In Sung Jang

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Professional Experience

University of Chicago | Data Scientist, Researcher **2020 - Present**

- **Big Data Analysis and Software Development**
  - Created end-to-end pipelines (Python and SQL) within a cloud computing environment, automatically processing over 1TB of unstructured dataset, enabling real-time data analysis and enhancing data integrity
  - Employed machine learning algorithms (e.g., KNN and Decision Tree) to classify a vast source catalog (N > 1 million), achieving a 95% accuracy rate
  - Led data analysis teams within the US and Germany driving improvements to flux measuring algorithms through non-linear predictive modeling, resulting in a 40% reduction in errors.
- **Quantitative Research and Engineering**
  - Securing funding of over $300k through NASA grant acquisition as a program lead
  - Collaborated with international teams, overseeing pull requests and conducting thorough code reviews
  - Independent research to develop data processing algorithms in astronomy; published over 5 papers

Leibniz Institute for Astrophysics (Germany) | Research Scientist **2016 - 2020**

- **High-Performance Computing (HPC) and Time Series Data Analysis** :
  - Utilized supercomputers for statistical modeling of unstructured data, reducing computation times by 90%
  - Developed algorithms for the time-series analysis of variable stars, enabling the identification of transient phenomena
  - Created a real-time dashboard visualizing key performance indicators using SQL and Google Data Studio

Skills and Qualifications

- **Artificial Intelligence (AI) & Deep Learning (DL) & Machine Learning (ML)**
  - Certificates : (1) Deep Learning Specialization (Univ. of North Texas), (2) Python for Data Science, AI & Development (IBM), (3) SQL Basics for Data Science Specialization (Univ. of California), (4) Introduction to Deep Learning & Neural Networks with Keras (IBM), and (5) Developing AI Applications with Python and Flask (IBM)
- **Statistics**: Probability, Distributions, ML methods, Hypothesis testing, A/B testing, and predictive modeling
- **Programming languages**: Python (Pandas, Numpy, Matplotlib, Scikit-learn, Keras), SQL, R, Matlab, IDL, Bash, LaTex, Vim
- **Software/Others**: Tableau, Linux/Terminal environment, Git

Education

Seoul National University, Ph.D in Physics **2009 - 2016**
Inha University, BSc in Mechanical Engineering **2005 - 2009**

Projects and Honors

Business Intelligence via AI/DL/ML

- **(AI)** Analyzed Amazon customer reviews using LLM (OpenAI), providing insights into customer sentiment and preferences
- **(DL)** Classified 5000+ CT images for pneumonia detection using a Convolutional Neural Network (CNN)
- **(DL)** Developed a traffic sign classification model leveraging CNNs with Keras, achieving an accuracy rate of 91%
- **(ML)** Developed Chicago home price prediction models with Zillow data, using polynomial features and Linear Regression
- **(ML)** Optimized bank marketing strategies through K-Nearest Neighbor classifiers, resulting in enhanced efficiency
- **(ML)** Leveraged Decision Tree algorithms to forecast hotel booking demands; achieved a 92% accuracy

Data-Driven Research Publications (Google Scholar Profile)

- 11 first-author journal articles with +300 citations in quantitative data analysis, ranking in the top 3% of the most cited work