MINGHUI ZHAO | Résumé

Seeking 2021 summer internship @Data Science @Machine Learning @Artificial Intelligence

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✍ RESEARCH & WORK EXPERIENCE

Physics analysis – Data calibration and analysis
ML (Boost Decision Tree) method used

☑ Aug 2017 – Current   📍 Ames, IA, U.S

🔔 Monte Carlo simulation of proton proton collision and Drell Yan $Z^0/\gamma^* \rightarrow e^-/e^+$ analysis, extract e^-/e^+ signal pair from background which is 10^6 larger than the signal. By using machine learning method of boost decision tree, we can improve signal/background ratio in 2 order (10^2).

🔔 Experimental data calibration and analysis, using gaussian and polynomial fitting for calibration.

🔔 Develop c++ classes for data calibration and analysis, and a lot of effort for plotting and data visualization.

Shell scripting   C/C++   R/Python   Perl

Experiment – Detector assemble and maintnance
Detector expert   **Brookhaven National Laboratory**

☑ May 2016 – Aug 2017   📍 Upton, NY, U.S

🔔 Assembled our scintillator detector which called FPOST, tested and calibrated sillicon photomultiplier (SiPM) device.

🔔 I was the FPOST detector maintnance expert during the experiment.

Oscilloscope   Electronics   Electric circuit   C/C++   Shell scripting

Model Simulation and detector operation
Calculation and experimental skills

☑ Aug 2011 – Jul 2014   📍 Beijing & Lanzhou, China

🔔 Model simulation and experimental data analysis of $^{40}Ca + ^{40}Ca$ and $^{129}Xe + ^{120}Sn$ collision, a paper pusblished.

🔔 Detecting cosmic ray muons to abtain experimental skills.

C/C++   Shell scripting   Oscilloscope   Electric circuit

✍ EDUCATION

Ph.D, majoring in nuclear physics
🎓 **Iowa State University**

☑ Aug 2014 – Current   📍 Ames, Iowa, U.S

MSc, majoring in nuclear physics
Institute of Modern Physics, UCAS

☑ Sept 2012 – Aug 2014   📍 Lanzhou, China

MSc, first year, major in nuclear physics
🎓 **University of Chinese Academy of Sciences (UCAS)**

☑ Sept 2011 – Aug 2012   📍 Beijing, China

BSc, major in physics
🎓 **Zhengzhou University (ZZU)**

☑ Sept 2007 – Aug 2011   📍 Zhengzhou, China

✍ SKILLS

C++
🔔 Mainly working tool to analyze our huge (100T) experimental data under framework ROOT.
🔔 Develop classes to deal with data and visualize the data.
🔔 Apply machine learning methods under multivariate data analysis toolkit framework TMVA.

R & Python
🔔 Mainly use them to deal with and visualize simple data.
🔔 Use them to make automation data visualization videos for hobby.

SQL
🔔 Self learning, have certificate from kaggle.
🔔 Mainly implement SQL query through our c++ interface.

Others & Linux related tools
🔔 Shell scripting, Perl, Gnuplot, Fortran
🔔 LaTeX, Vim

✍ HONORS & ROLES

🏆 **Student academic career**
☑ 2016 – current	RA Scholarship
☑ 2014 – 2016	TA Scholarship
☑ 2011 – 2014	Fellowship
☑ 2007 – 2011	Third Prize Scholarship

Passionate   Proactive   Self-discipline
Independent thinking   Critical thinking

👥 **Activities**
I organized of English Corner during 2013 and 2014. I was a member of Open Source Association of USCA during 2011 and 2014.

Social skills   Teamwork   Communication
Open minded

✍ LANGUAGES

English	Fluent
Chinese	Native

✍ OTHER INTERESTS

Blender 3D   Open Source ⦿   History 📖
Tech product review   Data Visualization 📈
🎬 Video Editting