Prashanth Shanmuganathan, PhD

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6 years of extensive experience in big data analysis and software tool development in collaborative environment.

Skills

Programming: C/C++, Python, BASH, Perl
Tools: Jupyter, Numpy, Pandas, Scikit-learn, Seaborn, Matplotlib, plotly, Git, pytest
Web Development: Flask, HTML, XML, JavaScript, PHP, jqplot, RESTfull/ JSON
Database: MySQL
Scientific Applications: MATLAB, ROOT, GEANT
Other: Windows/Linux/Mac OS, Microsoft Office, Distributed Computing

Experience

Lehigh University/ Brookhaven National Laboratory   2016 - present
Postdoctoral Researcher
- Played a critical role in new ($ 300 k) detector R&D, integration and commission
- Serving as detector expert and software coordinator
- Database maintenance for detector calibration and complex mapping
- Software peer review and maintenance
- Deployed automated online tools to monitor detector data quality
- Developed Monte Carlo simulation tools to study detector responses

Kent State University / Brookhaven National Laboratory   2010 – 2016
Graduate Student
- Developed C++ software framework to analyze large scale data
- Used Linux clusters with hundreds of cores to process three years of nuclear collision data (~3 PB)
- Performed quantitative research to isolate rare particles from large data set
- Discovered new correlation between particles with centrality of nuclear collision
- Cleaned STAR collaboration records from past several years and re-structured MySQL database for key/value pair data representation model
- Developed modular and scalable RESTful API to sustain STAR collaboration's software tools
- Optimized presentation distributions among members using robust statistical analysis

Education

Ph.D. High-energy nuclear physics – Kent State University, Ohio   2010 – 2016
B.Sc. Physics (First Class Honors, Gold medal) – University of Colombo, Sri Lanka   2005 – 2009

Courses and Certifications
- Machine learning, Andrew Ng, Stanford University
- Python for data science and ML boot camp, Udemy
- Sun certified JAVA programmer (SCJP 1.4) – 84%