Junhwan Choi

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Objectives

Data Scientist with a background in computational Astrophysics.

Data Science Employment & Experiences

Data Scientist at SparkCognition Nov. 2016 - Present
- Building predictive machine learning model with time series data to predict future events using Random Forest, Decision Tree Boosting, and Artificial Neural Network Methods (including CNN and RNN). Unsupervised anomaly detection for future events using clustering algorithms, one-class SVM, t-sne, and variational autoencoder.
- Developing an unsupervised learning pipeline.
- Developing an AutoML/Neural Evolution Machine Learning Platform *Darwin*.
- Time-series forecasting with seq2seq models.

Data Incubator Mar. - May 2016
- mini-projects: SQL, Machine Learning (including NLP and Time Series), Visualization, MapReduce, Apache Spark

Papers & Patents

"Divide and conquer: neuroevolution for multiclass classification"
T. McDonnell, ..., **J. Choi**, et al, 2018, Proceedings of the Genetic and Evolutionary Computation Conference, 474

"Execution of a genetic algorithm with variable evolutionary weights of topological parameters for neural network generation and training (US20190080240A1)"
S. Andoni, K. D. Moore, E. M. Bonab, **J. Choi**, & E. O. Korman

"Ensembling of neural network models (US10635978B2)"
S. Andoni, K. D. Moore, E. M. Bonab, **J. Choi**, & T. S. McDonnell

Academic Projects

Published more than 23 peer review academic journals including 10 leading author.

Post Doctoral Scholar in University of Texas Aug. 2013 - Nov. 2016
Reionization and Galaxy Formation in the Local Universe

Post Doctoral Scholar in University of Kentucky Jul. 2010 - Jul. 2013
The Early Massive Black Holes: Improvement and implementation of massively parallelized N-body/Hydrodynamics simulations to investig

Post Doctoral Scholar in UNLV Sep. 2007 - Jun. 2010
Galaxy formation in early Universe

Other Experiences

Co-instructor, who organizes, mentors, and lectures, for *Freshman Research Initiative* course in Department of Astronomy, University of Texas Austin, Jan. - Dec. 2014
Organizer for Astronomy Journal Club, UNLV, 2008 - 2009
Refereed Papers: MNRAS, ApJ (2013 - 2016)

Computer Skills

Languages & Software: Python, C/C++, Fortran, SQL, Matlab/Octave, R, Scala
Python Data Science Tools: Scipy, Pandas, Matplotlib, StatsModels, Scikit-Learn, Keras(Tensorflow/Theano), Pytorch
High Performance Computing Experience: Develop and implement numerical simulations in national super computing facilities such as TACC, NCSA, and OLCF.

EDUCATION

Ph.D. in Astronomy, University of Massachusetts at Amherst (MA, USA), Aug. 2007
M.S. in Astronomy, Yonsei University (Seoul, Korea), Feb. 1999
B.S. in Astronomy (minor in Physics), Yonsei University (Seoul, Korea), Feb. 1997