

# An A-to-Z Primer of a Researcher's Life: From First Principles to Career Reality to Personal Breakthrough

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Given that the graduation research I conducted during my senior undergraduate year marked the start of my career as a researcher, I owe practically two-thirds of my career to date to the support I've received in one form or another through the Grants-in-Aid for Scientific Research (Kakenhi). I like to think of my research career as a process comprising three phases.

## 1. First Principles

I began participating as an apprentice in the preparation of grant applications (more accurately, the preparation of clean, legible copies because everything was handwritten in those days) around the time I was assigned as a bachelor's thesis researcher to the laboratory of Professors Shuzo Yajima and Yahiko Kambayashi, which were affiliated with the Department of Information Science, Faculty of Engineering, Kyoto University. Of course, this was the phase during which I at last began to gain some research experience. Although I had to do my utmost to understand the content of the grant applications we wrote, I learned (a) that research work has a story to tell, (b) it's important to use clear, easy-to-understand expressions, and above all, (c) research funds are something you have to make an active effort to acquire. I feel that gaining these insights prior to my experience with full-fledged research on my graduation thesis helped me develop my core competencies as a researcher in the engineering sciences. (Looking back, I recall that Prof. Kambayashi was away almost that entire year for research work abroad. I also learned (d) that research themes are not predefined or given, but rather something you find through your own initiative, (e) that the thematic questions or issues are something you formulate through discussions with your peers and seniors, and (f) that you should pursue your research in a way that enables others to tangibly envision the expected results or accomplishments.)

In graduate school, I specialized in informatics and was affiliated with the laboratory run by Prof. Toshiyuki Sakai. For four of those six years, I participated as a student in several projects that had to do with processing pattern information and were backed by Kakenhi (two in the category of General Scientific Research (A), and two more in Developmental Scientific Research). In shouldering at least a

certain measure of responsibility for the outcomes of these projects, I gained exposure to the commitment my professors displayed toward their research and learned that (g) now was the time to work on the basic technology that we would need in society 10 to 20 years down the road, (h) I should set clearly defined goals even with basic research, and (i) conceiving alternate courses of action when research results were slow to appear was entirely a matter of personal ability. (As a student in Prof. Sakai's lab, I did not do so well in terms of my academic work. That said, it would be difficult for me to forget the numerous times Prof. Sakai admonished me about my approaches to research.)

## 2. Career Reality

After gaining employment with the Electrotechnical Laboratory (ETL), Agency of Industrial Science and Technology (AIST), Ministry of International Trade and Industry (MITI), (today known as the National Institute of Advanced Industrial Science and Technology, or AIST), I found myself exploring fresh themes for research after a large-scale project in which I was involved had run its course. It was around that point in time that Prof. Kambayashi approached me and asked that I participate as a colleague in a Kakenhi-backed database systems-related project (in the category of Co-operative Research (A)). Although respectively segments of the informatics field in the broader sense, pattern information processing and databases were (j) at that time still two discrete fields with their own, distinct orientations and I was afforded the challenge of tying these two fields together with assistance through the Kakenhi framework. I can gratefully say these experiences later benefited me immensely in my effort as a project leader to launch the AIST-backed Human Media Project (aimed at developing a human-centric field of information technology with an emphasis on *kansei* [sensitivity]) despite criticisms from within the Ministry of International of Trade and Industry that disparaged the value of *kansei*.

Luckily, even after I transferred to my job with the Faculty of Science and Engineering at Chuo University, I continued to receive Kakenhi that enabled me to move forward with foundation-building research associated with the above-cited project as well as further research on several fronts (a grant each in the categories of Scientific Research (C), (B), and two grants in (S); a grant in Exploratory Research and two grants in Challenging Exploratory Research; and one currently in Scientific Research (A)). As an outgrowth of these undertakings, I feel that I have been successful in communicating a variety of my concepts and ideas on *kansei* informatics to the broader international community, including, for example, *kansei* information processing, engineering-based modeling of *kansei*, *kansei* databases, and *kansei* robotics.

In the interim, I devoted myself to the creation and advancement of the Japan Society of Kansei Engineering as a member of the researcher community and endeavored to establish *kansei* informatics as a new academic field with multidisciplinary dimensions. In the process, (k) as an individual

researcher, I gained experience with the subcategories—disciplines and research fields—of the Kakenhi framework, specifically the processes involved in developing my research theme in the narrow, fringe areas of relatively large fields (e.g., intelligence science) into in the Disciplines and Research Fields with a Time Limit, and from part of a research field into a new and independent field of their own.

Over the past few years, I have found myself increasingly preoccupied with the tasks of university administration (as Vice President in charge of Research Promotion). Although it wasn't my intention, I've had to slightly scale back projects in basic research (from (S) to (A)) and feel apologetic towards my research collaborators and the students in my laboratory for this. I now believe that (l) maintaining an understanding of the proper direction of research as well as knowledge of actual conditions in the field or workplace and striving to reinforce the research capabilities of one's institution or organization together demand that even university administrators responsible for the promotion of research maintain their own awareness as researchers.

### 3. Breaking Through One's Own Limits as a Researcher

During my stint with the Electrotechnical Laboratory, I was taught that (m) researchers will be expected to engage in original work that is not only unique but also opens doors to new fields that other researchers will want to pursue, and to continue demonstrating the best results they can within their competitive environment.

Although I pursued my research with that commitment, once the field of *kansei* informatics had begun to attract recognition within the spheres of science and technology, I developed a certain apprehension that maybe my approach to the development of my ideas had been too conservative or self-restraining (in other words, that my ideas had been too limited in their scale or scope).

As a researcher, (n) no matter how well you succeed with original research that opens doors to new fields, you should not rest on your laurels but instead strive to surpass your own accomplishments and aim for a broader vision. In that context, the life of a researcher may be analogous to an infinite loop of self-affirmation and self-denial.

Well, it appears my itemized A-to-Z Primer of a Researcher's Life only managed to reach the entry (n). As a researcher, I prefer to see myself as someone with a long way to go, who still lacks experience and has plenty of room for continued growth.