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# Keio Program for Leading Graduate School

Science for  
Development of  
Super Mature Society

慶應義塾大学  
博士課程教育  
リーディングプログラム  
超成熟社会発展のサイエンス

慶應義塾大学博士課程教育リーディングプログラムは複合的に絡み合うテーマ「新しい社会の仕組み作り」、「新しい産業構造の構築」、「新しい社会における QoL のあり方の確立」に解決の糸口を見出し、超成熟社会の発展に貢献できる、次世代の博士人材を育成するために誕生しました。

The Keio Program for Leading Graduate School will cultivate a new generation of doctoral students capable of elucidating solutions for deeply interrelated issues facing Japan and the post-modern world: "creating new social mechanisms", "building a new industrial structure", and "establishing the concept of Quality of Life (QoL)" for the development of our super mature society.

## Charting Your Career in a Changing World

変化し続ける世界の中でのキャリア設計

Leonie MULDOON

Minister (Commercial), Australian High Commission, New Delhi

レオニー・モルドゥーン 在インド オーストラリア大使館、公使 (商務)  
前 在日 オーストラリア大使館、公使 (商務)



Participants in Keio's Program for Leading Graduate School are presented with a unique opportunity as well as a set of unique challenges as you fix objectives for your careers and lives, and chart the path forward. Not the least of those challenges is the changing world you find yourselves in, and Japan's changing place in that world.

In 1950 about 25 million people travelled internationally annually, 75 years later 1,133 million tourists' travel internationally each year. A 4,500% increase.

In the last 50 years significant regional trading and economic blocks have formed. We now have the European Union, multiple bi-lateral trade Agreements including between Australia and Japan and a recently signed TPP joining 12 Pacific nations in a ground breaking free trade zone.

In 2015 Noble Prizes in all three science categories: Physiology or Medicine; Physics and Chemistry were won by elite groups of global scientists working together to make scientific breakthroughs.

Japan is increasingly integrated in this globally interconnected world. In 1998 1% of Japan Gross National Product was based outside Japan, in 2012 it was triple that and set to rise further. Those Japanese Listed Companies that report off-shore profits separately report that greater than 50% of their profits are coming from places outside Japan.

Some recent Keio and Berkeley studies report that the R&D undertaken outside Japan by Japanese companies has doubled over the last 10 years, and the budget ascribed by Japanese companies to international R&D as a 300% of total R&D has increased over 300% between 1995 and 2014.

While Japan's global integration is unmistakable, Japan's place in the world is also changing. Japan is estimated to represent 3% of the global economy in 2060. This compares with 8.89% in 1990 and 6.1% in 2015. So the same individual effort by PLGS students today will struggle to achieve the same impact as it might have had in 1990 simply because of the size of the Japanese economy and Japan's global influence.

As an exceptionally talented group of self-starters, these challenges will not deter you as you embark on your international careers.

While you have the opportunity to assume important roles as global citizens, it is equally critical that you shape the life you wish to lead. Society and family expectations; barriers to maintaining appropriate work-life balance; pressures to acquire new skills and international experience at the same time as maintaining core competencies and positioning in Japan, are all challenges you will need to navigate. It is important however to remember that the only person you can guarantee will be at your funeral is YOU, and the only person that needs to be satisfied with the life being celebrated at that time is YOU.

博士課程教育リーディングプログラム (PLGS) に参加されている皆さんは、将来の道を定めるにあたり、解決しなければならぬ課題に直面することでしょう。最大の挑戦は、世界での日本の立場が刻々と変わるなか、変化し続ける世界に対応することです。

年間の海外旅行者数は、1950 年は約 250 万人でした。75 年が経ち、その数は 11 億 3,300 万人にも上り、約 4,500% の増加に当たります。

過去 50 年間、重要な貿易圏や経済圏が形成され、ヨーロッパ連合 (EU) を始め、日豪経済連携協定 (EPA) のような二国間の貿易協定も多数締結されました。環太平洋パートナーシップ (TPP) 協定も自由貿易圏を実現する画期的な出来事でした。

2015 年には、科学関連 3 部門のノーベル賞はすべて「チーム」が受賞しています。国境を越え共同作業に励んだ優秀な学者たちの功績です。

日本の国民総生産 (GNP) も国外に基づく割合は 1998 年には 1%、2012 年にはその 3 倍を記録し、更なる成長が見込まれています。海外市場における利益を個別に計上している日本上場企業では、利益の 50% 以上を日本以外の市場から得ているという報告もあります。

慶應義塾大学とカリフォルニア大学バークレー校によると、日本企業の全研究開発活動のうち、海外で行ったものの割合は過去 10 年間で倍増しています。また、国際研究開発に充てる予算は 1995 年から 2014 年の間で 300% 増えています。このように、日本と世界のインテグレーションは明らかであり、世界における日本の立場も変化を遂げています。

2060 年には、日本経済は全世界経済の 3% まで減少すると推測されます。この割合は 1990 年には 8.89%、2015 年には 6.1% でした。したがって、これから PLGS に参加する皆さんは 1990 年の先輩と同じ努力をしても、同等な成果を出すことは難しいかもしれません。

しかし、非常に優秀で自発的な精神を持つ皆さんはこのような壁も、世界を舞台にキャリアを築くことを躊躇させるものではないでしょう。

グローバル市民として重要な役割を果たしつつ、自身が願う人生を自ら形作っていくことは大切なことです。社会の期待や家族からの要望、仕事と私生活の適切なバランスをとるための障害、日本において仕事の実績を積み、自身の地位を確立するとともに、海外経験や新たなスキルも身につけなければならないプレッシャー。このような壁に突き当たりながら、皆さんは自身の力で人生という大海原を航海しなければなりません。しかし、どうか忘れないでください。いつかあなたがこの世を去る時、葬儀の場に必ずいる人は自分だけだということを。その時に、自分の送った人生に満足しなければいけないのもあなただけなのです。

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# A New Challenge for A Short-term Study Abroad

## 短期留学での新たな挑戦

In our All-Round Program for Leading Graduate School (PLGS), research assistants (RAs) will study abroad for a half year during their first major doctoral degree programs as a requirement for the core curriculum of PLGS. They will engage in their doctoral research projects at leading universities or research institutions with high research performance. RAs will be required to include results of their study abroad in one of the chapters of their doctoral dissertations and will establish a network with foreign experts. Also, our program recommends that their supervisors at their host universities or research institutions would serve as an external co-research advisor for their Ph.D. defenses.

In 2015 FY, the nine students of the first group that have been admitted for the program in 2012 went on a short-term study abroad to universities or research institutions in Europe and United States of America. They have monthly reported their activities during their stay. With diverse cultural backgrounds, they were expected to devote themselves to their research projects and produce their results there. They must have gotten very much encouragement from various events and interactions with people.

Until this last spring, all of nine RAs returned to Japan and have been currently doing various activities including job hunting, doctoral dissertations, and PLGS. They look more promising and confident than before and develop a depth and breadth of their visions along with their major expertise.

Following the first group, RAs of the second group have started preparing their short-term study abroad. They will face a new challenge in broadening their own possibilities. Here, we will introduce you nine RAs of the first group and their comments on their short-study abroad. (Project Research Associate, Yoshiko Lily ISHIOKA)

(1) The first major master degree; (2) The second major master degree

### Caltech

**Hiroki I AGASHIMA**, M.S.: (1) Science and Technology; (2) Economics

Host: Burdick Group, Department of Mechanical and Civil Engineering, California Institute of Technology (Caltech), Pasadena, CA, USA

In my overseas study, I have carried out the research on the trajectory planning of the spherical robot for multi-planetary exploration. Beginning with the learning on the mathematical background, I have contributed to system modeling and computer simulation of the optimization process. As the final presentation, we have held an international workshop between Burdick group and Katsura laboratory in March. Throughout the entire period, I have much experienced about not only an emerging research but also cultural differences, English environment, beautiful sights/ places and peoples' kindness. I would like to express my gratitude to everything.

### UC Davis

**Ken I AGAO**, M.S.: (1) Science and Technology; (2) Business and Commerce

Host: Visualization and Interface Design Innovation (ViDi) research group, Department of Computer Science, University of California, Davis, CA, USA

I started collaborative research into immersive visualization with some members of the laboratory where I attended as a visiting scholar. I made the prototype system, and I was able to publish the result of the research during my stay in the United States. Through the six-month stay, in addition to such research life, I have experienced a lot of activities, including recreations such as sports, trips and home parties. I found both differences and similarities between American and Japanese lives, all that I think important to learn to be a global person.

### University of Hawai'i

**Daisuke A I DO**, M.S.: (1) Science and Technology; (2) Business and Commerce

Host: Laboratory for Advanced Visualizations and Applications (LAVA), Department of Information & Computer Science, University of Hawai'i at Manoa, Honolulu, Hawaii, USA

I have been designing and implementing Content Espresso, a distributed storage system for globally large file sharing, since 2011 at Kaneko Lab., Keio University. The purpose of my visiting University of Hawai'i was to conduct a joint research with SAGE2 project at LAVA (Laboratory for Advanced Visualization and Applications). SAGE2 is a remote collaboration tool using a large-scale tiled displays. Through this visiting, I have learned how to proceed the research project, how the Americans study and work at University, and the culture of Hawaii. These experiences will be helpful for my life from now on.



### **Memorial Sloan-Kettering Cancer Center**

**Yuri YAMAMOTO**, M.S.: (1) Media and Governance (Systems Biology); (2) Medicine

Host: Memorial Sloan-Kettering Cancer Center, New York, NY, USA

I have spent six months studying abroad at the Memorial Sloan Kettering Cancer Center in New York. During these six months, I challenged myself to a lot of things, particularly a new research method. Although the research object was the same, it was a quite difficult for me to understand the method in English completely. Actually, this experience was so wonderful for me to think my research deeply and to learn the importance of process to grasp new things. Also, I did realize very much the importance in the friendship beyond countries and cultures.



### **Harvard University**

**Takumi KATO**, M.S.: (1) Science and Technology; (2) Medicine

Host: School of Engineering on Applied Science, Harvard University, Cambridge, MA, USA

The reason why I selected this group was that they have good fabrication environment and great technique for microdevices in photonics. I have researched on “silica glass” devices in Keio and this opportunity of research internship gave me to study “silicon” and “diamond” devices. Therefore, my work was related to fabricate devices. Dr. Stefan supervised and educated me for research matters. Through this internship, I have learned much not only on research work but on human relationship between Americans, Europeans and Asians in the research world.

### **American University**

**Masaki SAKAMOTO**, M.S.: (1) Law (Political Science); (2) Science and Technology

Host: Washington Semester Program, American University, Washington, D.C., USA

During the four months at American University, I have participated in Washington Semester Program, where students all over the world learn through the experiences in the capital of the world greatest country. Every week I attended a small-group discussion class of U.S. Foreign Policy while working as an intern at MIT Washington Office. Besides, I often went to many academic and political events in D.C. and cultivated a network with many students and experts in multiple fields. It was undoubtedly a semester in my lifetime.

### **University of Freiburg**

**Wataru YOSHIKI**, M.S.: (1) Science and Technology; (2) Business and Commerce

Host: Department of Microsystem Engineering, University of Freiburg, Freiburg im Breisgau,

I have tackled with one research project with a German doctoral student. Since the project was not the same as the theme of my Ph.D. thesis but was not so far from that, I was able to not only contribute my expertise to the project but also learn a lot of knowledges and skills from the project. Besides research activities, I was invited to home parties hosted by colleagues several times and went to a Christmas market with the students in the host group.

### **University of Padova**

**Koyo YU**, M.S.: (1) Science and Technology; (2) Medicine

Host: Department of Technical and Management of Industrial Systems, University of Padova, Padova, Italy

I have visited Padua University and San Camillo Hospital in Italy. The aim of this visit was to develop a rehabilitation system for stroke patients using surface EMG armband. I am filled with a sense of accomplishment with the collaboration with the students in Padua University and doctors in San Camillo Hospital. The developed software has also been received a high mark by other laboratories in Padua University. I have also build a close relationship with a student in Italy and we came bake to Japan together for helping his thesis.

### **Stanford University**

**Maki DAI**, M.S.: (1) Science and Technology; (2) Business and Commerce

Host: Civil and Environmental Engineering, Stanford University, Stanford, CA, USA

I have stayed in John A. Blume Earthquake Engineering Center of Stanford University for six months. The aims of this visit were to learn frontier researches in Stanford, to apply these researches to my own research and to conduct a research that would be included in one of the chapters of my Ph.D. thesis. As a result, I was able to achieve enough outcomes. In addition, I aimed to expand my international network, so that I have attended many networking events not only in Stanford University but also in Silicon Valley.





## My Career Path

私のキャリアパス

# Business of Paper and People

紙と人のビジネス

Harutoshi TAGAYA Project Professor

多賀谷 晴敏 博士課程教育リーディングプログラム・メンター（非常勤特任教授）

In April 1996, Japanese Insurance Law has been revised and has become a mile stone in the history of Japan's insurance industry. As a consequence, insurance products were liberalised, mutual entry to life and non-life insurance business through subsidiary was permitted and insurance broker system has been introduced. At the same time, Lloyd's of London was admitted to write direct business in Japan by special law and Lloyd's Japan Inc. was established. Until then, Lloyd's had only reinsurance business (insurance company purchase insurance in order to reduce accumulation) with Japanese insurance companies but liberalization has made them enter into direct insurance market. Chairman of Lloyd's asked Tokio Marine to support start-up operation and I was seconded to Lloyd's Japan for two years from April 1997. Although, I was officially allowed to compete with Tokio Marine, large corporate account which Lloyd's targeted was not an easy business to obtain due to the tight business relationship and mutual stock sharing with incumbent carriers. For Lloyd's who is used to free competition, believed that they can get business as long as terms and conditions are better. It was time consuming but I continuously explained the nature and business practices of Japanese insurance industry which are different from that in UK. I also convinced them to target mid to small companies where competition was much less. Business has increased gradually but certainly not enough level which Lloyd's of London expected. After two years, I returned to Tokio Marine and I had no contact on business. In July 2006, I was transferred to reinsurance subsidiary established in London in 2005. It is like a reverse situation of Lloyd's Japan. After decade, many of those people of Lloyd's whom I knew have been promoted to influential positions. When I asked for their assistance, they kindly helped me which I believe reciprocal to what I did for Lloyd's Japan. They have kindly dealt competition and individual relation separately. As we say "insurance is paper and people's business", I never felt credibility is so important. Of course, real life is not simple and sometimes difficult to cope with, but I would like to keep consistency as far as the basic stance is concerned.

1996年（平成8年）4月に保険業法が改正され、保険商品の自由化、子会社方式による生保・損保の相互参入、保険ブローカー（保険仲介人）制度が認められる等、競争原理が導入され、保険業界にとっては画期的なこととなりました。同時に、英国のロイズもロイズ・ジャパンという法人を設立し、日本で直接営業を行うことが特別法で認められることとなりました。それまでロイズは、日本の保険会社と再保険（保険会社がリスク分散のために他の保険会社から保険を買う仕組み）を通じて取引を行っていましたが、日本の保険会社の競争相手として直接、保険取引が可能となったのです。ロイズから東京海上に立上げ時の協力要請があり、社員を派遣することとなりました。何故か、白羽の矢が当たったのが私で1997年4月から2年という期限で出向することとなりました。東京海上と競争してよいとお墨付きをもらって出向しましたが、ロイズがターゲットとしている大企業向けの保険は、それまでの取引関係や株式の持ち合い等により参入障壁は極めて高いものでした。自由競争に慣れている英国ロイズは、条件や保険料が優れていれば契約が当然取れると思っているので、そんな単純な話ではないということを理解してもらうのに苦労しましたが、時間と手間をかけて丁寧に説明をしました。また、営業的には大企業ではなく中小企業に的を絞って徐々に実績を作ることができました。勿論、規模としてはとても英国ロイズの期待するレベルには届きませんでした。2年が経ち東京海上に戻り、ロイズとはその後、接点がなくなりました。2006年7月、私は東京海上が2005年に英国に設立した再保険子会社に勤務することとなりました。ロイズ・ジャパンと逆の立場です。ロイズ・ジャパンの時に知り合った人たちがそれぞれの組織で重要な地位を占めていましたが、ロイズ・ジャパンのために一生懸命になっていたことを評価してくれたのでしょうか、いろいろと相談すると親身に協力してくれました。競争は競争、個人対個人の付き合いは付き合いとして区別して接してくれました。保険は紙と人の商売と言いますが、この時ほど信用の大事さを身に染みて感じたことはありません。勿論、世の中必ずしも思い通りになることばかりではありませんが、立ち位置のぶれない姿勢は守りたいものです。



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