Prashant Kumar

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TECHNICAL SKILLS

Matlab, C++, Python, Numpy, Mercurial, Unix, SQL, R, Groovy
Active Stack Overflow contributor; AIME qualifier; Project Euler participant

EXPERIENCE

TFS Capital **West Chester, PA**
Quantitative Analyst and Developer 2013 – Present

- Estimated performance of hedge fund strategies by testing historical time series data in Matlab
- Calibrated convertible bond PDE models with historical multi-dimensional data to price bonds and evaluate risk exposures for hedging in Excel and Matlab as the first bond analyst at the firm
- Researched volatility investments, becoming the subject matter expert; communicated the tail risks associated with variance swaps and options, resulting in an allocation by the fund
- Wrote unit tests and verified intended behavior of proposed production trading code for futures contracts; advised peers on distributed version control system and continuous integration
- Improved futures execution for expected savings of over 270 basis points annually on $65MM AUM

Vanguard **Malvern, PA**
Software Engineer 2012 – 2013

- Resolved Axioma and MarketQA production issues for global equity business of $1T+
- Presented Groovy for enterprise to senior staff, resulting in company-wide language adoption

University of Pittsburgh **Pittsburgh, PA**
Graduate/Undergraduate Research Assistant 2006 – 2011

- Performed scientific calculations on high-performance distributed computing clusters and GPUs
- Automated analysis routines in Matlab and Python to process 100+ GB of simulation data
- Tested, verified, and extended C++ Lattice Boltzmann engine to approximate solutions to the Navier-Stokes fluid flow partial differential equation, resulting in publication in J R Soc Interface
- Simulated flow of salt water and gas mixtures through carbon nanotubes using molecular dynamics and calculated electrostatic distributions using density functional theory techniques
- Replaced single-threaded molecular dynamics engine with LAMMPS to leverage MPI, OpenMP, and CUDA technologies; wrote reusable trajectory post-processing scripts in Python
- Disproved pharmacokinetic model structures by fitting parameters to mice data using Matlab

EDUCATION

Certificate in Quantitative Finance 2011 – 2012
University of Pittsburgh
Master of Science in Chemical Engineering 2008 – 2011
Bachelor of Science in Chemical Engineering 2005 – 2008