- Linear Algebra
- General & Special Relativity
- MATLAB
- Techniques in Exoplanetary Systems Detection
- Electricity and Magnetism
- Mechanics & Kinematics
- Thermodynamic and Statistical Physics
- Matrix Computations* (CS, MATLAB)
- Number Theory

Honors & Activities

National Merit Scholar, Cornell Mathematical Modeling Competition (MCM), Cornell Symphony Orchestra, Cornell United Club Soccer, Cornell Math and Physics Club, Association of CS Undergraduates