Sanghamitra Goswami

Contact Information:
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Summary:
Doctorate in Computational Astrophysics working as a Relationship Manager at Credit Suisse. Experienced in highly technical software development (C++/Javascript) and software project management using agile methodologies.

Relationship Manager at Credit Suisse

- Works closely with Sales and traders in Fixed Income/Securitized Products to understand their requirements and determine the optimal way to build software.
- Acts as the key liaison between the various data teams, development teams and Sales in order to assist in upgrades, optimizations and fixes of data/analytics/tools/interfaces for end users.
- Performs Front-end User Interface Development in Javascript
- Manages and delivers effective solutions in the Credit Suisse analytics tool, such as Regression analysis to interpolate data and sorting techniques combining efficiency and memory usage.

Systems Engineer at kCura

- Automated the platform to test kCura's software technology, building the necessary software using C++ and powerCLI (virtual machines).
- Experienced in setting up SQL and NOSQL (elastic search) environments with respect to BIG DATA, efficient storage and querying.
- Managed IT resources and interacted with teams of Developers, understanding their specific needs and working with them to build kCura's product.
- Conducted research on performance parameters for maximum efficiency of product and generated strategies to standardize performance baselines.

Education And Academic Experience:

Northwestern University, Evanston IL

- Doctor of Philosophy in Computational Astrophysics (September 2013)
- Master of Science in Physics (Cumulative GPA:3.76/4, June 2009)

Indian Institute of Technology Bombay (IIT, Bombay), India

- Master of Science in Physics (Cumulative GPA:7.68/10, June 2007)

St. Xavier's College, Kolkata, India

- Bachelor of Science in Physics (Marks 64%, June 2005)

PHD Research Experience, Northwestern University:

- Conducted computational and analytic research on a collaborative multi-university project aimed at developing a new approach to treat spherical N-body systems efficiently.

- Managed and implemented a production size Monte Carlo analysis code to model N-body systems using C++, FORTRAN and Python.
- Acted as a bridge between graduate students in the computer science department and physicists, in parallelizing and the Monte Carlo code and in determining the hardware needs for efficient performance.
- Implemented different statistical data analysis/model fitting methods on large sets of astrophysical data using regression analysis.

Teaching Experience, Northwestern University (2008-2009)

- Demonstrated and performed physics lab experiments in an undergraduate class to train 80+ students.
- Designed weekly quiz papers for a class of 40+ students.
- Planned random surprise quiz papers to ensure all the students are up to date with the class.

Academic Honors:

- Huang Fellowship in recognition of superior academic achievement 2007-2008:Physics and Astronomy Department, Northwestern University
- International Travel Award for early career scientists 2011:American Astronomical Society
- Conference Travel Grant 2011:The Graduate School, Northwestern University

Skills:

Statistical tools:

- Von Neumann Rejection Technique (Monte Carlo method), Regression Analysis (linear and logistic), Maximum Likelihood Method, Least Squares Method, Chi Squared Tests.

Software:

- C++ (OOP), JavaScript, Fortran, Python, PowerCLI, Latex, Microsoft word, Excel, Powerpoint, SQL Management Studio, ElasticSearch.

Publications:

- "Axisymmetric black hole accretion in the Kerr metric as an autonomous dynamical system"
  Goswami, S., Khan, S. N., Ray, A. K., & Das, T. K. 2007, MNRAS, 378, 1407.
- "Formation of Massive Black Holes in Dense Star Clusters. II. IMF and Primordial Mass Segregation"
  Goswami, S., Umbreit, S., Bierbaum, M., & Rasio, F. A. 2011, ApJ, 752, 43.
- "Black holes in young stellar clusters"
  Goswami, S., Kiel, P., & Rasio, F. A. 2013 ApJ
- "Evolution of Black holes in dense star clusters"
  Goswami, S., Morscher, M., & Rasio, F. A. ApJ [ApJ - astrophysical journal]