Skymind Inc.

Skymind Inc. a US company specialized in the development and sales of business intelligence and enterprise software using deep learning AI technology, established in February 2016 a Japanese subsidiary in Tokyo. The company provides open-source* software that can be widely used, from individual users to large corporations. In 2016, the company collaborated with a major financial institution in Japan to conduct an experimental project of fraud detection, using the company's software. We interviewed the company's CEO (and CTO of its US headquarters), Adam Gibson, and Samuel Audet, an engineer, on the background of their entry in the Japanese market and future business prospects.

AI startup from Silicon Valley

Skymind Inc., which has its headquarters in the US city of San Francisco, California, is an artificial intelligence (AI) and deep learning (DL) software development and sales company. It launched its business in 2014, and has been engaged in development projects mainly in Silicon Valley.

Mr. Gibson, who also serves as the CTO for headquarters, focused on the potential of the Japanese market from an early stage and began sales activities in Japan as soon as the company was founded. He recruited Mr. Audet as an engineer in Japan, who established the company's Japanese subsidiary in February 2016. Currently, in addition to the US headquarters, the company has bases in Canada and China. The Japanese subsidiary serves as the regional headquarters for Asia as well as a hub for research and development.

Creating a more convenient world through an open source platform

The company is developing software called "Skymind Intelligence Layer" (SKIL) and "Deeplearning4j" (DL4J), utilizing deep learning AI technology.

Utilizing the advantages of an open source platform* (open core), this software can be connected to a large quantity of computers and promptly process a vast amount of data. There are many AI and deep learning software development companies; however, what sets Skymind apart is that the core of their software can be accessed free of charge by anybody in the world. With the help of assorted feedback from the community the company can develop more practical products.

What kinds of products are SKIL and DL4J specifically? SKIL is an enabling tool for using deep learning AI technology. Equipped with various applications such as DL4J, it is a platform that can connect with other tools.

DL4J is a calculation framework software that supports deep learning on a broad scale, equipped with an auto-encoder* and a natural language processing (NLP) functionality that makes data analysis easy compared to other deep planning frameworks. In particular, it enables face and image-recognition, voice-search, speech-to-text, spam-filter and fraud-detection features.

These applications use Java, the most used programming language in the world, and therefore, have a wide range of applications with other programs. Java enables the software to be made open source easily, and saves users time and labor in building AI technologies from scratch, while time for research and product development can also be reduced. Moreover,

functions can be easily added to applications at low cost, increasing business efficiency. DL4J is also used to find excellent engineers.

Reason for selecting Japan: Stable industrial foundation and high AI demand

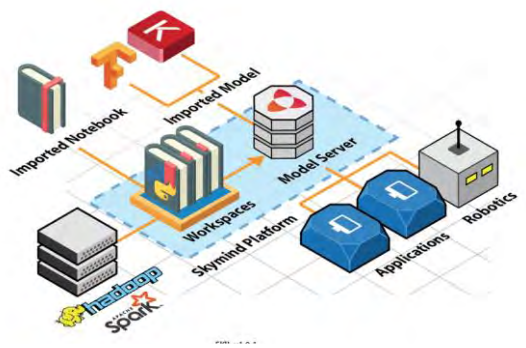

Illustration of the source platform of Skymind Inc.

We asked, Mr. Gibson and Mr. Audet, an engineer, about the reason for focusing their attention on Japan. Mr. Audet came to Japan as a national scholarship student nearly 10 years ago, and after graduation, he worked at a Japanese software company. He is fluent in Japanese and familiar with Japanese culture.

Both of them replied, “Japan has a rich industrial foundation and world-leading business infrastructure. Though China has the larger market, it is hard to predict the sustainability of business. Japan, meanwhile, has growth that is easy to forecast and a broad industrial foundation, indicating to us that a stable profit can be obtained even though its market is not the biggest in the world. In addition, there are particularly rewarding business opportunities related to automation in Japan, in fields such as fintech. We decided to establish the base in the Japanese market with the belief that the knowledge and experience our company cultivated in Silicon Valley could be applicable in the industrial foundation and business infrastructure in Japan.”

According to them, Japan’s large companies hold a vast amount of data; however, there is a shortage of engineers with the AI engineering skills necessary to leverage that data to improve profit, resulting in high demand for AI services. Skymind’s software technology has been highly regarded in Japan and already utilized by major advertisement agencies and automobile manufacturers. In 2017, the company collaborated with Soft Bank and embedded an AI programmed by Skymind into a Soft Bank robot, which they used to conduct an experiment demonstrating automatic button operation of elevators at a CEATEC exhibition.

Though the core of the Skymind’s software is open source and free, the company is expanding business by providing additional value, such as through consulting services to meet the needs of clients and proprietary software* for which the source code is not disclosed, such as SKIL, for a fee, as well as by offering packaged projects and licenses. Furthermore, compared to competing cloud vendors, the company has the advantage of not being locked into a specific cloud infrastructure.

Conducting experimental study by utilizing subsidies

Skymind was adopted in JETRO’s “Subsidy Program for Global Innovation Centers” conducted in FY2016, and conducted an experimental study with a large financial institute in Japan.

Using its deep learning technology, the company designed an application to reduce the occurrence of losses due to fraud in the financial system, and validated an application for detecting fraudulent use by utilizing data actually present at the financial institute.

While the recent global boom in fintech has brought an increase in user convenience, information security measures have become a significant issue.

Henceforth, figuring out how to manage data safely is one of the most critical issues for the company. If the technology for detecting fraudulent use is deployed, it can contribute to

improving security of financial transactions, which are growing ever more diversified and complex, not only in Japan but also in the world.

Future business development

"From here on out, we would like to solve problems by utilizing our company's products in collaboration with not only financial institutions but also communications companies, automobile manufactures and more," stated Mr. Gibson. Since his company's products are based on an open source platform, they can be adapted to various industries. He added, "In the future, we would like to provide many social solutions through deep learning AI, such as the development of systems to detect fraudulent actions, prevention maintenance of factory machinery and data center computers, commercial recommender systems (an information filing technique), medical imaging, face recognition and visual recognition analysis of characters."

Japanese business environment for foreign companies

"While living in Tokyo, I came to realize it has a higher concentration of companies than I expected—making it easier to conduct business—as well as many excellent engineers," remarked Mr. Gibson. In addition to the Japanese market, Skymind is considering entering into other Asian and European markets through Japan.

Meanwhile, the main obstacle Mr. Gibson faced when coming to Japan was a lack of information regarding Japan in English. Though Mr. Gibson needed various information, such as for obtaining a work visa or that related to real estate, information that could be searched in English was limited. He added, "I managed to arrive at this point by collecting information by myself through social media as well as by employing Japanese staff. After coming to Japan, JETRO was a great help, but I believe that if more information and support were available in English before coming to Japan, the subsidiary would have been established more smoothly, which would also be helpful to other foreign companies."

JETRO's support

"By obtaining subsidies, Skymind Inc., an American startup company, was able to gain the trust of large Japanese companies and, for the first time, conclude a contract with a large financial institute. And JETRO provided not only subsidies, but introductions to a real estate agency and administrative scrivener, incentive information and more. We appreciate JETRO's support. We could not have come this far without it," stated Mr. Audet.

(Interviewed February 2018)

From left, Mr. Gibson, CEO, and Mr. Audet, engineer

Notes on terminology

* **Open source**: General term for software in which the source code is disclosed to the public and can be used, modified, and redistributed regardless of the purpose.

* **Platform**: A basic system structure which allows data usage and transmission with other companies' products. It allows widely used software, parts, and peripheral devices to be accessed.

* **Skymind Intelligence Layer (SKIL)**
Enabling software tool to utilize deep learning technology. Equipped with DL4J, it is a platform based on open source that is fundamental to Skymind's business.

* **Deeplearning4j (DL4J)**
A deep learning open source library for distributed systems available under Apache License 2.0. It was initially developed by Mr. Gibson, the CEO of the Japanese subsidiary. It is a calculation framework that supports a wide range of deep learning algorithms and allows a large amount of data to be quickly processed.

* **Autoencoder**: A generic and widely used algorithm utilizing a neural network (an activation system modeled after a human brain) in machine learning.

* **Natural language processing (NLP)**
Natural language processing technology, as implemented by DL4J, allows computers to process language used by humans.

* **Proprietary software**
Software for which the right to own, modify, or duplicate is held by particular companies or people. Its source code and specifications are not open.

Company history

November 2014	Establishment of Skymind Inc. in San Francisco, California
February 2016	Establishment of Skymind Inc. in Tokyo

Skymind Inc. in Japan

Establishment:	February 2016
Business overview:	Development and sales of AI/deep learning software
Capital:	9,900,000 yen (as of February, 2018)
Parent company:	Skymind Inc. (US)
Address:	Otemachi Building, 1st Floor, 1-6-1 Otemachi, Chiyoda-ku, Tokyo, 100-0004, Japan
URL:	https://skymind.ai/

Support from JETRO

- Cooperation in public relations activities
- Introduction of service providers (administrative scrivener, tax accountant, certified accountant, financial institution, and real estate agency)
- Provision of information on incentive programs