

# 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

<b>Korea Advanced Institute of Science and Technology (KAIST)</b> Ph.D. Computer Science 2013	Feb. 2007 to Aug. 2013
<b>Korea Advanced Institute of Science and Technology (KAIST)</b> M.S. Computer Science 2007	Sept. 2004 to Feb. 2007
<b>Sogang University</b> B.E. Computer Science 2004 Magna Cum Laude	Feb. 2000 to Feb. 2004

## PROJECTS

<b>Sentimental Analysis of Movie Reviews using a Deep Learning Neural Network (Springboard)</b> 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.	Mar. 2019 to June 2019
<b>Prediction of Scores for Public Schools in California (Springboard)</b> 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.	Oct. 2018 to June 2019
<b>Efficient Refactoring Candidate Identification (Korea University)</b> As a sole principal investigator, I developed <b>an efficient refactoring recommendation system</b> 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. <ul style="list-style-type: none"><li>I developed the <i>fast graph-based coupling metric</i> for calculating the effects of suggested refactorings based on matrix computation. This sacrifices some degree of precision but <b>significantly reduces the computation complexity</b>, which can be helpful in analyzing large-scale software.</li><li>I suggested the <i>two-phased search-based refactoring identification method</i> 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 <b>2.6 (min) to 13.5 (max) times faster in time</b>.</li></ul>	Mar. 2008 to Apr. 2017
<b>Improvement of Change-Proneness Prediction (KAIST)</b> I developed <b>a more accurate change-proneness prediction model</b> to help software developers to focus their efforts on more critical maintenance activities. I developed the <b>new behavioral dependency metrics</b> that capture the dynamic aspects of the program. Using dependency metrics in conjunction with existing program structural metrics, we built the regression model. <b>The accuracy (R-square) of our model is increased 8% than the model using only structural metrics.</b>	Mar. 2006 to Feb. 2010

## EXPERIENCE

<b>Springboard</b> <b>Data Science Career Track - Student (Deep Learning Specialization)</b> <ul style="list-style-type: none"><li>Mastering skills in Python, SQL, data wrangling, data visualization, exploratory data analysis, and machine learning methods</li><li>Performed two data science related capstone projects: <i>"Prediction of Scores for Public Schools in California"</i> and <i>"Sentiment Analysis of Movie Reviews using a Deep Learning Neural Network"</i></li></ul>	Oct. 2018 to Current
<b>Korea University</b> <b>Research Professor</b> <ul style="list-style-type: none"><li>Advised graduate students to develop research topics and conduct the experiments</li><li>Awarded \$158,000 in grants from the National Research Foundation of Korea for my research projects, <i>"Efficient Refactoring Candidate Identification"</i></li><li>Published the research results in the top conferences and journals such as <i>IEEE Transactions on Software Engineering</i> (Google Scholar)</li></ul>	Sept. 2013 to Apr. 2018 Seoul, South Korea
<b>Korea Advanced Institute of Science and Technology (KAIST)</b> <b>Graduate Researcher</b> <ul style="list-style-type: none"><li>Actively performed my research project <i>"Improvement of Change-Proneness Prediction"</i> (papers cited 64 times)</li><li>Mentoring and Taught in Computer Science courses: "Introduction to JAVA programming" and "Capstone Projects in CS"</li><li>Implemented program structure analysis and metric measurement tools using <b>Java</b> and <b>Python</b></li></ul>	Mar. 2005 to Aug. 2013 Daejeon, South Korea
<b>Peace Corps</b> <b>Intern</b> Responsible for organizing the intranet web pages in the Technical Infrastructure and Support Team under the Chief Information Officer	Aug. 2004 to Oct. 2004 Washington, DC, USA

## 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