AHRIM HAN, PH.D.

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SUMMARY

I am transitioning from academia to industry to work as a data scientist. Over the past 14 years, I have researched software engineering in computer science to improve software design and code quality using statistics and machine learning techniques. Throughout my research, I focused on software-related problems. Now I have a special interest in solving user-related problems such as user preference prediction by leveraging big data intelligence.

EDUCATION

Korea Advanced Institute of Science and Technology (KAIST)   Feb. 2007 to Aug. 2013
Ph.D. Computer Science 2013

Korea Advanced Institute of Science and Technology (KAIST)   Sept. 2004 to Feb. 2007
M.S. Computer Science 2007

Sogang University   Feb. 2000 to Feb. 2004
B.E. Computer Science 2004
Magna Cum Laude

PROJECTS

Sentimental Analysis of Movie Reviews using a Deep Learning Neural Network (Springboard)   Mar. 2019 to June 2019
We have developed a deep learning model to automatically classify movie reviews as positive or negative in Python with Keras. We especially identify and deal with overfitting and use a pre-trained embedding in a neural network model to improve accuracy.

Prediction of Scores for Public Schools in California (Springboard)   Oct. 2018 to June 2019
I applied many of the data science-related techniques for data wrangling, exploratory data analysis, data visualization, and machine learning modeling. I provided the prediction models using the regression and classification algorithms for finding the inferior schools that need help.

Efficient Refactoring Candidate Identification (Korea University)   Mar. 2008 to Apr. 2017
As a sole principal investigator, I developed **an efficient refactoring recommendation system** that helps software developers change code more easily. In order to increase the computational efficiency of the heavy computation when evaluating a large number of refactoring candidates, I developed the following methods.
- I developed the *fast graph-based coupling metric* for calculating the effects of suggested refactorings based on matrix computation. This sacrifices some degree of precision but **significantly reduces the computation complexity,** which can be helpful in analyzing large-scale software.
- I suggested the *two-phased search-based refactoring identification method* for the efficient search space exploration by predicting refactoring candidates with higher chances of quality improvement. Compared to the no-reduction approach, our approach is **2.6 (min) to 13.5 (max) times faster in time.**

Improvement of Change-Proneness Prediction (KAIST)   Mar. 2006 to Feb. 2010
I developed **a more accurate change-proneness prediction model** to help software developers to focus their efforts on more critical maintenance activities**.** I developed the **new behavioral dependency metrics** that capture the dynamic aspects of the program. Using dependency metrics in conjunction with existing program structural metrics, we built the regression model. **The accuracy (R-square) of our model is increased 8% than the model using only structural metrics.**

EXPERIENCE

Springboard   Oct. 2018 to Current
Data Science Career Track - Student (Deep Learning Specialization)
- Mastering skills in Python, SQL, data wrangling, data visualization, exploratory data analysis, and machine learning methods
- Performed two data science related capstone projects:
  "*Prediction of Scores for Public Schools in California*" and "*Sentiment Analysis of Movie Reviews using a Deep Learning Neural Network*"

Korea University   Sept. 2013 to Apr. 2018
Research Professor   Seoul, South Korea
- Advised graduate students to develop research topics and conduct the experiments
- Awarded $158,000 in grants from the National Research Foundation of Korea for my research projects, **"*Efficient Refactoring Candidate Identification*"**
- Published the research results in the top conferences and journals such as *IEEE Transactions on Software Engineering* (*Google Scholar*)

Korea Advanced Institute of Science and Technology (KAIST)   Mar. 2005 to Aug. 2013
Graduate Researcher   Daejeon, South Korea
- Actively performed my research project "*Improvement of Change-Proneness Prediction*" (papers cited 64 times)
- Mentoring and Taught in Computer Science courses: "Introduction to JAVA programming" and "Capstone Projects in CS"
- Implemented program structure analysis and metric measurement tools using **Java** and **Python**

Peace Corps   Aug. 2004 to Oct. 2004
Intern   Washington, DC, USA
Responsible for organizing the intranet web pages in the Technical Infrastructure and Support Team under the Chief Information Officer

SKILLS

DATA ANALYSIS, VISUALIZATION, AND MODELING: Pandas, Numpy, Scipy, Matplotlib, Pyplot, Seaborn, Scikit-Learn, Keras, Tensorflow, PySpark
STATISTICAL METHODS AND MACHINE LEARNING: Classification, Regression, Clustering, Hypothesis Testing, Deep Learning
PROGRAMMING LANGUAGES AND TOOLS: Python, SQL, Java, R, Fortran, Assembly, Markdown, Latex, SPSS
RESEARCH AREAS: Software Engineering, Refactoring, Software Quality Improvement, Software Design Measurement