Yingru Xu

2911-P Bainbridge Drive, Durham, NC-27713

(+1) 919-260-8814 | xuyingru02@gmail.com

| webhome.phy.duke.edu/ yx59 | yingru | yingru-xu-9082387a

Education

Duke University *NC, USA*
Doctor of Philosophy in Physics *Apr 2013 - current*

Nanjing University *Nanjing, China*
Bachelor of Science in Physics *Sep. 2009 - Jul. 2013*

Professional Experience

Graduate Research: *Duke University*
Data-drive analysis of heavy quark transport coefficients in heavy-ion collisions. *Aug. 2013 - Current*

- Established a comprehensive framework to simulate the full space-time evolution of heavy quarks in heavy-ion collisions.
- Quantified the medium effect and described the heavy meson experimental data at both RHIC and the LHC.
- Utilized the state-of-the-art Bayesian model-to-data analysis, extracted the heavy quark transport coefficients.

`Bayesian optimization; Gaussian process emulator` `Fortran; C++; python; LaTeX` `Linux; HPC; HTCondor; Cloud computing; Slurm` `docker; singularity`

Graduate Research: *Duke University*
Deep neural network classification of heavy quark collisional and radiative energy loss *Nov. 2017 - Current*

- Utilized a convolutional neural network classifiers to distinguish between two energy loss mechanisms
- Disentangled the feature importance of the classifier and provided possibilities of novel experimental observables

`Deep learning; convolutional neural network` `tensorflow; keras; scikit-learn`

Projects:
Home credit default risk/ New York taxi fare prediction

- Built light GBM classifier/regressor to predict the loan repay ability of applicants
- Compared among different classifiers/regressors and disentangled the feature importance for the predictions

`Machine learning` `pandas; seaborn; plotly; scikit-learn` `cloud computing` `Bayesian optimization`

Online courses and training

- coursera specialization: Algorithms, Deep Learning, Applied Machine Learning in Python
- Cybercarpentry workshop

Honors & Awards

Jul. 2017 **EPJ A Young Scientist Awards**, sQuark Matter, Utrecht, the Netherlands
Oct. 2012 **National Academic Scholarship** , the Ministry of Education, China

Presentations & Publications

1. **RHIC & AGS Annual User Meeting 2018** *BNL, USA*
   Talk: Open heavy flavor transport models *June. 2018*

2. **Strangeness in Quark Matter** *Utrecht, Netherlands*
   Parallel Talk: Bayesian application on heavy quarks *Jul. 2017*

3. **Quark Matter 2017** *Chicago, USA*
   Parallel Talk: Data-drive analysis of the heavy quark transport coefficients *Feb. 2017*

4. **Y. Xu**, J. E. Bernhard, S. A. Bass, Marlene Nahrgang, Shanshan Cao, "Data-driven analysis for the temperature and momentum dependence of the heavy-quark diffusion coefficient in relativistic heavy-ion collisions", *Phys. Rev. C* **97***, no. 1, 014907 (2018).*

5. **Y. Xu**, P. Moreau, T. Song, M. Nahrgang, S. A. Bass and E. Bratkovskaya, " Traces of nonequilibrium dynamics in relativistic heavy-ion collisions", *Phys. Rev. C* **96***, no. 2, 024902 (2017).*