

Joint Research on *Anshin* in Internet Usage

Taro Yamamoto[†], *Naoko Chiba*, *Fumihiko Magata*,
Katsumi Takahashi, *Hiroki Ueda*, *Naoya Sekiya*,
Isao Nakamura, *Morihiro Ogasahara*,
and Yoshiaki Hashimoto

Abstract

NTT Information Sharing Platform Laboratories is conducting joint research with specialists in socio-psychology at the University of Tokyo and Toyo University to study *anshin* (安心) in Internet usage. Anshin, which is often translated as peace of mind, security, or reassurance, is a vague concept with a wide range of meaning. Therefore, we decided to focus first not on anshin itself but on *fuan* (不安), which has roughly the opposite meaning (anxiety) because anxieties are easier to recognize. We constructed a model of the anxiety generation process and conducted two investigations—a home-visit investigation in Tokyo and an international investigation by telephone—and we put out a press release describing proof of an unbridgeable gulf between anshin and safety. In this article, we outline our current studies.

1. Introduction

Anshin (安心) is a kind of emotion or feeling in Japanese. It often translated as peace of mind, security, or reassurance, but it is a vague concept in Japanese with a wide range of meaning. This word is frequently used by the government, mass media, and many companies in Japan. Many Japanese people think that it is an important concept. However, methods of achieving anshin and also the concept of anshin itself are not shared universally. One reason is that anshin is basically a subjective feeling and the trigger for it and amount of it felt vary from person to person. Even the same person may feel differently in similar situations [1].

Because we believe that it is possible to share, at least partially, the objective and universal concept of anshin, we began studying anshin, especially with regard to Internet usage. The Internet has become a social infrastructure and demand for its availability

by both end users and suppliers is very high.

We think that trying to study anshin using only an approach based on information technology (IT) is inadequate, so we also applied a social-science approach. NTT began a collaborative study with the University of Tokyo, which was later joined by Toyo University. The NTT team members are IT engineers and the University members are social scientists. Since the start of the project, the number of people in the research team has grown, enabling us to conduct social research from a wider range of viewpoints.

In this article, we describe our studies and present the results. On the basis of the results of group interviews with 23 people in Tokyo on anshin and anxiety, we conducted a home-visit investigation with 500 people in Tokyo and an international telephone investigation of 3300 people in ten countries (330 in each country). In this article, we do not define anshin precisely or use an English translation because it is so vague. On the other hand, *fuan* (不安) is a clearer concept and its translation as anxiety is more accurate, so in this article we do use the English word anxiety.

[†] NTT Information Sharing Platform Laboratories
Musashino-shi, 180-8585 Japan

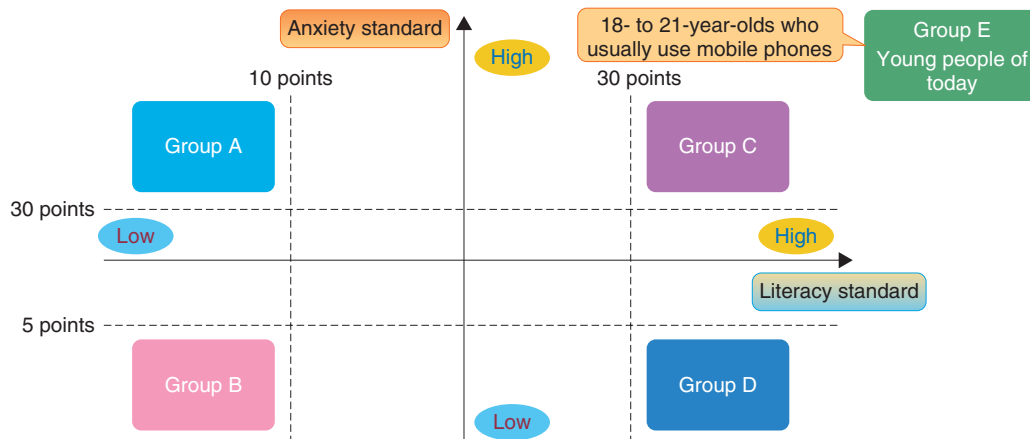


Fig. 1. Characteristics of groups.

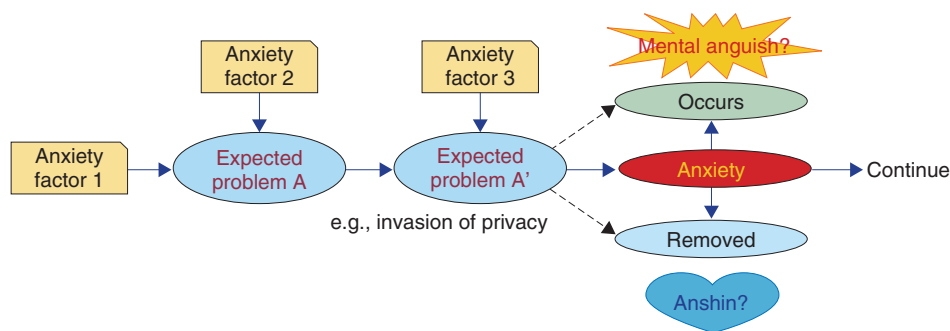


Fig. 2. Model of anxiety generation process.

2. Group interviews

Before investigating negative factors of anshin and the correlation among them, we conducted group interviews about anshin and anxiety to help us design appropriate questionnaires for use in the following investigations. The interviews took place on September 17–19, 2008 (Wednesday–Friday) in Tokyo, Japan. There were 23 people in five groups (A–E). The characteristics of these groups in terms of anxiety and literacy are shown in **Fig. 1**. Each session lasted two hours. The questions asked about cases in which the participants felt anshin or anxiety in their daily lives and while using the Internet.

From these group interviews, we found that it is not easy to obtain clear, adequate, and quick answers to questions about cases of anshin. By contrast, relatively clear and quick answers tended to be obtained to questions about cases of anxiety. Moreover, anshin

varied from person to person. So, as our first step, we decided not to study anshin directly but to study anxieties. We believe that anxiety is a close antonym of anshin and that anxiety is easier to handle.

3. Anxiety generation process

3.1 Model

To study anxiety, we used the results of the group interviews to construct a model of the anxiety generation process in order to clarify how anxiety is generated (**Fig. 2**). This model includes the following definitions: 1) Anxiety is generated by expectations of problems (e.g., invasion of privacy). 2) There are factors that are the reasons for expecting problems and there are also factors that strengthen the expectations and anxieties. 3) There are also factors that weaken or eliminate the expectations and anxieties. We called these factors *anxiety factors*. In future, we intend to

refine and verify this model and also evaluate the anxiety factor candidates.

3.2 Control of Internet anxiety

We think that controlling (reducing) anxiety can weaken the feeling of expecting trouble and leads to a kind of anshin. We also think that the anxiety factors are determined by each type of expected trouble for each Internet service. We selected anxiety factor candidates mainly on the basis of the group interview results. They are listed in **Table 1**. We hope that establishing a method of controlling anxiety will lead to anshin.

4. Home-visit investigation in Tokyo

Next, partially to verify the anxiety generation process model and to obtain facts about anxiety from various viewpoints, we conducted a home-visit investigation of Internet anxiety [2]. The investigation took place in February 2009 in Tokyo. It involved 500 people (aged from 15 to 69). The visited homes were chosen by random area quota sampling. The questions concerned anxiety when using the Internet.

4.1 Internet users and anxiety

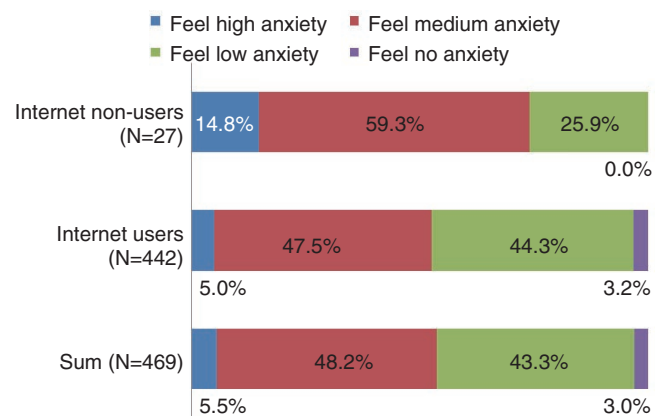
We found that Internet users felt less anxiety about Internet usage than non-users did (**Fig. 3**). The more time they spent using the Internet, the less anxiety they felt concerning security and Internet communication. People who wrote things and posted them on the Internet (consumer generated media (CGM*) users) felt less anxiety in their general Internet usage than people who only read content on the Internet. The more frequently people commented on SNSs, the less anxiety they felt about Internet communication. These findings may indicate that anxiety decreases with experience.

4.2 Usability and content of anxiety

Many people use online shopping despite having strong feelings of anxiety (**Fig. 4**). This may indicate that there is a trade-off between anxiety and usability. The most common specific anxiety for general Internet use was the leakage of personal information (**Fig. 5**).

Table 1. Anxiety factor candidates.

1	Character & feeling
2	Confidence
3	Sense of intimacy
4	Likes & dislikes
5	Mob psychology
6	Controllability
7	Ability to estimate
8	Difference from ideal
9	Difference from daily life
10	Context
11	Importance
12	Probability of occurrence
13	Sympathy
14	Superiority & inferiority
15	Usability
16	Experience
17	Knowledge
18	Information source
19	Insurance
20	Support
21	Alternatives
22	Ability to troubleshoot



* No-choice rate for people who do not know because they do not want to use the Internet.

Fig. 3. Internet anxiety for Internet users and non-users (in Tokyo).

* CGM: The CGM studied in our two investigations differed. In the Tokyo investigation, the targets were weblogs (blogs), social networking services (SNSs), bulletin board services (BBSs), and video hosting sites. In the international investigation, the targets were blogs, SNSs, and BBSs.

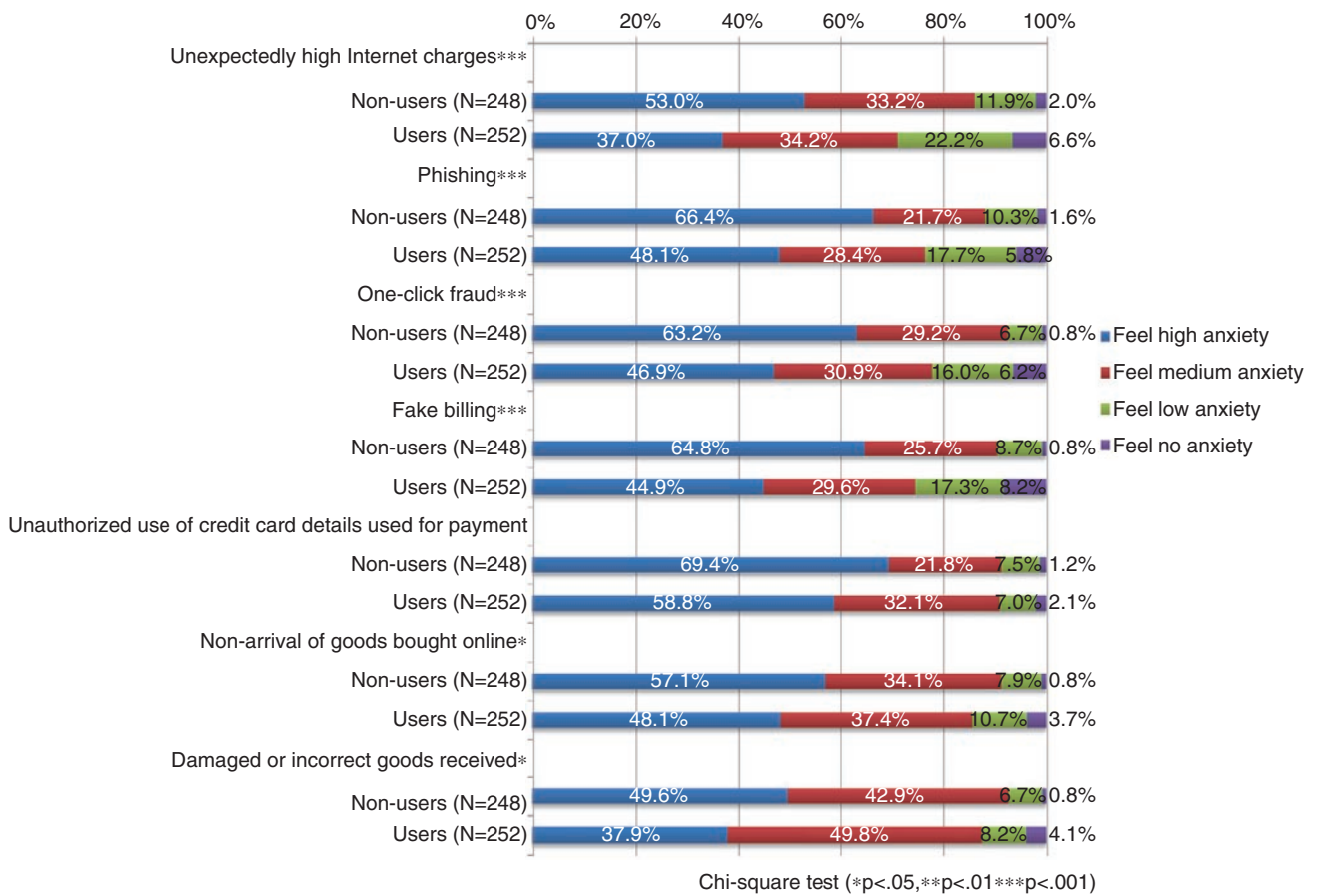


Fig. 4. Online shopping users and anxiety (in Tokyo).

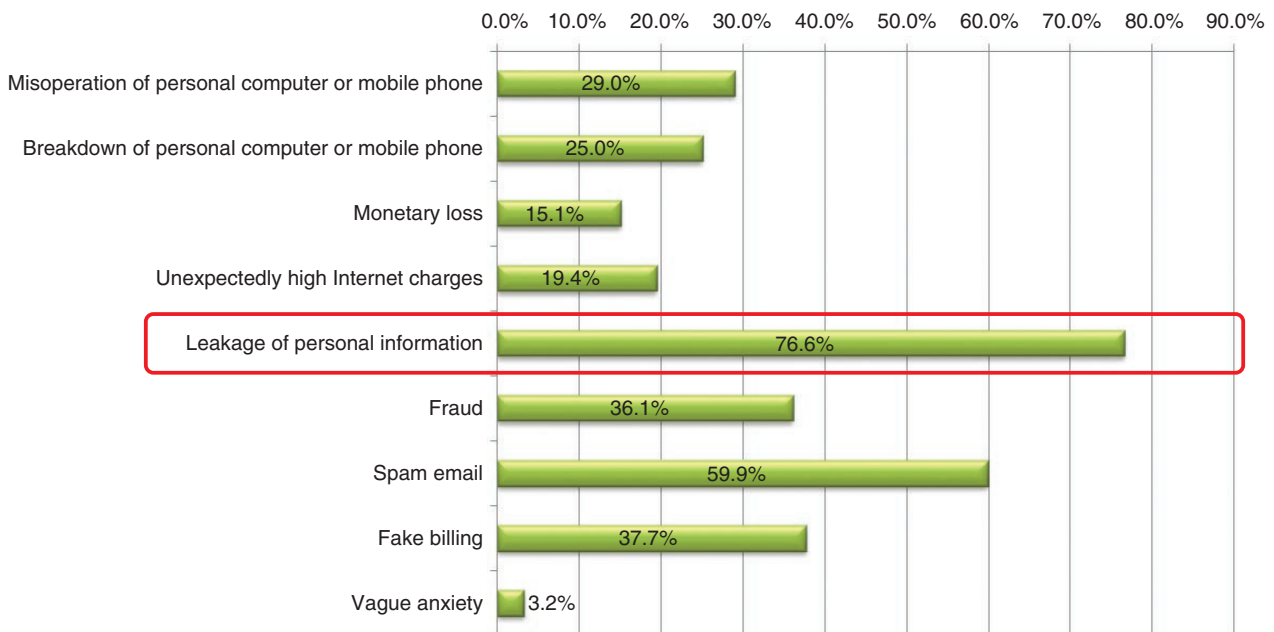


Fig. 5. General Internet anxieties (in Tokyo).

4.3 Damage experience and news experience

The amount of damage actually experienced by people is generally small. Even for spam emails and spam in blogs (also called blog spam or comment spam), which account for the highest percentage of anxieties in Fig. 5, only 12.0% of the subjects we questioned reported experiencing actual damage from them. Although the values are really too small to let us evaluate the correlation with anxiety, we nevertheless tried to evaluate the correlation, but we were unable to find any significant correlation (the only exception was unexpectedly high Internet charges). By contrast, damage is extensively reported by the news media. Our analysis of the results of the influence of news reports indicates that the more time people spend consuming mass media news, especially newspapers, the more anxiety they feel about security and Internet communication.

5. International investigation by telephone

Despite obtaining the abovementioned findings about Internet anxiety, we did not know whether they represent universal characteristics or local peculiarities. Unlike anshin, which is an obscure concept and hard to translate, *fuan* can be translated from Japanese into English, so anxiety is a universal concept. Therefore, we thought that an international comparison of Internet anxieties would be possible. To study anxiety in Japan and also to study anshin indirectly, we conducted an international investigation of ten countries by telephone [3]. The interviews took place in January and February 2010. We interviewed 3300 people (aged from 15 to 69) in the largest cities in

Japan, China, South Korea, Singapore, the UK, Germany, France, Finland, America, and Chile (330 in each). They were contacted by random digit dialing. The questions concerned Internet anxiety.

5.1 Unbridgeable gulf between anshin and safety

We publicly disclosed our findings in an NTT press release in September 2010 [4]. It stated that Japanese people feel high anxiety about using the Internet although they have less direct experience of trouble than people in other countries. We showed, by using real data, that there is an *unbridgeable gulf between anshin and safety*. These results (Table 2) show that there are a lot of Japanese who cannot use the Internet with anshin only owing to safety concerns. Specifically, in terms of the percentage of people having experience of *exposure of own home address or telephone number on the Internet without permission*, Japan ranked low (9th out of 10 countries; 1.2%). However, Japanese feel high anxiety despite having little actual experience of damage (Japan: 2nd out of 10; 82.7%). In particular, Japanese women feel high anxiety (1st out of 10; 75.2%). Japan ranked 1st (65.2%) for people with anxiety about computer viruses without having any experience of damage. Moreover, it ranked 2nd for anxiety about phishing, unauthorized use of credit card details used for online payment, and harmful content being seen by children when browsing, again without any experience of damage (76.4%, 83.6%, and 77.9%, respectively).

5.2 Internet anxieties of specific countries

We analyzed the results by country to see if people in different countries had specific anxieties. For gen-

Table 2. Experience for exposure of personal information and anxiety (international investigation).

	Rate for each country			Rank among the 10 countries		
	No damage experience but anxiety	No damage experience	Anxiety	No damage experience but anxiety	No damage experience	Anxiety
Japan	82.7%	98.8%	83.6%	2nd	2nd	3rd
USA	60.3%	94.5%	64.5%	6th	4th	7th
Chile	25.2%	99.1%	26.1%	10th	1st	10th
China	77.9%	86.1%	90.0%	3rd	10th	2nd
South Korea	83.6%	91.5%	91.5%	1st	8th	1st
Singapore	73.0%	91.5%	78.5%	4th	8th	4th
UK	62.4%	94.8%	67.0%	5th	3rd	5th
Finland	42.2%	93.6%	46.2%	9th	5th	9th
Germany	48.6%	92.4%	55.2%	8th	6th	8th
France	59.7%	91.8%	66.7%	7th	7th	6th

Table 3. Anxiety level, damage experience, and news experience for CGM trouble (international investigation).

	Anxiety	High			Low		
	Damage experience	Much	Little		Much	Little	
	News experience	—	Much	Little	—	Much	Little
Abuse/violent language and teasing	South Korea, China	Japan	USA		Finland	Germany	
Exposure of personal information	South Korea, China	Japan			Finland, Germany		
Damage by self-exposure of own personal information * CGM users only	China, South Korea, Singapore		Japan			Germany	Finland

eral use of the Internet, South Korea, the USA, and China ranked high in that order while Japan was not placed so high (5th out of 10 countries). We compared the ten countries in terms of the proportion of people in the country having damage experience, news experience, and anxiety, for eleven specific types of Internet trouble such as fake billing. People in China and Singapore had a lot of damage experience and high anxiety. Those in Germany had much news experience but low anxiety. People in Finland had much damage and news experience but low anxiety. People in Chile do not use the Internet much, but like people in the USA they had little damage and news experience and low anxiety. People in South Korea did not have so much damage and news experience but had high anxiety. People in Japan had little damage experience but much news experience and high anxiety about trouble.

5.3 Anxiety concerning CGM, information leakage, and children browsing harmful content

This section describes our findings concerning CGM, information leakage, and children browsing harmful content (Tables 3 and 4).

Higher anxiety about CGM was felt in South Korea, China, Japan, the USA, and Singapore. By contrast, lower anxiety about CGM was felt in Finland and Germany. Among the people of countries in the high anxiety column, South Koreans and Chinese had experienced actual damage while Japanese had experienced little damage. Japanese generally had much news experience and Japan ranked 1st out of the 10 countries for the proportion of people having news experience of three cases of CGM trouble.

For personal information leakage, people of Japan, South Korea, and China had high anxiety, much mental anguish caused by incidents, and a high likelihood of occurrence. By contrast, people of Finland, the

UK, and Chile had low anxiety, mental anguish, and occurrence likelihood.

For browsing of harmful content such as information about drugs and violent and pornographic images by children, people in the ten countries selected “Many suppliers of harmful content are not adequately arrested” and “Many website managers do not delete harmful content adequately” as being big problems. People in the UK and Japan thought that those two problems were bigger than other problems. Japanese also thought that “many parents do not teach appropriate website browsing” was a big problem (Table 4).

6. Concluding remarks

We are studying anshin during Internet usage. Initially, we focused not on anshin itself but on anxieties because they are easier to recognize. After conducting preliminary group interviews with 23 people in Tokyo, we conducted a home-visit investigation of 500 people in Tokyo and an international telephone investigation of 3300 people in ten countries (330 in each). We made a model of the anxiety generation process, obtained some knowledge from our investigations, and put out a press release describing the unbridgeable gulf between anshin and safety. We think that this research was persuasive because it was joint research with the specialists in socio-psychology.

To confirm and strengthen the results of the international investigation, we conducted a second set of group interviews with foreigners from nine countries living in Japan (December 2010 to February 2011). We are also conducting an Internet investigation about anxieties for particular Internet services such as Twitter. To obtain real opinions, this investigation includes many free-answer questions. Some of the

Table 4. Problems in browsing of harmful content by children (international investigation).

Problem	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
High accessibility	Finland 75.8%	UK 73.6%	South Korea 72.4%	Japan 68.2%	USA 67.3%	Singapore 61.8%	Germany, China 56.7%		France 42.1%	Chile 9.4%
Parents	Finland 80.6%	Japan 79.7%	UK 68.5%	Germany 63.6%	France 63.3%	South Korea, Singapore 59.7%		USA 58.8%	China 48.8%	Chile 22.1%
School	UK 70.6%	USA 62.1%	South Korea 53.0%	Singapore 51.8%	Finland 50.6%	China 47.6%	Japan 45.5%	Germany 33.9%	France 29.4%	Chile 20.6%
Low arrest rates	UK 83.9%	Japan 82.4%	USA 74.2%	South Korea 71.5%	Finland 68.2%	Germany 58.2%	Singapore 55.5%	China 52.1%	France 45.2%	Chile 34.2%
Website management	UK 84.8%	Japan 81.8%	Finland 78.8%	USA 76.1%	South Korea 67.9%	China 62.4%	Singapore 59.7%	Germany 47.3%	France 45.8%	Chile 20.3%
Average	UK 76.3%	Japan 71.5%	Finland 70.8%	USA 67.7%	South Korea 64.9%	Singapore 57.7%	China 53.5%	Germany 51.9%	France 45.2%	Chile 21.3%

results are scheduled to be presented at the 2011 JASI-JSIS Joint Conference (Japan Association for Social Informatics, Japan Society for Socio-Information Studies). In the future, we will verify and refine the anxiety generation process model and evaluate the anxiety factor candidates through user experiments and other means. After that, we will consider solutions for controlling anxieties from both the operation and technology viewpoints. We will also conduct further studies on anshin.

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Taro Yamamoto

Research Engineer, Security Management SE Project, NTT Information Sharing Platform Laboratories.

He received the M.S. degree from Hokkaido University in 1994. Since joining NTT in 1994, he has been engaged in research on information security together with social studies (anshin on the Internet). He is a member of the Information Processing Society of Japan (IPSI) and the Japan Society for Socio-Information Studies (JSIS).



Naoya Sekiya

Associate Professor, Toyo University.

He graduated from Keio University (Faculty of Policy Management) in 1998. He received the M.A. degree from the University of Tokyo in 2002. He became an associate professor at Toyo University in 2010. He specializes in the fields of socio-psychology (disaster information and environment information) and advertising. He is a member of the Japan Society for Corporate Communication Studies, the Social Psychology Association of Japan, and JSIS.



Naoko Chiba

Research Engineer, Security Management SE Project, NTT Information Sharing Platform Laboratories.

She received the M.S. degree from Tokyo Institute of Technology Graduate School of Science in 2000. Since joining NTT in 2000, she has been working on information security and security social science. She is a member of IPSJ.



Isao Nakamura

Professor, Toyo University.

He graduated from Gakushuin University (Faculty of Law) in 1987. He received the M.A. degree from the University of Tokyo in 1991. He became an assistant professor at Matsuyama University in 1996. He became an assistant professor at Toyo University in 2003 and became a professor there in 2004. He specializes in the field of socio-psychology (communication media).



Fumihiko Magata

Senior Research Engineer, Security Management SE Project, NTT Information Sharing Platform Laboratories.

He graduated from Chuo University (Faculty of Law) in 1992. Since joining NTT in 1992, he has been engaged in research on information security together with social studies. He is a member of the Japan Society of Security Management, the Information Network Law Association, and the Institution of Professional Engineers, Japan (Information Engineering).



Morihiro Ogasahara

Associate Professor, Kansai University.

He graduated from Doshisha University (Faculty of Law), Kyoto, in 1989. He worked for NTT from 1989 to 2003. He received the M.A. degree from the University of Tokyo in 2005. He became an assistant professor at the University of Tokyo in 2008 and an associate professor at Kansai University in 2011. He specializes in the field of socio-psychology (Internet communication). He is a member of JSIS.



Katsumi Takahashi

Executive Manager, Information Security Project, NTT Information Sharing Platform Laboratories.

He received the B.S. degree from Tokyo Institute of Technology in 1988 and the Ph.D. degree from the University of Tokyo in 2006. Since joining NTT in 1988, he has been working on information retrieval, data mining, cryptographic protocols, information security, privacy protection, and security social science.



Yoshiaki Hashimoto

Professor, the University of Tokyo.

He received the B.A. and M.A. degrees from the University of Tokyo in 1978 and 1982, respectively. He became an assistant professor at the University of Tokyo in 1987 and a professor there in 1999. He specializes in the fields of communication theory and socio-psychology. He is a member of the Japan Society for Studies in Journalism and Mass Communication and JSIS.



Hiroki Ueda

Senior Research Engineer, Supervisor, Security Management SE Project, NTT Information Sharing Platform Laboratories.

He received the B.S. and M.S. degrees from Osaka City University in 1992 and 1994, respectively. He joined NTT in 1994. He is presently engaged in R&D of information security.