Hari Khanal
Miami, FL, USA
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Postdoc at University of Miami

Expert in applied statistics, machine learning, data mining, data analysis, data visualization and big data applications. Self motivated in developing new algorithms, computer applications, statistical and mathematical tools for applied research and business.

Applied Statistics and Data Analysis

Optimized the read out and measurement systems of nuclear physics experiment using non-linear regression (Hessian matrix) and SVD methods. Utilizing machine learning algorithms, completed many data science projects in kaggle and UCI Machine Learning Repository. Analyzed the social media streaming data including twitter sentiment analysis.

Big Data Applications and Data Visualization

Constructed data pipeline using big data applications Hadoop(Hbase, Flume and Pig) and Spark.Currently working in big data and urban analytic research project which involves the analysis of large volume of community and sensor generated data, data integration, predictive modeling, clustering, MapReduce programming and data visualization.

Computing

- *Programming:* C/C++, ROOT, PyROOT and Java.
- *Scripting:* Python (scipy, ipython, Numpy, Pandas) and JavaScript.
- *Statistical:* R and Python (scikit-learn).
- *Operating systems:* Linux and Windows (Administrative knowledge in Linux).
- *Big Data Applications:* Hadoop (MapReduce, Hive, Hbase and Pig) and Sparks .
- *Databases:* MySQl and SQLLite.
- *Visualization:* Matplotlib(python), R, Google Api and Tableau.
- *Applications:* Eclipse, Canopy, Emacs and Rstudio.
- Proficient working in Parallel computing using OpenMP.
- Contributor for open source http://scipy-central.org.

Algorithms

Linear Regression, Logistic Regression, Bayesian statistic, Cluster Analysis, Neural Networks, Classification and Regression tree, Random Forest, Gradient Boost Method, Feature Selections and Transformations Methods, Singular Value Decomposition (SVD), Stochastic Gradient Descent (SGD) and Support Vector Machines (SVMs).

Cloud Computing

- Familiar with AWS working environment.
- Experienced working in Elastic MapReduce and EC2.
- Google Apps Engine.

Professional Course

- Big Data with Apache Spark (UCBerkeleyx).
- Machine Learning (Standford(coursera)).
- Learning from Data, Introduction to Machine Learning (Caltechx).
- Introduction to Data Science (WU(coursera)).
- Introduction to Computer Science and Programming (MITx).
- Quantum Computing (Berkeleyx).

Education

- Postdoctoral Research, Urban Analytic and Big Data
  University of Miami, Miami, FL
  August 2014 - Present
- PhD, Nuclear Physics and High Energy
  Florida International University, Miami, FL
  August 2008 - August 2014
- M.S., Physics
  Tribhuvan University, Kathmandu
  August 2003 - June 2006

Teaching

Florida International University

- Taught physics lab and introductory physics to undergraduate students.

Xavier International College, Kathmandu, Nepal

- Taught physics to Cambridge A-Level students.
- Designed and set up lab for A-Level physics students.

Publications

Books:

- Fundamental Quantum Physics(ISBN:99946-47-11-1).
- School Level Science Books from Grade 6 - Grade 10.

Selected Papers:

- **Deuteron Momentum Distributions with Reduced Final State Interactions** "H.P.Khanal et al.," *Draft is ready to submit at Phys.Rev. C.*
- **(e,e'p)n Studies at High** Q^2 "H.P.Khanal, W.Boeglin" *Hall A Annual Report JLab -2013.*
- **The study of the D(e,e'p)n Reaction at High Four-Momentum Transfer** "H.Khanal" *Bulletin of APS -2013.*

Talk and Posters:

- "$(e, e'p)n$ Studies at High Q^2", Talk. Hall A Collaboration, Newport News, VA, December 2013.
- "$D(e, e'p)n$ Reaction at High Q^2", Talk. Fall Meeting of APS Division of Nuclear Physics, Newport News, VA, October 2013.
- "$D(e, e'p)n$ Reaction at High Q^2", Talk. APS April Meeting, Denver, CO, April, 2013.
- "Study of the Deuteron at High Q^2", Poster. Photo-nuclear GRC Meeting, Holderness, NH, August, 2012.
- "$D(e, e'p)n$ Reaction at High Q^2", Talk. APS April Meeting, Denver, CO, April, 2013.
- Big Data and Smart city , Exhibition. Emerge America, Miami, FL, May, 2015.

Cover Letter

Dear Manager,
I am writing this letter to apply for the position of Data Scientist that was recently posted in your career website. The requirements for the position fit well with my qualification, experience and career interest. My graduate work at the Florida International University (FIU) was focused on the experimental nuclear physics, and I am currently pursuing postdoctoral research in Big Data and Urban Analytic at the University of Miami (UM) Center for Computational Science.

My PhD research at the FIU involved mathematical and numerical computation, analysis of physics data, system optimization, algorithms development and scientific computing. Working on the aforementioned research project provided me with hands on experience in various aspects of quantitative analysis. Moreover, I also developed the software tools to optimize the measurement and readout systems of nuclear physics experiment.

My current project at the University of Miami is centered around data science. It consists of construction of data pipeline, data integration, predictive modeling, data visualization and algorithms development. The project also includes the analysis of Big data in TB scales generated by communities, sensors, web server and HPC clusters users. During my work I have successfully developed several big data applications in MapReduce programs and interactive data visualization tools.

Besides my academic research, I have been working in real world projects four years. Using Machine Learning and statistical tools, I have completed many data science projects in Kaggle and UCI ML repository. Kaggle projects gave me a good experience in data mining, text mining and applied statistics, and a deeper understanding in the implementation of machine learning algorithms. I strongly believe, my experience in data science and applied research, and my ability to solve the complex mathematical problems will be very useful in developing new tools, techniques and methodologies for your company.

Thank you for your time and consideration. I would appreciate the opportunity to discuss my knowledge and experience related to the position. Please let me know if I can provide any additional information.

Sincerely,
Hari P Khanal
Phone: 7862103227