Yihwa Kim

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Nationality: South Korean
Birth date: Dec. 9th, 1978

PROFILE

- A data scientist with extensive experience in neural networks, deep learning, natural language processing and machine learning. Have dealt with data of different origin ranging from text data, image data, to biological data. Strong analytical skills and fluent in several programming languages.
- Very quick in learning new concepts and developing state of the art tools. Trained in interdisciplinary and multicultural environments.
- Good communication skills with ability to present results in a clear and precise manner. Superior presentation skill and good verbal and written communication skills.

EXPERIENCE

Taiger, Madrid, Spain **2018 -**

Activity: Project management and development of tools for big data and NLP
Role: Research Engineer
Market: Europe, Asia, US
Focus: Developing NLP tools (Named Entity Recognition, Text categorization, Sentiment analysis) using Deep Learning
Result: Completion of a big data project and implementing state of the art NLP tools

Projects participated as leader from the company :
SOMEDI (Social Media Digital Interaction Intelligence
Developing Spanish NER (Named Entity Recognition) and opinion mining tool (Sentiment analyzer) using deep learning
LPSBigger
Developing big data tools that are easy to be reused.
Using big data tools (Hadoop, Hive, HBase, Spark, Zookeeper, Zeppelin, Kibana, etc.) to store, process, visualize and summarize the educational data. Dealing with knowledge graph and processing the ontological data using Spark GraphX.

Isdefe, Madrid, Spain **2017**

Activity: Implementation of automatic retrieval of information
Role: Data Scientist
Market: Spain, Europes
Focus: NLP technique to automatically extract information from diverse sources.
Result: Extraction of information from variable sources (e.g. newspapers, RSS feed, etc) and getting novel and relevant informations.

Prognosix, Zürich, Switzerland **2016**

Activity: Develop algorithm to predict future sales in supermarkets
Role: Data Scientist
Market: Switzerland
Focus: Clustering (e.g. K nearest neighbor) technique
Result: Identification of key variables in prediction and contributed in developing in new ways to compare categorical variables. Analyzed data that spans over 3 years of sales.

Postdoctoral researcher, Human Brain Project / Blue Brain Project, EPFL; Lausanne, Switzerland — 2012 - 2015

Human Brain Project is an ambitious research project that aims to recreate brain with complex computer models. The project is funded by the European Union and has received significant media attention since it is one of the most important monetary investments in science in recent years. My work within the group focuses on the analysis of morphological data of neuronal axons and the design and implementation of models that would allow artificial reproduction of the structure of neurons. Getting models to imitate reliably the actual anatomy of neurons is a key step to achieving more realistic simulations of brain activity. In my research I use various statistical analysis and numerical simulations.

Postdoctoral researcher, Computational Neuroscience Unit, Okinawa Institute of Science and Technology; Okinawa, Japan — 2008 - 2012

During this period I worked in a basic problem that had remained unsolved for 30 years. From a mathematical development based on the optimization theory, I got to understand the planar structure of dendritic trees. What is more important is that the model generalizes well to other tree structures observed in nature, such as corals. This work was published in a prestigious scientific journal (PLoS Comp. Bio.). With this research I gained significant experience in the mathematical formalization of complex problems, Monte-Carlo simulations and statistical analysis of different data types. It also allowed me to establish collaborations with experimental groups in the Netherlands working on projects that were not connected with mine (coral growth).

PhD, Computational Neuroscience Lab, University of Bern; Bern, Switzerland — 2004 - 2008

During my PhD I worked on the problem of categorization, which is the ability of a network of neurons to learn from various sources and extract high-level information and classify accordingly. Based on biological data, I built a neural network capable of differentiating various properties of disparate images. For example, showing images of people with and without a mustache, the network was able to classify automatically based on this criterion. This work, published in the journal Frontiers in Computational Neuroscience has important potential applications not only biologically but also in the field of machine learning in the design of automatic classification algorithms.

EDUCATION

- Computational Neuroscience, University of Bern, Bern Switzerland — PhD, 2008
- Cognitive Science, Seoul National University, Seoul Korea — MSc, 2004
- Computer Science and Engineering, Seoul National University, Seoul Korea —BSc, 2002

PUBLICATIONS

• **Kim Y.**, Sinclair R, Chindapol N, Kaandorp JA, De Schutter E. Geometric theory predicts dendritic bifurcations in minimal wiring cost trees are flat. PLoS Comp Bio. 2012;8(4):e1002474. doi: 10.1371/journal.pcbi.1002474.

• **Kim, Y.**, Vladimirski, B. and Senn, W. Modulating the granularity of category formation by global cortical states, Front Comput Neurosci, 2: 1. Epub 2008 Jun 3.

• **Kim, Y.**, Markram, H. Automatic extraction of clusters and generation of pyramidal cell axon morphology, in preparation

• The Blue Brain Collaboration, Markram, H., …, **Kim, Y.** …, Wang, Y. and Zaninetta, S. M. Reconstruction and simulation of neocortical microcircuit, Cell, October, 2015

SKILLS & KNOWLEDGE

- Languages: Korean (Native), English (Full professional proficiency), German, Japanese, Spanish (Conversational), French (Basic)
- Computers and Programming: Python, Matlab , C++, R, Kafka, SQL, HBase, Hive, Hadoop, Spark, Zookeeper, etc.
- Mathematical and data analysis skills: Deep Neural Network, Natural Language Processing, Neural networks, Clustering Algorithms, Principal Component Analysis (PCA), Large-scale numerical simulations, Monte-Carlo methods, Probability Calculus, Machine learning

COURSES & SEMINARS

- ISW (Instructional Skills Workshop). EPFL, Lausanne, Switzerland (2013)
- Transversal leadership seminar. EPFL, Lausanne, Switzerland (2014)

VOLUNTEER

- Organizing the seminar by Buddhist Zen monk honorable Bub-ryun. Bern, Switzerland (2013)
- Administrative systems in NGOs, Korean Women's Association United (KWAU), Seoul, Korea (1998)

OTHER ACTIVITIES

- Participation as actress in amateur theater club in Seoul National University. Seoul, Korea (1997-1998)
- Reporter at Korean baseball monthly magazine. Seoul, Korea (1998-1999)

AWARDS

Honorable mention as the first place in graduation at Hyehwa girls' high school (Daegu, South Korea) (1997)

HOBBY

Cooking international cuisine (Korean/Spanish/Swiss/Thai/Italian/Chinese), Calm sports (yoga/ hiking / pilates), theater play