

# Dr. Naoki Ishikawa

## Personal Data

---

Nationality: Japan  
Date of Birth: 17 March 1991  
Membership: Member of IEEE and IEICE.  
Society: IEEE ComSoc, IEEE VTS, IEICE CS.  
Address: 3-4-1, Ohzuka-higashi, Asaminami-ku, Hiroshima-shi, Japan.  
Email and Web: [contact@ishikawa.cc](mailto:contact@ishikawa.cc) | <http://ishikawa.cc>

## Education

---

- Mar 2017 Ph.D. in Electronic and Information Engineering  
**Tokyo University of Agriculture and Technology**, Tokyo, Japan  
Supervisor: Dr. Shinya Sugiura and Dr. Keiichi Kaneko
- Mar 2015 Master of Engineering in Computer and Information Sciences (Hons.)  
**Tokyo University of Agriculture and Technology**, Tokyo, Japan  
GPA: 3.90 / 4.00 | Earned 40 credits (30 credits are required for graduation)
- Mar 2014 Bachelor of Engineering in Computer and Information Sciences (Hons.)  
**Tokyo University of Agriculture and Technology**, Tokyo, Japan  
GPA: 3.56 / 4.00 | Earned 156 credits (128 credits are required for graduation)

## Research Experience

---

- Apr 2017 – current | Assistant Professor  
Hiroshima City University
- Apr 2016 – Mar 2017 | Research Fellow (DC2)  
Japan Society of the Promotion of Science
- Nov 2013 – Mar 2016 | Research Assistant  
Tokyo University of Agriculture and Technology
- Jun 2015 – Sep 2015 | Academic Visitor  
The wireless communications group headed by Prof. Lajos Hanzo, School of Electronics and Computer Science, University of Southampton, United Kingdom.
- May 2013 – Aug 2014 | Research Assistant  
The human-computer interaction research group headed by Associate Prof. Satoshi Nakamura, School of Interdisciplinary Mathematical Sciences, Meiji University, Nakano-ku, Tokyo, Japan.
- Apr 2012 – Mar 2013 | Research Assistant  
The user interface research project funded by Japan Science and Technology Agency (JST). The project was called JST ERATO IGARASHI Design UI Project and was at Bunkyo-ku, Tokyo, Japan. My supervisor was Dr. Kaeita Watanabe.

## Academic Service

---

### Reviewer (journal / A to Z)

- IEEE Access (4 papers)
- IEEE Communications Letters (12 papers)
- IEEE Communications Magazine (1 paper)
- IEEE Journal on Selected Areas in Communications (1 paper)
- IEEE Signal Processing Letters (1 paper)
- IEEE Transactions on Communications (7 papers)
- IEEE Transactions on Vehicular Technology (8 papers)
- IEEE Transactions on Wireless Communications (3 papers)
- IEEE Wireless Communications Letters (4 papers)
- IEICE Transactions on Communications (3 papers)
- IET Communications (2 papers)
- IET Wireless Sensor Systems (1 paper)

### Reviewer (conference)

- IEEE ICC Workshop 2017
- IEEE Globecom 2016
- IEEE Wireless Communications and Networking Conference (WCNC) 2018
- IEEE Vehicular Technology Conference (VTC) 2015-Spring, VTC2015-Fall

## Domestic Awards

---

Mar 2018	<b>Yasujiro Niwa Outstanding Paper Award</b> Recipient: <a href="#">Naoki Ishikawa</a> and Shinya Sugiura Awarded by: Tokyo Denki University Competition rate: three nominations out of 14 submissions
Apr 2016	<b>Outstanding Student Research Award</b> Recipient: <a href="#">Naoki Ishikawa</a> Awarded by: Tokyo University of Agriculture and Technology Competition rate: 11 nominations out of 1028 students in the faculty of engineering
Mar 2015	<b>Telecom System Technology Student Award (honorable mention)</b> Recipient: <a href="#">Naoki Ishikawa</a> and Shinya Sugiura Awarded by: Telecommunications Advancement Foundation of Japan Competition rate: six nominations out of 19 submissions
Mar 2015	<b>Outstanding Student Research Award</b> Recipient: <a href="#">Naoki Ishikawa</a> Awarded by: Tokyo University of Agriculture and Technology Competition rate: six nominations out of 453 graduate students in the faculty of engineering

Mar 2015	<p><b>Best Research Award (Atouda Prize)</b>  Recipient: <a href="#">Naoki Ishikawa</a>  Awarded by: Department of Computer and Information Sciences, Tokyo University of Agriculture and Technology.  Competition rate: one nomination out of 40 graduate students in the department</p>
Jan 2015	<p><b>Outstanding Paper Award for Young C&amp;C Researchers</b>  Recipient: <a href="#">Naoki Ishikawa</a> and Shinya Sugiura  Awarded by: NEC Computer and Communications Foundation  Competition rate: over the past 14 years there have been 17 nominations out of 2250 candidates</p>
May 2014	<p><b>Young Researcher's Encouragement Award</b>  Recipient: <a href="#">Naoki Ishikawa</a> and Shinya Sugiura  Awarded by: IEEE Vehicular Technology Society Japan Chapter  Competition rate: all student papers accepted by IEEE VTC were nominated. Our paper was ranked third out of 12 nominated papers.</p>
Mar 2014	<p><b>Outstanding Student Award</b>  Recipient: <a href="#">Naoki Ishikawa</a>  Awarded by: Tokyo University of Agriculture and Technology  Competition rate: one nomination out of 88 graduate students in the department</p>

## Scholarships

---

Apr 2016 – Mar 2017	<p><b>Research Fellowship for Young Japanese Scientists</b>  Sponsored by: Japan Society for the Promotion of Science  Competition rate: 191 students were nominated out of 860 submissions in Engineering</p>
Jun 2015 – Sep 2015	<p><b>TOBITATE! Young Ambassador Program</b>  Sponsored by: Japan Student Services Organization (JASSO) and Ministry of Education, Culture, Sports, Science and Technology (MEXT)  Competition rate: 256 students were nominated out of 784 submissions</p>
Apr 2015 – Mar 2018	<p><b>Ph.D. Research Encouragement Scholarship</b>  Sponsored by: Support Center for Advanced Telecommunications Technology Research Foundation  Competition rate: not yet public</p>
Apr 2014 – Mar 2015	<p><b>Repayment Exemption for students who have achieved outstanding records</b>  Sponsored by: Japan Student Services Organization (JASSO)  Competition rate: not yet public</p>
May 2014	<p><b>Grants for Researchers Attending International Conferences</b>  Sponsored by: NEC Computer and Communications Foundation  Competition rate: not yet public</p>
Mar 2011 – 2014	<p><b>Outstanding Student Scholarship</b>  Sponsored by: Tokyo University of Agriculture and Technology  Competition rate: the top few percent of students were nominated based on GPA</p>

## Language Skills

---

Japanese: Native  
English: Advanced  
Chinese: Beginner

## Computer Skills

---

I have professional skills in computer programming. In particular, I can design large-scale projects with object-oriented programming, and can build up a fundamental computing library from scratch. I have approximately 10 to 15 years' experience in C, C++, Java, R, Ruby, JavaScript, (X)HTML, and Common Lisp. Also, I have 1 years' experience in PHP, SQL, Basic, C#, Objective-C, Delphi, Scheme, and Prolog. I use Windows, Mac, and Linux daily. [Examples of the systems and applications I have implemented are listed on my web page.](#)

## Certifications

---

- |             |  |
|-------------|--|
| Mar 2013    | TOEIC Score 820 / 990<br>Certificated by: Educational Testing Service  |
| Spring 2008 | Applied Information Technology Engineer<br>Certificated by: Information-technology Promotion Agency of Japan     |
| Autumn 2007 | Fundamental Information Technology Engineer<br>Certificated by: Information-technology Promotion Agency of Japan |

## Publications

---

### Ph.D. Thesis

1. [Naoki Ishikawa](#), "Space-, time-, and frequency-domain permutation modulation designed for microwave and optical wireless communications," Tokyo University of Agriculture and Technology, February 2017.

### International journal (refereed)

1. [Naoki Ishikawa](#), Shinya Sugiura, and Lajos Hanzo, "50 years of permutation, spatial and index modulation: From classic RF to visible light communications and data storage," IEEE Communications Surveys & Tutorials, in press.
2. Chao Xu, Rakshith Rajashekar, [Naoki Ishikawa](#), Shinya Sugiura, and Lajos Hanzo, "Single-RF index shift keying aided differential space-time block coding," IEEE Transactions on Signal Processing, vol. 66, no. 3, pp. 773–788, February 2018.
3. Rakshith Rajashekar, Chao Xu, [Naoki Ishikawa](#), Shinya Sugiura, K. V. S. Hari, and Lajos Hanzo, "Algebraic differential spatial modulation is capable of approaching the performance of its coherent counterpart," IEEE Transactions on Communications, vol. 65, no. 10, pp. 4260–4273, October 2017.
4. [Naoki Ishikawa](#) and Shinya Sugiura, "Rectangular differential spatial modulation for open-loop noncoherent massive-MIMO downlink," IEEE Transactions on Wireless Communications, vol. 16, no. 3, pp. 1908–1920, March 2017.

5. Rakshith Rajashekar, Naoki Ishikawa, Shinya Sugiura, K. V. S. Hari, and Lajos Hanzo, "Full-diversity dispersion matrices from algebraic field extensions for differential spatial modulation," IEEE Transactions on Vehicular Technology, vol. 66, no. 1, pp. 385–394, January 2017.
6. Naoki Ishikawa, Shinya Sugiura, and Lajos Hanzo, "Subcarrier-index modulation aided OFDM – will it work?," IEEE Access, vol. 4, pp. 2580–2593, May 2016.
7. Naoki Ishikawa and Shinya Sugiura, "Maximizing constrained capacity of power-imbalanced optical wireless MIMO communications using spatial modulation," Journal of Light-wave Technology, vol. 33, no. 2, pp. 519–527, January 2015.

### **International letter (refereed)**

1. Naoki Ishikawa, Rakshith Rajashekar, Shinya Sugiura, and Lajos Hanzo, "Generalized spatial modulation based reduced-RF-chain millimeter-wave communications," IEEE Transactions on Vehicular Technology, vol. 66, no. 1, pp. 879–883, January 2017.
2. Naoki Ishikawa and Shinya Sugiura, "Unified differential spatial modulation," IEEE Wireless Communications Letters, vol. 3, no. 4, pp. 337–340, August 2014.

### **International conference (oral / refereed)**

1. Naoki Ishikawa and Shinya Sugiura, "EXIT-chart-based design of irregular-precoded power-imbalanced optical spatial modulation," IEEE 82nd Vehicular Technology Conference (VTC Fall), Boston, USA, September 2015.
2. Naoki Ishikawa and Shinya Sugiura, "Single- and multiple-RF aided non-coherent generalized spatial modulation," IEEE 79th Vehicular Technology Conference (VTC Spring), Seoul, Korea, May 2014.