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Opinion

Human Resource Development in the Future

Hirofumi YAMADA

Fukami Patent Office, P.C.
1st Mechanical Division
Divisional Manager

1. Introduction

Our firm is continuously actively working on developing our human resources in order to continue to provide our clients with high-quality services. Meanwhile, generative AI has made remarkable developments in recent years and is accelerating transformation of various business procedures. Intellectual property-related practice is no exception. Leading companies are taking necessary measures such as for information security, and working on applying generative AI to conduct their intellectual property-related practices efficiently and thereby transforming the fundamentals of their practice.

Under such circumstances, in order to fulfill needs of clients and provide them with better services, it is expected that patent firms will also increasingly apply generative AI to their practices and their task procedures will drastically change. As a result, it will be necessary for patent firms to reconsider how they develop their human resources and what matters they should consider.

In this article, I would like to consider circumstances in which generative AI can be applied to task procedures of patent firms, and offer my opinion on human resource development under such circumstances.

2. Prospect for Applying Generative AI to Practices in Patent Firms

Provided that necessary approaches such as security measures are taken, it is expected that generative AI will be applied to activities conducted in patent firms mainly by patent attorneys, such as preparing specifications for patent applications (hereinafter simply referred to as "specifications"), handling office actions, and conducting document researches.

For example, for the activity of preparing a specification for a client, a task procedure may be considered, as follows:

- The patent attorney in charge prepares a patent specification and causes generative AI to check the specification for inconsistency and errors in accordance with rules applied in his/her firm and by the client.
- The patent attorney confirms whether generative AI provides a reasonable result of checking the specification, and, with reference to the result, the patent attorney makes final adjustments to the specification.

Furthermore, a task procedure may be considered as follows:

- Materials received from an inventor, such as a manuscript, drafted drawings, and drafted claims, are used to cause generative AI to prepare a first draft of a specification.
- The patent attorney in charge reviews and refines the first draft while verifying its accuracy and rationality to complete the specification.

In addition, when responding to an office action, a task procedure may be considered as follows:

- The patent attorney in charge causes generative AI to perform tasks such as comparing a claimed invention of a client with cited documents and extracting differences therebetween.
- The patent attorney confirms whether the result of the tasks performed by generative AI is accurate/reasonable, and the patent attorney then considers an approach against the office action based on the result and other matters to be considered (such as what position the invention assumes in the client's business).

A task procedure may also be considered as follows:

- Materials such as an office action, cited documents, the specification of the subject case, a proposed claim amendment, and a policy for discussion are used to cause generative AI to prepare a first draft for a written opinion and an amendment.
- The patent attorney in charge reviews and refines the first draft while confirming its accuracy and rationality, to complete the written opinion and the amendment.

A task procedure may also be considered, for example, for clerical and administrative personnel of a patent firm, as follows:

- The personnel cause generative AI to check as a countermeasure against miscarriage whether an outgoing email has a body matching with the documents attached to the mail, and if there is any doubt about it, generative AI alarms the personnel.
- The alarmed personnel check the body of the email and the attachments.

The above task procedures achieve higher efficiency and quality by combining generative AI's overwhelming processing speed with human expertise and decision.

3. Human Resource Development in Circumstances Where Generative AI is Applied

Applying generative AI to improve a task procedure in efficiency and quality, as described above, requires expertise for tasks, and in addition, also requires knowledge to make full use of generative AI as an assistant.

(1) Acquiring Expertise

In the following section, I will mainly discuss expertise related to practice performed primarily by patent attorneys.

a) Current Circumstances

Currently, at our firm, patent attorneys and engineers with less experience (hereinafter also referred to as "junior patent attorneys etc.") acquire expertise through on-the-job training (OJT) provided by supervising senior patent attorneys, as well as through participation in other training, and self-study. Specifically, during on-the-job training, a junior patent attorney etc. actually assigned a case under the supervision of a supervising senior patent attorney gains experience understanding an invention, preparing a specification, examining an office action, and preparing a written opinion, and while doing so, the junior patent attorney etc. also refers to materials such as examination guidelines, past appeal and court decisions, and related documents in the art, as necessary, to thus acquire expertise.

During on-the-job training, junior patent attorneys etc. draft specifications and written opinions themselves with reference to past cases. Hereafter, I would like to discuss by focusing on preparing a patent specification.

Drafting a patent specification involves an intellectual process, such as specifically understanding a claimed invention of a client, organizing the invention in the context of problem, structure, and effect, and reconstructing and documenting the invention as an abstract concept. This intellectual process may take into account not only the invention's aspects in the art, but also the background such as what position the invention assumes in the client's business and for what purpose the client wishes to obtain a patent for the invention. Junior patent attorneys etc. handle multiple cases and thus gain a wide range of experience through trial and error to acquire the expertise necessary to smoothly conduct this intellectual process.

b) Environment Where Generative AI Is Applied

In contrast, as discussed above, when generative AI is used to create a first draft of a specification, a junior patent attorney etc. him/herself will not draft the specification, as described above, but rather will review and refine the first draft while checking its accuracy and rationality. From a perspective of efficiency for work, using generative AI to create a first draft of the specification is more efficient than the junior patent attorney etc. drafting the specification, as the former can be done in a shorter period of time and hence more efficiently.

From the perspective of educational experience gained by the junior patent attorney etc., however, the experience gained from actually drafting a specification from scratch through trial and error would not be the same as the experience gained from working with a first draft created by generative AI. Furthermore, using generative AI to create the first draft for the specification deprives the junior patent attorney etc. of an opportunity for trial and error.

When a patent attorney uses generative AI to prepare a specification (that is, when the patent attorney causes generative AI to prepare a first draft of the specification and reviews and refines the draft so that the specification has better quality), the patent attorney first needs to be able to: set standards for how the invention to be considered should be understood and how the specification should be written; and review and revise the first draft created by the generative AI in light of the above set standards. If trial and error accompanying drafting a specification, as described above, is essential for a junior patent attorney etc. to acquire expertise necessary to set such standards, it would be highly necessary to take an approach such as training the junior patent attorney etc. to draft specifications for some period of time (without using generative AI).

As a matter of course, there is also a possibility that the junior patent attorney etc. may acquire such expertise while reviewing and refining the first draft provided by generative AI. It should be noted, however, that achieving this may require taking an additional approach to encourage the junior patent attorney etc. to have deeper

discussions with his/her supervising senior patent attorney and furthermore, apart from carrying out activities for actual cases, study past cases to actively increase opportunities for the junior patent attorney etc. to experience the above intellectual process to acquire greater expertise.

(2) Knowledge for Making Full Use of Generative AI

In order to make full use of generative AI, it would be preferable to have basic knowledge such as what generative AI is in the first place, what it is good at, and what risks it poses. Generative AI can sometimes create information that does not exist, and output such information (called "hallucinations"). In addition, understanding that the instructions (or prompts) that are issued to generative AI has a significant effect on an output in quality, and accurately understanding such characteristics of generative AI is essential for successfully performing a task procedure using generative AI.

In order to have patent attorneys and clerical and administrative staff obtain such knowledge, inviting external instructors to train such personnel may be considered as an introduction for the personnel to accurately understand the characteristics of generative AI.

Furthermore, to actually use generative AI to research improving a task procedure in a firm, a specific study group may be formed of personnel selected from different departments of the firm. The members of the group would be expected to quickly become familiar with using generative AI and output information thereof throughout the firm. For this reason, it would also be necessary to provide the members of the group with a testing environment with information security measures applied thereto so that generative AI can be applied to a variety of task procedures in the environment.

4. Conclusion

Such examples of applying generative AI as discussed above have already been considered and implemented by many companies and firms. As generative AI is advancing rapidly, a world in which such examples of applying generative AI as above are commonplace may arrive sooner than we expect.

In such a world, we intend to further develop our talented personnel to use their special expertise so that we can continue to provide our clients with consistent, high-quality services.

Article

Global Design Application Strategies Using PCT Applications

Masaharu Matsuda

Fukami Patent Office, P.C.
International Patent Division / Design Division Sr. Patent Attorney

1. Introduction

The purpose of this article is to study in which case the PCT route can be an effective option in filing a "multiple-design × multiple-country application," based on the collection and analysis of cases using a PCT application as the basis of the priority of a design application.

The PCT application is generally recognized as a "system for protecting inventions." The PCT application generally enters the national phase in each country after it is filed, and then matures to the "patent or utility model" right in each country. The PCT application, however, also functions as the "system for protecting designs." By incorporating in the PCT application, not only technical details but also a plurality of drawings usable for a design application, the PCT application can serve as the basis of the priority of the design application. The PCT application can thus function as what is called a "dual-purpose" system where two routes for obtaining the "patent or utility model" right and the "design" right from a single application are available, or as a "hybrid application route" that covers both patents and designs..

In the case of a design application based on a PCT application, however, as in the case of a foreign design application filed based on a national design application under the ordinary Paris Convention, there is a restriction in terms of time; a design application should be filed in each country within six months from the PCT filing date. In addition, a PCT application is different in purpose of the system or operational procedure from applications for international design registrations based on the Hague system, and a PCT application and a Hague application are not in simple substitutable relation with each other. Even in view of such restrictions or differences, a design application which claims priority to the PCT application may be advantageous differently from an ordinary foreign design application or Hague application.

There are not so many design applications filed based on PCT applications. According to the author's search, only forty-six applications were found for design registration in Japan in the years from 1998 to 2025. Turning to the world, based on research using the Global Design Database of WIPO, there were 493 hits of registered designs including "PCT" in the priority claim number. In the first part of this article, I will discuss characteristics of a design application based on the PCT application, and in the latter part, I will introduce cases where a design application claiming priority to a PCT application was filed in each country. The author believes that the PCT application is greatly effective as means for efficiently realizing a "patent × multiple-country application" and a "multiple-design × multiple-country application." I hope that my observations below will contribute to creation of a design portfolio in multiple countries.

2. Design Application Strategies Based on PCT Application

2.1 Design Variations and Diversification of Needs for Obtaining Right in Each Country

When a company creates a plurality of designs, it does not necessarily desire to obtain the rights for all of them in each country. There may be various needs: for example, the design right for design A is sought for in Japan and Europe, whereas the design right for design B is not so strongly desired in Japan but it is strongly desired in the US, China, and Korea; the design right for design C is desired broadly in many countries including Japan. Selection of countries where obtainment of the right is desired depends on the place of production or sales of the company's products, trends of competitors, etc.

2.2 Current Status of Foreign Design Application Originating from Japanese Design Application

In Japan, there is a "one-design, one-application" principle. When a Japanese company considers obtainment of the design right in Japan, the company basically files design applications one by one with the Japan Patent Office, for each design for which the design right is sought in Japan. There are also cases when a party desires obtaining the design right in a plurality of countries other than Japan, such as the US, Europe, China, and Korea, although obtainment of the right in Japan is not desired. Even in such a case, the Japanese company generally files a design application initially in Japan for securing the priority, and then files the application in foreign countries, claiming priority to that Japanese application. Consequently, cost and man-hours for filing the Japanese design application are required also for designs which are not high in necessity for registration in Japan.

Under the current system, a design application can naturally be filed first in a country other than Japan (such as the US), and then applications can be filed in other countries, claiming priority to that application. From the point of view of the language, procedures, restrictions in terms of time, and the like, Japanese companies often do not select a country other than Japan as the first country to file the application.

2.3 Advantages of Design Application Strategies Utilizing PCT Application

In cases where protection for both an invention and a design is sought in various countries, using a PCT application as a starting point can broaden the range of "multiple-design × multiple-country application" strategies originating from a PCT application. In addition to description in the specification and claims in connection with an invention, a set of diagrams with an eye toward obtainment of the design right in each country is incorporated in the PCT application. In the PCT application, as many designs as possible may be incorporated so long as publication of the designs one and a half years after filing is allowable. This is because obtainment of the right, for example, for a design, commercialization of which is less likely at the current time point, may strongly be demanded within the priority period (six months) after filing, depending on circumstances of a company or competitors.

The scope of similarity of a design or the number of designs which can be included in one application is different for each country. As long as many design variations are included in the PCT application, design application strategies optimized for each country can be developed. Specifically, a design relatively high in possibility of obtainment of the right in Japan and countries other than Japan should be incorporated in drawings of the PCT application. Thereafter, while business principles or market statuses in each country are assessed within the priority period, which design should be adopted as the design application in which country can be determined with sufficient time being spent. If there is no special necessity, the PCT application may be maintained as

the patent or utility model application as it is and the patent or utility model right may be sought for in each country. Such an approach can be realized by filing a single PCT application.

In the conventional approach, a plurality of design applications are initially filed in Japan in conformity with the one-design, one-application principle, and necessary application(s) is/are selected from them and filed as foreign design application(s), claiming priority to the Japanese application. Such a conventional approach has worked well and has certainly been effective. For example, however, in cases as below, design application strategies different from the conventional strategy may be constructed by utilizing the PCT application:

(i) An invention and a design are completed at the same time, and obtainment of the right also of the design is desired in each country (or the invention and the design inseparably relate to each other);

(ii) There are a plurality of proposed designs, and it takes time to select countries and designs which are desired to be registered; and

(iii) Though a design application in Japan is not desired as strongly as in foreign countries, the priority is desirably secured.

Even from the aspect of patents alone, a PCT application offers benefits such as "obtaining a search report," "opportunities for amendments under Articles 19 and 34 and for filing a demand for preliminary examination," and a "30-month period for submitting translations." Compared to filing a PCT application and seeking foreign design rights through a route separate from that PCT application, incorporating the potential for a design application (i.e., more drawings) into a single PCT application and seeking both patent and design rights in foreign countries based on that PCT application may yield higher cost-effectiveness from a single PCT application.

2.4 Notes for "Earliest (First) Application"

The most important point to note when using a PCT application as a starting point is that, for drawings of a design which may be registered in each country, the PCT application should be the "earliest application." Prior to filing the PCT application, initially, an ordinary patent application may be filed, and based on that patent application, the PCT application may be filed within the priority period. If the drawings of the design desired to be registered are included in that patent application, that patent application is the "earliest application." In this case, the design application should be filed in each country based on that patent application rather than the PCT application, within six months from the date of filing of the patent application. By way of example, an invention may be completed in a relatively early stage of a process of development of a product, and the design of the product may be completed after that. At the time point of completion of the invention, the patent application is filed in Japan and the PCT application is filed within one year from the filing date. If the design of the product is not included in the patent application because it was incomplete in the stage of filing of the patent application and the design is completed after the patent application is filed or if there is a design of the product that was determined as unnecessary in the original patent application and intentionally not included in the application, incorporation of such a design of the product into the drawings of the PCT application may desirably be considered again. For such a design disclosed for the first time in the PCT application, the PCT application is the "earliest application" and satisfies the requirement for emergence of the priority.

2.5 Notes for "Priority Period"

Even in the case of the design application claiming priority to the PCT application, the design application should be filed in each country within six months from the PCT filing date, as in the case of the foreign design application filed under the ordinary

Paris Convention based on the national design application. For an EU design application, the Grand Chamber of the Court of Justice of the European Union (CJEU) recently (February 27, 2024) decided that the priority period of a community design based on a PCT application was six months, not twelve months. In the case of US continuation applications, even if filed more than six months after the PCT filing date, the benefit of priority (retroactive effect to the PCT filing date) can be legitimately enjoyed. However, we have to note that for ordinary design applications without continuation or divisional practice, the priority period remains six months.

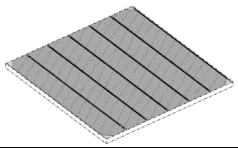
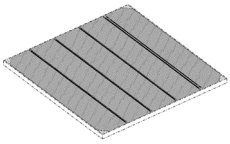
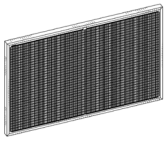
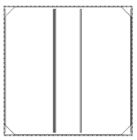
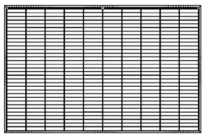
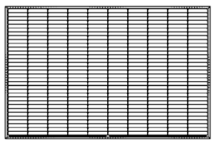
In Japan, conversion from a patent application to a design application is permitted. In using a conversion application, however, we have to note that the priority period is essentially six months. A patent application claiming priority that is filed in Japan within six months from the PCT filing date can benefit from the priority even when it is converted from the patent application to the design application, for example, ten years after the filing of the patent application.

I will introduce below, cases of registered designs based on PCT applications. The cases introduced in Sections 3 and 4 are presented in descending order of the number of Japanese design registrations.

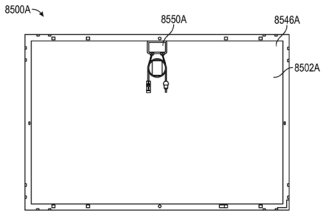
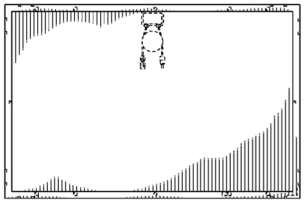
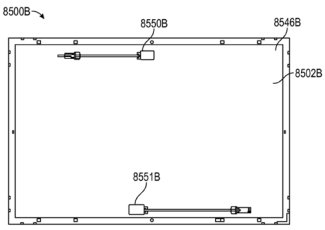
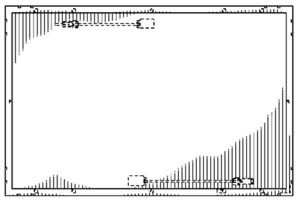
3. Design Application Based on PCT Application

3.1 Case 3-1 (PCT/CN2017/076017) -Eight in Japan, Two in the US, Two in Korea, and Five in Taiwan

Case 3-1 is a large-scale example of successful rights acquisition where a total of 17 design rights were obtained in four regions - Japan, the US, Korea, and Taiwan - from a single PCT application. The PCT application relates to array solar cells (filing date: 2017/3/9) and includes Figs. 1 to 97. Regarding the patent, rights were sought in Japan through four applications, including Japanese Patent Laying-Open No. 2018-152561.

Design No. 1610157 	Design No. 1622042 	Design No. 1622043 	Design No. 1622063 
Design No. 1622167 	Design No. 1622168 	Design No. 1632532 	Design No. 1632660 

It is interesting that, in Japan, all of eight applications were registered as "partial designs." Elements (8550A and 8550B) drawn with the solid line in FIGs. 86A and 86B of PCT/CN2017/076017 (WO2018/161286) are drawn with the dashed line in Design Nos. 1622043 and 1632532 (see below).

WO2018/161286 -FIG. 86A	Design 1622043 [bottom view]
	
WO2018/161286 -FIG. 86B	Design 1632532 [bottom view]
	

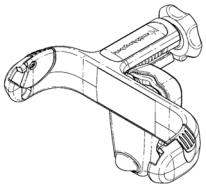
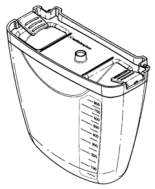
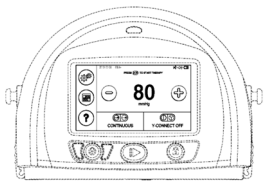
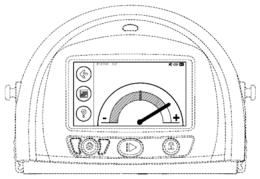
In the "angle adjustment bracket" case which is known by conversion from the patent to the design, conversion of the element drawn with the solid line in the original patent application (Japanese Patent Laying-Open No. 2006-230720) to the element drawn with the dashed line in design registration No. 1399739 was permitted. Practice to convert the solid line to the dashed line as in the "angle adjustment bracket" case may be permitted also in the case of the design application based on the PCT application. In this Case 3-1, the partial design approach was also utilized in the U.S. and Taiwan, where elements shown in solid lines in the PCT drawings were changed to dashed lines in the design registrations.

In Korea, there is a system where one application can include up to one hundred designs in the same design category. In this Case 3-1, two design applications were filed in Korea based on the single PCT application, a protection network by seventy-four designs in total was formed in KR '567 and the protection network by three designs in total was formed in KR '568.

In addition, five design rights, including TWD194917S, have been established in Taiwan. As with patent applications, it can be seen that design applications based on PCT applications filed with the CNIPA are permitted in Taiwan.

3.2 Case 3-2 (PCT/US2014/026692) -Four in Japan

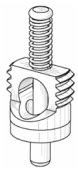
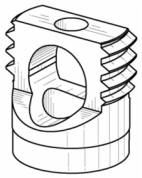
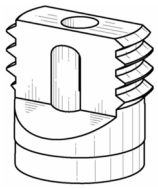
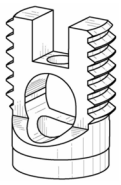
Case 3-2 is a PCT application (filing date: 2014/3/13) relating to a wound therapy device and includes 105 pages of drawings. As to the patent, in Japan, the patent right was sought for in Japanese National Patent Publication No. 2016-517318 and a divisional application (Unexamined Patent Publication No. 2019-000663). As to the design, four design applications were based on the PCT application and all of the designs were registered.

Design No. 1519996	Design No. 1527764	Design No. 1532306	Design No. 1532307
			

Articles to the design registration are a clamp ('996), a canister ('764), and a therapy device main body ('306 and '307), and protection of the design from various perspectives based on one PCT application is realized. As in Case 3-1, the contour of the device main body drawn with the solid line in PCT/US2014/026692 (WO2014/151930) is drawn with the dashed line in '306 and '307, and the partial design system is utilized.

3.3 Case 3-3 (PCT/JP2019/038106) -via Hague: Four in Japan, Three in the US, One in Europe, One in the UK, and One in Korea

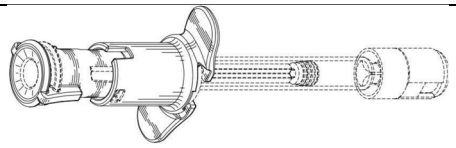
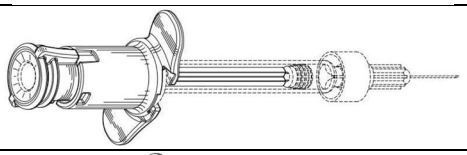
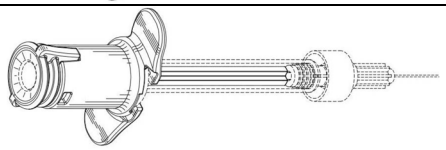
Case 3-3 is a PCT application (filing date: 2019/9/27) relating to a valve core, and includes a plurality of embodiments and drawings including Figs. 1 to 23. In Japan, the patent right was sought for in Japanese Patent Re-Publication No. 2021-059470. As to the design, priority of a Hague application (DM/208230, filing date: 2020/3/19) was based on the PCT application and designs were registered as four Japanese registered designs.

Design No. 1692109	Design No. 1692110	Design No. 1692111	Design No. 1692112
			

This is a strategically sophisticated and very rare case where, originating from the PCT application, the design right was obtained in countries (Japan, the US, the EU, the UK, and Korea) via the Hague route.

3.4 Case 3-4 (PCT/US2020/036200) -Three in Japan + One in Germany + Four in Taiwan

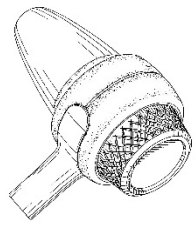
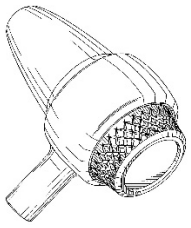
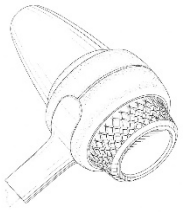
Case 3-4 is a PCT application (filing date: 2020/6/4) relating to an injector and includes eighty-four pages of drawings. As to the patent, in Japan, the patent right was sought for in Japanese National Patent Publication No. 2022-535558 and in two divisional applications. As to the design, priority of three Japanese design applications was based on the PCT application and all of the designs were registered. The design application was also filed in Germany and the design was also registered as DE 402020101152 (eight designs). In Taiwan, four designs (e.g., TWD216479S) were also registered.

Design No. 1700933	
Design No. 1700984	
Design No. 1701001	

The partial design is utilized also in these registered designs in Japan; the syringe of the injector drawn with the solid line in PCT/US2020/036200 (WO2020/247686) is now drawn with the dashed line. A similar partial-design practice is also observed in Germany and Taiwan, where the syringe shown in solid lines in the PCT drawings is depicted in dashed lines in the corresponding design registrations.

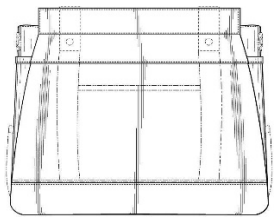
3.5 Case 3-5 (PCT/US2008/88656) -Two in Japan + One in Europe

Case 3-5 is a PCT application (filing date: 2008/12/31) relating to an earphone and includes thirty-one pages of drawings. As to the patent, in Japan, the patent right was sought for in Japanese National Patent Publication No. 2011-509033. As to the design, priority of two Japanese design applications was based on the PCT application and all of the designs were registered. An EU design application was also filed (2 designs) and the design was registered.

Design No. 1387043	Design No. 1386848	EM 001149819-0001	EM 001149819-0002
			

3.6 Case 3-6 (PCT/US2009/054896) -Two in Japan + One in Korea

Case 3-6 is a PCT application (filing date: 2009/8/25) relating to handbags with interchangeable covers and includes six drawings. As to the patent, the patent right was sought for in many countries, such as Japan (Japanese National Patent Publication No. 2012-523941), the US, Canada, Europe, China, Taiwan, Korea, and Brazil. As to the design, priority of two Japanese design applications and one further Korean design application was based on the PCT application and all of the designs were registered.

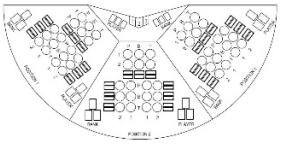
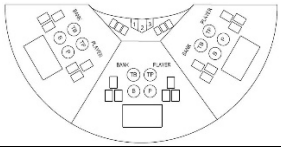
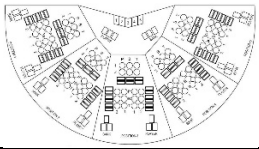
Design No. 1406686	Design No. 1400702	KR3020100008253
		

For the registered Japanese design, the partial design was utilized also in this case, and in **PCT/US2009/054896** (WO2010/123515), a part of the bag drawn with the solid line was drawn with the dashed line in Design Nos. '686 and '702. A similar partial-design practice is also utilized in Korea.

3.7 Case 3-7 (PCT/US2009/030012) - Two in Europe

Case 3-7 is a PCT application (filing date: 2009/1/2) relating to a game interface and includes thirteen pages of drawings. As to the patent, the patent right was sought for in multiple countries such as Europe, China, and Australia. In the EU (RCD), multiple designs may be included in a single application where they fall within the same design classification (Locarno class). As in the Korean practice in Case 3-1, this case leverages the multiple-designs-in-one-application system by including a very large number of designs in one filing.

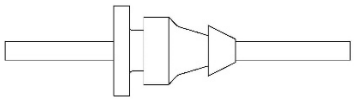
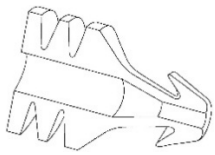
- EM 001566514-0001 to 0044 (forty-four designs in total, filing date: 2009/07/01)
- EM 001568197-0001 to 0004 (four designs in total, filing date: 2009/07/02)

EM 001566514-0001	EM 001566514-0004	EM 001568197-0004
		

3.8 Case 3-8 (PCT/US2012/045524) - One in Europe

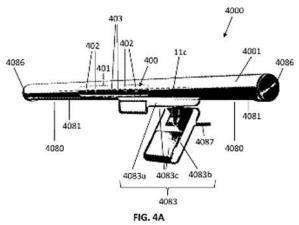
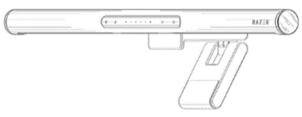
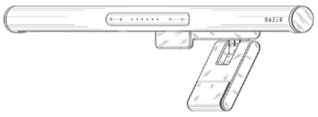
Case 3-8 is a PCT application (filing date: 2012/7/5) relating to a "tapering part used for a fluidic device" and includes drawings including Figs. 1 to 19. As to the patent, the patent right was sought in multiple countries such as the US, Europe, China, and Australia, and as to the design, priority of one EU design application (including twenty-four designs) was based on the PCT application and the designs were registered. This case also leverages the "multiple designs in one application" system.

- EM 002108191-0001 to 0024 (filing date: 2012/09/24)

EM 002108191-0001	EM 002108191-0015	EM 002108191-0016
		

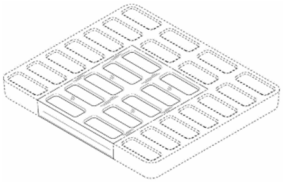
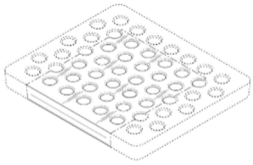
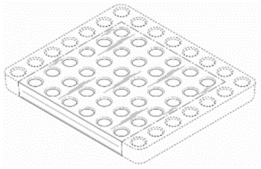
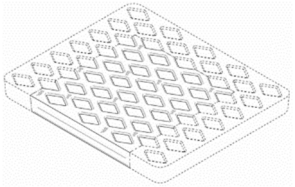
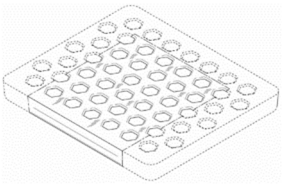
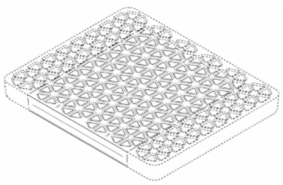
3.9 Case 3-9 (PCT/SG2023/050537) -One in the US, One in Europe, and Two in Taiwan

Case 3-9 is a PCT application (filing date: 2023/8/2) relating to a "touch control module" and includes twenty-one pages of drawings. As to the patent, though countries where the application entered the national phase are unclear at the current time (will be known in the future), a patent application was filed in Taiwan (TW202520052A) claiming priority. As to the design, priority of one US application, one EU design application, and two Taiwan design applications (TW113300567 and TW113300564) was based on the PCT application and the designs were registered. This case suggests that, where a PCT application is filed via Singapore as the receiving route, a Taiwan design application based on that PCT application is allowed.

PCT/SG 2023/050537	TW 113300567	TW 113300564
		

3.10 Case 3-10 (PCT/US2023/010361) -One in Europe and Six in Taiwan

Case 3-10 is a PCT application (filing date: 2023/1/7) relating to a "storage case" and includes seventy-nine drawings. As to the patent, the patent right was sought for in Europe and China. As to the design, priority of one European application and six Taiwan design applications was based on the PCT application and the designs were registered. This case suggests that, where a PCT application is filed with the USPTO as the receiving office, a Taiwan design application based on that PCT application is allowed.

TW 112305301 	TW 112305302 	TW 112305303 
TW 112305304 	TW 112305305 	TW 112305306 

3.11 Discussion

Overview of Cases 3-1 to 3-10 gives an impression that companies concretely implement the "multiple-design × multiple-country" strategies described in 2.3, in accordance with their circumstances. In particular, three patterns are observed in common: (a) formation of solid design networks in a country where multiple designs in one application is permitted; (b) configuration of drawings with an eye to the partial design system in Japan; and (c) combination of various application routes including not only Japan, the US, Europe, China, and Korea but also the Hague system and Taiwan.

(a) Formation of Solid Design Networks in Country Where Multiple Designs in One Application Is Permitted

- In Case 3-1, from one PCT application, two multiple design applications including seventy-four designs + three designs were filed in Korea, and the protection network by designs overwhelmingly larger in number than eight applications in Japan was constructed.

- In Cases 3-7 and 3-8 as well, in the EU design, the multiple-designs-in-one-application system was utilized to a maximum extent to cover forty-four designs + four designs (forty-eight designs in total) and twenty-four designs, and a large number of variations from two applications matured to rights.

- It can be seen that, by incorporating a sufficient variety of drawings into the PCT application, the advantages of the 'multiple-designs-in-one-application' system in countries permitting multiple designs can flexibly be derived after filing of the PCT application.

(b) Pattern of Utilization in Japan Using Partial Design (Conversion from Solid Line to Dashed Line)

In each of Cases 3-1, 3-2, 3-4, and 3-6, the partial design system specific to Japan was utilized by changing the part drawn with the solid line in the PCT application to the part drawn with the dashed line in filing the Japanese application. As decided in the "angle adjustment bracket" case, in the conversion application from the patent to the design, conversion from the solid line to the dashed line is permitted under a certain condition. As in the case of the conversion application, in the PCT application phase, such an operation as extracting as the solid line, only a portion desired to be registered in the design application phase in Japan from the entire image of a device shown with the solid line may be permitted. From the overseas examples (e.g., Cases 3-1 and 3-2), it is

inferred that similar solid-line to dashed-line practices may be accepted to some extent in the U.S., Germany, Taiwan, Korea, etc.

The design of the wound therapy device (Case 3-2) or the injector (Case 3-4) in the field of medical equipment was registered as the partial design by drawing a device main body or an external cylinder of the syringe with the dashed line to focus on an important part such as an exchange member or an operable portion, and these cases serve as good references of "PCT application × medical equipment × partial design" in the medical field where an application is often filed in multiple countries.

(c) Combination of Various Application Routes

Case 3-3 is an extremely rare case where the PCT application matured via the Hague application to the design registrations in Japan, the US, the EU, the UK, and Korea, and it shows that, starting from only one PCT application, the PCT system and the Hague system in combination can realize obtainment of the patent right and the design right in multiple countries.

In Cases 3-9 and 3-10, also in the Taiwan design application, filing of an application claiming priority to a PCT application was permitted, and strategies to incorporate Taiwan as the design protection country as important as the US or the EU were taken. Cases 3-9 and 3-10 are concluded as specific examples where, even when an application does not start from a Japanese design application, various protection routes including the Hague route and the Taiwan application can be selected in a flexible manner by using the PCT application as a "hub where design drawings are bundled."

4. Other Cases

4.1 Cases Including Design Registration in Japan

In addition to the above, other cases can be found as below, in which the design is registered in countries including Japan, based on a single PCT application.

- PCT/CN2019/080509 (Four in Japan, one in the US, and one in India)
- PCT/US2021/016902 (Three in Japan)
- PCT/US2021/023657 (Two in Japan and one in Europe)
- PCT/US2021/012313 (Two in Japan and one in Europe)
- PCT/US2011/020368 (one in Japan and one in Europe)

4.2 Cases Not Including Design Registration in Japan

Other cases can be found as below, in which the design is registered in countries other than Japan, based on a single PCT application.

- PCT/JP2010/062942 (One in Europe)
- PCT/FR2024/000088 (One in Europe)
- PCT/US2021/040042 (One in Europe and one in the US)
- PCT/US2007/079931 (One in Europe)
- PCT/CN2021/073033 (One in Europe)
- PCT/IN2023/051001 (Four in Canada)

4.3 Discussion

It can be seen also from existence of these cases that "multiple-design × multiple-country" strategies have spread over wide technical fields and regions, without being limited to a specific field or a specific country, although the drawings in the groups of cases listed here are not introduced as specifically as in Cases 3-1 to 3-10.

For example, in PCT/CN2019/080509, PCT/US2021/023657, PCT/US2021/012313, and PCT/US2011/020368, in the region (EU design) where multiple designs in one application is permitted, while a small number of main countries such as Japan and Europe or Japan and the US and India are combined, multiple design networks are

positively formed by the limited number of design applications. Without filing several-ten design applications, however, the design portfolio may efficiently be composed by well combining a single PCT application with the multiple design system in each country.

The design application based on the PCT application may be filed in countries not including Japan or may be filed only in Canada and Europe, like PCT/JP2010/062942, PCT/FR2024/000088, PCT/US2021/040042, PCT/US2007/079931, PCT/CN2021/073033, PCT/IN2023/051001, and the like.

These cases show that not only Japanese companies but also applicants of various nationalities such as the US, Europe, the UK, China, Korea, Brazil, and India aim at protection of a design based on the PCT application. The design application based on the PCT application is considered as being available as one of globally common design strategies, rather than the strategies only for the Japanese companies.

5. Summary

In this article, characteristics of the design application claiming priority to the PCT application and potential of use thereof in Japan and each country were discussed. The PCT application functions not only as the conventional "international route for the invention" but also as the "flexible platform" that supports multiple-country application strategies for the design. When an invention and a design are completed at the same time and rights for both are desired in multiple countries, the patent and design rights can be obtained in multiple countries from a single PCT application without filing a separate national design application as the basis of priority. A company that has created a plurality of proposed designs can incorporate design drawings into the PCT application and then consider in which country obtainment of the patent right should be sought for while the company values markets or business plans in each country within the priority period, and it can simultaneously consider which designs should be pursued and in which countries design rights should be sought for after filing of the PCT application.

In the future, cases where the design application based on the PCT application is made use of will further be accumulated while relation with the foreign design application based on the ordinary national design application or with the Hague system or the design system in each country is taken into consideration. I expect that the route via the PCT application to the design application will become more important as a realistic and viable option in filing the design application in multiple countries.

Article

To "Contribute to the Development of Industry" as a Patent Attorney

Looking Back on the Data Scientist Full-Scale Training Program Certificate Program by the University of Tokyo

Takeshi KAWAKAMI

Fukami Patent Office, P.C.
2nd Electrical/Information Division Senior Patent Attorney

1. Introduction

On November 10, 2025, while I still worked on this article, it was announced that, among 3501 applicants, 205 applicants passed the patent attorney examination (the pass rate: about 5.86%). From our Fukami Patent Office, P.C., three members passed this examination. With confidence that they had passed the difficult examination with a pass rate of about 6%, they will hopefully take a new step in 2026 as a patent attorney, i.e., a specialist of the Patent Act, the Utility Model Act, the Design Act, or the Trademark Act of Japan that they had learned in preparation for the examination.

I, the author, passed the patent attorney examination in 2012, and on November 17, 2014, I started to work at Fukami Patent Office, P.C. as a patent attorney specialized in the electrical/information field. In general, a patent attorney specialized in patent prosecution is regarded as a specialist of the Patent Act. Article 1 of the Patent Act defines, "*The purpose of this Act is to encourage inventions through promoting the protection and utilization of inventions, and thereby contribute to the development of industry.*" In view of the concept that the exclusive duty of the patent attorney includes serving as a representative for carrying

out the procedure of filing patent applications (Article 4(1) of Chapter I of the Patent Attorneys Act), patent attorneys can "contribute to the development of industry" by creating high-quality patent application documents (specifications).

The specification can be recognized as verbalization of the "invention" defined as a "*highly advanced creation of technical ideas utilizing the laws of nature*" (Article 2(1) of the Japan Patent Act). As Albert Einstein stated, "*If you can' t explain it to a six year old, you don't understand it yourself*", verbalization and understanding are inextricably linked together. Thus, creating a high-quality specification depends on whether or not a patent attorney preparing a specification understands the essence of the "invention".

In view of the above, I consider that a patent attorney can "contribute to the development of industry" by understanding the essence of the "invention". Thus, while looking back on the transition of our society, the present article will introduce my accomplishments achieved in the Data Scientist Full-Scale Training Program, which is one of the certificate programs of the University of Tokyo, in which the author had participated in order to understand the essence of the Artificial Intelligence (AI) technology that will play an important role in our future society.

2. Trigger for Promoting "Development of Industry"

I consider that "the development of industry" stated in Article 1 of the Japan Patent Act can be paraphrased as "evolution of society". This evolution of society has been promoted by innovation. For example, according to information from the Japan Cabinet Office, our social evolution has advanced, so far, in the form of a series of societies including the hunting society (Society 1.0), the agricultural society (Society 2.0), the industrial society (Society 3.0), and the information society (Society 4.0). Hereafter, a supersmart society (Society 5.0)[1] will emerge as a future society. Society 5.0 was first announced as "*a human-centered society in which economic development and the resolution of social issues are compatible with each other through a highly integrated system of cyberspace and physical*

space" in the 5th Science and Technology Basic Plan (Cabinet decision as of January 22, 2016)[2]. AI technology was cited as one of the base technologies supporting Society 5.0.

3. Overlap between Industrial Revolutions and AI Booms

In the industrial, information, and supersmart societies (Societies 3.0 to 5.0), there were industrial revolutions symbolizing these dramatic societal evolutions[3], [4]. Further, AI booms[5], [6] occurred in the information and supersmart societies (Societies 4.0 and 5.0). The above-mentioned events are summarized in the table below.

<table>
<tr><th>Societies</th><th>Industrial Revolutions</th><th>AI Booms</th></tr>
<tr><td rowspan="2">Industrial Society
(Society 3.0)
From the End of 18th Century</td><td>1st Industrial Revolution
(INDUSTRY 1.0)
Mid-18th Century to
Early 19th Century
Light Manufacturing Industry (Steam Engines, Spinning Machines)</td><td rowspan="3">-</td></tr>
<tr><td>2nd Industrial Revolution
(INDUSTRY 2.0)
Mid-19th Century to
Early 20th Century
Heavy Manufacturing Industry
(Electric Power, Oil, Motors)</td></tr>
<tr><td rowspan="2">Information Society
(Society 4.0)
From the Latter Half of 20th Century</td><td rowspan="2">3rd Industrial Revolution
(INDUSTRY 3.0)
Early 1970s.</td><td>1st AI Boom
(Search and Inference)</td></tr>
<tr><td>2nd AI Boom</td></tr>
</table>

<table>
<tr><td></td><td>Automation and
Informatization
(Computer, Internet)</td><td>(Search and Inference)</td></tr>
<tr><td rowspan="3">Supersmart Society
(Society 5.0)
From the First Half of 21st Century</td><td>4th Industrial Revolution
(INDUSTRY 4.0)
From 2010
Digital Innovation
(<u>AI</u>, IoT (Internet of Things), Blockchains)</td><td rowspan="2">3rd AI boom
(Machine Learning)</td></tr>
<tr><td>5th Industrial Revolution
(INDUSTRY 5.0)
From 2021
Sustainability, Human Centric, Resilience</td></tr>
<tr><td>4th AI Boom
(Generative AI)
From 2022</td></tr>
</table>

As shown in the above table, the third AI boom and INDUSTRY 4.0 occurred at the same time. Since AI is regarded as one of the technologies that characterizes INDUSTRY 4.0, it is undeniable that AI has boosted INDUSTRY 4.0. A breakthrough symbolizing such a relation between INDUSTRY 4.0 and AI occurred on November 13, 2012. On this day, the winner of the image recognition competition "ImageNet Large-Scale Visual Recognition Challenge 2012 (ILSVRC 2012)" was announced[7]. The winner was "SuperVision" led by Geoffrey Hinton who is a professor at The University of Toronto. By using AlexNet[8], a convolutional neural network (CNN) optimized by deep learning, SuperVision reduced the error rate of image recognition by as much as 10% from that of the previous year, and thus overwhelmed Support Vector Machine (SVM) that had been the mainstream until then. Although ILSVRC was a contest for image recognition, deep learning has general versatility not limited only to image recognition tasks, and thus, the trend of machine learning was thereafter greatly changed and directed to deep learning. Machine learning is one of the AI

fields. In this article, machine learning centering on deep learning is also simply referred to as "AI".

4. Trigger for Commitment to AI as a Patent Attorney

In the third AI boom, a large number of patent applications for AI-related inventions are being filed[9]. In order to deal with such a situation, in 2018, only six years after ILSVRC in 2012, Fukami Patent Office, P.C., formed the AI/IoT Team for supporting patent applications related to innovation for INDUSTRY 4.0, typified by AI-related inventions. The AI/IoT Team is a cross-sectoral team constituted of members from six groups in Fukami Patent Office, P.C., including the 1st to 3rd Electrical/Information Divisions, the 1st and 2nd Mechanical Divisions, and the Chemical/Biotechnology Division for each technical field. I was also selected as a member of the AI/IoT Team from the 1st Electrical/Information Division to which I belonged at that time. At the time when the AI/IoT Team was started, each of the members was assigned with a respective project regarding the fields of AI and IoT, and in-house study meetings were held by the AI/IoT Team members. I was assigned with reinforcement learning, and read an article about machine learning for the first time in my life, which was "*Human-level control through deep reinforcement learning*"[10] explaining Deep Q-Learning (DQL).

Deep Q-Learning is machine learning which is a combination of Q learning (as one type of reinforcement learning) and deep learning. Since reinforcement learning is a "theoretical framework for acquiring an optimal behavior by trial and error based on experience"[11], there is no correct answer in reinforcement learning. On the other hand, deep learning requires a correct answer since deep learning is a learning algorithm that adopts backpropagation to optimize a loss function defining an error between a correct answer and a model output. It is seemingly impossible to combine reinforcement learning that does not produce a correct answer and deep learning that requires a correct answer. However, Deep Q-Learning solved this problem by defining a loss function based on the premise that a model output obtained a certain period ago as a past experience is a correct answer. The article

about Deep Q-Learning taught me that a loss function is a key for finding something to be combined with deep learning. Thus, as a patent attorney, I became committed to AI technologies since I had felt that verbalization of the principle of AI would improve the quality of the specifications of the AI-related inventions.

The last author of the article about Deep Q-Learning is Demis Hassabis who is the CEO of Google DeepMind. Google DeepMind CEO Demis Hassabis was awarded the Nobel Prize in chemistry on October 9, 2024 for the achievement of protein structure prediction AI (AlphaFold). On October 8, 2024, Professor Geoffrey Hinton who played an important role for achieving a breakthrough in ILSVRC 2012 was also awarded the Nobel Prize in Physics. We still have a fresh memory that two AI scientists were awarded Nobel Prizes in 2024.

5. Development of Human Resources for Innovation

In the Dartmouth Conference held in 1956, which was the first workshop on artificial intelligence, the term "artificial intelligence" was defined by Professor John McCarthy as "*the science and engineering of making intelligent machines, especially intelligent computer programs*"[12]. Since then, AI studies have continued and have accumulated many study results for about 70 years during a repeated cycle of boom periods and dormant periods. Then, in 2024, AI studies were finally recognized in the highest academic research field with Nobel Prize awards.

One year after this watershed year in the history of AI studies, in Japan, in January 2025, two attempts to develop human resources for innovation were started. As the first attempt, a test category "Information I" was added to the Common Test for University Admissions conducted on January 18 and 19, 2025. Young students can be expected to achieve significant growth as human resources who most need to be educated for innovation to drive our society to Society 5.0. It is considered that this attempt aims at educating high school students so as to acquire knowledge necessary for social implementation of AI.

As the second attempt, from January 16, 2025 the University of Tokyo started the Data Scientist Full-Scale Training Program as a certification program. Working adults may not be expected to achieve as much growth as young students do, but they may still contribute to the social implementation of AI as mature professionals. This program is a part of recurrent education targeting such working adults, and is defined as a "program for learning the essence of data science on a full-scale curriculum with a focus on the mathematical theory designed by the University of Tokyo"[14].

The certificate program[15] is an education program based on Article 105 of the School Education Act of Japan defining "*Universities may organize special courses targeted at persons other than students of the relevant university, and they may issue a certificate towards persons who have completed those courses, as testament to the fact of completion, pursuant to the provisions of the Minister of Education, Culture, Sports, Science and Technology.*", and allows graduates of the program to write about their completion of the education program in their personal resumes. I had continued to learn AI since I had read the article about Deep Q-Learning. However, it was always a problem for me that there was no objective evidence proving my knowledge about AI. Because I considered that this problem could be solved by the certificate program of the University of Tokyo, entitling inclusion in my personal resume, I decided to participate in the Data Scientist Full-Scale Training Program.

6. Data Scientist Full-Scale Training Program

The Data Scientist Full-Scale Training Program (hereinafter referred to as the DSF program) is hosted by the Graduate School of Information Science and Technology of the University of Tokyo[16] and operated by U Tokyo Extension Co., Ltd. U Tokyo Extension Co., Ltd. was established on December 3, 2018 (our AI/IoT Team was started in the same year) and aims to accomplish its mission to "select, from among the highest level of academic outcomes produced in the University of Tokyo, an outcome strongly demanded particularly from the social and industrial communities and leading to Japan's growth and creation of

innovation, and provide the selected outcome to companies and workers in societies in the form of practical recurrent education"[18]. The University of Tokyo Data Science School was opened on April 12, 2019 by U Tokyo Extension Co., Ltd., and the Data Scientist Full-Scale Training Course was started on April 14, 2022 in this school. The Data Scientist Full-Scale Training Course is a predecessor of the DSF program as a certificate program. The DSF program includes a total of twenty lectures for six months as shown in the table below.

<table>
<tr><th>No.</th><th>Date
(Thursday)</th><th>Time</th><th colspan="2">Contents</th></tr>
<tr><td>1</td><td>Jan. 16</td><td rowspan="9">9:00-12:10 (3 h and 10 min)
(First Half 9:00-10:30 (90 min)
Intermission 10:30-10:40 (10 min)
Latter Half 10:40-12:10 (90 min))</td><td colspan="2">Introductory Guide
to Data Science</td></tr>
<tr><td>2</td><td>Jan. 23</td><td colspan="2">Information Ethics</td></tr>
<tr><td>3</td><td>Feb. 6</td><td rowspan="7">Statistical
Analysis</td><td>(1) Programming by R,
Summarization of Data</td></tr>
<tr><td>4</td><td>Feb. 13</td><td>(2) Probability Variable and
Probability Distribution,
Estimation</td></tr>
<tr><td>5</td><td>Feb. 20</td><td>(3) Hypothesis Testing,
Single Regression Analysis</td></tr>
<tr><td>6</td><td>Mar. 13</td><td>(4) Multiple Regression
Analysis,
Principal Component
Analysis</td></tr>
<tr><td>7</td><td>Mar. 27</td><td>(5) Discriminant Analysis,
Multidimensional Scaling
Method</td></tr>
<tr><td>8</td><td>Apr. 3</td><td>(6) Time-Series Analysis</td></tr>
<tr><td>9</td><td>Apr. 10</td><td>(7) Comprehensive Exercise</td></tr>
</table>

10	Apr. 24			(1) Introductory Guide to Machine Learning Introduction of Python
11	May 8			(2) Introductory Guide to Machine Learning Introductory Guide to Python
12	May 15		Machine Learning	(3) Supervised Learning 1
13	May 22			(4) Data Analysis Pretreatment
14	Jun. 5			(5) Supervised Learning 2
15	Jun. 19			(6) Unsupervised Learning
16	Jun. 26			(7) Natural Language Processing/Deep Learning
17	Jul. 3			(8) Comprehensive Exercise
18	Jul. 10		Optimization	(1) Summary of Optimization, Linear Programming: Description of Problems, CVXPY Exercise
19	Jul. 17			(2) Linear Programming: Duality Theorem, Non-Linear Programming: Gradient and Hessian Matrix
20	Jul. 24			(3) Quadratic Programming and Convex Programming

The lectures of the courses were given by a professor, an associate professor, a lecturer, and the like, a graduate from, or belonging to, the Graduate School of Information Science and Technology of the University of Tokyo[20]. The materials used in each lecture

contain carefully selected and systematically organized essential information, and were so valuable that I would repeatedly refer to them in the future. Due to the lectures given based on such valuable materials, essential information still stays in my memory, and I think my future learning plan was correctly directed.

The lecture configurations of the DSF program are characterized in that a lecture about information ethics is given between an introductory lecture (Introductory Guide to Data Science) and main lectures (statistical analysis, machine learning, and optimization). The lecture about information ethics aims to teach codes of conduct regarding compliance and the ethical problems associated with information technology (IT) services involving big data. In view of the fact that the DSF program is a "program for learning the essence of data science on a full-scale curriculum with a focus on the mathematical theory designed by the University of Tokyo" as described above, the DSF program is seemingly sufficient since it includes: a lecture about introductory guide to data science for teaching social situations and an outline of technologies related to data science; a lecture about statistical analysis for teaching the mathematical background of statistical analysis based on machine learning; a lecture about machine learning for teaching the mathematical background of a representative algorithm of machine learning; and a lecture about optimization for teaching the mathematical background of optimization (e.g., minimization of a loss function) that plays an important role in machine learning (e.g., "learning" in deep learning).

However, even if revolutionary IT services are created based on these lectures, such IT services are not always acceptable in our society. Such services obtained as a result of developments in mathematics, computer science, software engineering, and the like may bring about a result far exceeding the previous permissible limits, which may sometimes significantly impair someone's benefits and may violate laws. This reminds us of the Winny case in which the engineer who developed file-sharing software "Winny" was indicted in 2004 for aiding in copyright infringement. In recent years, it was reported by the media that Perplexity AI, Inc., providing its AI search service, was accused of copyright infringement by

the Yomiuri Shimbun Holdings on August 7, 2025 demanding 2.168 billion yen as compensation and also by each of Nikkei Inc., and the Asahi Shimbun Company on August 26, 2025 each demanding 2.2 billion yen as compensation. Each of these cases was filed to the Tokyo District Court.

In view of the above-mentioned cases, I think that the DSF program's lecture about information ethics taught the attendees to conform to the rules by exemplifying the mindset "it's not that we are allowed to do anything because we can do it", before the main lectures about statistical analysis, machine learning, and optimization in the DSF program "with a focus on the mathematical theory".

The completion requirements for the DSF program are as follows.

I. Attend all the lectures

II. Submit a lecture report after the end of each lecture (together with a questionnaire about satisfaction with each lecture).

III. Get a passing score for each of all the assignments (the passing score is 60 or more out of 100).

It was not particularly difficult to satisfy the requirements I and II, but completion of the DSF program depends on the requirement III. Among the twenty lectures, we were required to submit assignments in eighteen lectures (seven in Statistical Analysis, eight in Machine Learning, and three in Optimization) excluding Introductory Guide to Data Science and Information Ethics. The assignment in Statistical Analysis was mainly to design an R language program on RStudio, the assignment in Machine Learning was to design a Python program on Google Colaboratory, and the assignment in Optimization was to write a report about various optimization problems. I had never learned R language or Python but could deal with the assignments without any particular trouble thanks to the lectures including: the detailed explanation about grammar and functions; and the explanation and training for preparing sample codes in the exercise sessions. By actually preparing the assignments through the use of my intellectual and physical abilities, I could acquire the theoretical

contents taught in the lectures as practical technologies. In addition, the scores and feedback about each of the assignments allowed me to find out my weak points, so that I could improve my learning efficiency in reviewing the lectures. Through such a cycle of attending a lecture → submitting an assignment → receiving scores and feedback, the DSF program implements "practical recurrent education" that provides reliable learning outcomes.

7. Meaning Implied by "Patent Attorney"

In Japanese, "弁理士" (a patent attorney) and "弁護士" (a lawyer) appear to be the same except for the middle letters (i.e., "理" and "護") of the words. However, "弁理士" (a patent attorney) and "弁護士" (a lawyer) are also written as "辨理士" and "辯護士"[21], respectively, in old kanji (Chinese) characters, in which case not only the middle letters (i.e., "理" and "護") but also the first letters (i.e., "弁" and "辯") are different. Regarding the word "辨理士" (a patent attorney), the letter "辨" means "recognizing or perceiving the difference" or "discriminating between two things", which implies "understanding", and the letter "理" means a "reason", a "logic", or a "common sense", which implies the essence of things. In general, patent attorneys consider that "things" include an invention. Thus, such patent attorneys are regarded as specialists who understand the essence of the invention. Since understanding and verbalization are inextricably linked together, it is recognized that the word "弁理士" (a patent attorney) also implies a specialist who verbalizes the essence of the invention. Verbalization of the essence of the invention results in a specification of the invention, through which we can "contribute to the development of industry" as patent attorneys. Therefore, a patent attorney who serves to "contribute to the development of industry" is recognized as a specialist who verbalizes the essence of the invention.

If a patent attorney is regarded as a specialist who simply organizes the contents given by inventors into the format of the specification for filing a patent application, the DSF program may be too much for such a patent attorney. However, considering that only a specialist who verbalizes the essence of the invention can "contribute to the development of industry" as a patent attorney, the full-scale certificate program like the DSF program is

completely appropriate for patent attorneys who desire to "contribute to the development of industry" because such program can simultaneously provide an objective result as a certificate program and a substantial result as a specialty.

8. Conclusion

Clients who wish to file a patent application require patent attorneys to provide not only the legal expertise for pursuing patent protection. Although such legal expertise is questioned in the patent attorney examination, it is merely a prerequisite to start patent practice as a patent attorney.

The number of patent attorneys as of September 30, 2025 is 11,852[12], to which new patent attorneys will be added who have completed the patent practice training among this year's 205 qualified applicants. From among about 12,000 patent attorneys, a client chooses one based on the ability to understand the essence of the invention. Although completion of the DSF program can be regarded as a preparation for understanding the essence of the AI-related inventions, the AI-related inventions belong to only one of the fields of inventions expanding according to innovation.

It is expected that the fields of inventions will expand, starting from AI-related inventions, to the fields of quantum computers, smartcities, block chains, space, fusion power generation, and the like. Thus, in order to be able to work as a patent attorney who can "contribute to the development of industry" into the future in which there will be a variety of fields of inventions, I will continue my effort to further improve my ability for verbalization of the essence of inventions, together with newly qualified patent attorneys.

Notes:

[1] Society 5.0 - Science and Technology Policies by the Japan Cabinet Office (https://www8.cao.go.jp/cstp/society5_0/)

[2]The 5th Science and Technology Basic Plan (https://www8.cao.go.jp/cstp/kihonkeikaku/5honbun.pdf)

[3] Society 5.0: - Cooperative Creation of Future - Policy (Suggestions and Reports) by Keidanren (https://www.keidanren.or.jp/policy/society5.0.html)

[4] What was the 5th Industrial Revolution (Industry 5.0)? Review of Relation between Manufacturing Industry in Japan and Society 5.0 (Nikken → Tsunagu for Helpful Medium Related to Manufacturing Industry (https://www.nikken-totalsourcing.jp/business/tsunagu/column/1881/)

[5] The Ministry of Internal Affairs and Communications, WHITE PAPER: Information and Communications in Japan 2016; History of Artificial Intelligence (AI) Study (https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h28/html/nc142120.html)

[6] The Ministry of Internal Affairs and Communications, WHITE PAPER: Information and Communications in Japan 2024; Progress of AI Development (https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r06/html/nd131100.html)

[7] ImageNet (https://www.image-net.org/challenges/LSVRC/2012/)

[8] ImageNet Classification with Deep Convolutional Neural Networks (https://proceedings.neurips.cc/paper_files/paper/2012/file/c399862d3b9d6b76c8436e924a68c45b-Paper.pdf)

[9] Status Research for filing of Applications of AI-Related Inventions: the Japan Patent Office of the Ministry of Economy, Trade and Industry (https://www.jpo.go.jp/system/patent/gaiyo/sesaku/ai/ai_shutsugan_chosa.html)

[10] Human-level control through deep reinforcement learning - nature14236.pdf (https://web.stanford.edu/class/psych209/Readings/MnihEtAlHassibis15NatureControlDeepRL.pdf)

[11] "Reinforcement Learning in the Future" by Takaki Makino, Shibuya Takeshi, Shinichi Shirakawa, Minoru Asada, Hideki Asoh, Sachiyo Arai, et al. (Morikita Publishing Co., Ltd.)

[12] Basic Questions (https://www-formal.stanford.edu/jmc/whatisai/node1.html)

[13] FAQ of Artificial Intelligence

(https://www.ai-gakkai.or.jp/whatsai/AIfaq.html)

[14] The University of Tokyo Data Science School; the University of Tokyo; U Tokyo Extension Co., Ltd. (https://www.utokyo-ext.co.jp/news/dss)

[15] The University of Tokyo; the Certificate Program of the Data Scientist Full-Scale Training Program; U Tokyo Extension Co., Ltd. (https://www.utokyo-ext.co.jp/dss/course/dfp#certificate-program)

[16] The Graduate School of Information Science and Technology of the University of Tokyo (https://www.i.u-tokyo.ac.jp/)

[17] U Tokyo Extension Co., Ltd. (https://www.utokyo-ext.co.jp/)

[18] Corporate Profile; U Tokyo Extension Co., Ltd. (https://www.utokyo-ext.co.jp/company#company-info)

[19] The University of Tokyo; the Certificate Program of the Data Scientist Full-Scale Training Program; U Tokyo Extension Co., Ltd. (https://www.utokyo-ext.co.jp/dss/course/dfp#curriculum)

[20] https://www.utokyo-ext.co.jp/dss/course/dfp#instructor

[21]https://www.jpaa.or.jp/old/activity/publication/patent/patent-library/patent-lib/201209/jpaapatent201209_001-002.pdf

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