

Curriculum Vitae

Dr. Norifumi KAWABATA

Principal Investigator
Computational Imaging Lab

June 28, 2022

1 Affiliation

Principal Investigator, Computational Imaging Lab Kita 13, Nishi 7, Kita-ku, Sapporo-shi, Hokkaido, Japan
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2 Academic & Professional Experience

- (After) September 2022
(He will be arrived at a new academic post.)
- April 2022 –
Principal Investigator, Research Division, **Computational Imaging Lab**
- October 2021 – March 2022
Specially Appointed Assistant Professor,
Education and Research Center for Mathematical and Data Science, **Hokkaido University**
- August 2021 – September 2021
Assistant Technical Staff, Medical IT Center, Center for Healthcare Information Technology (C-HiT),
Tokai National Higher Education and Research System (THERS), **Nagoya University Hospital**
- April 2019 – July 2021
Assistant Professor, Department of Information Sciences, Faculty of Science and Technology,
Tokyo University of Science
- April 2018 – March 2019
Assistant Technical Staff, Research Division of Transportation and Information System,
Institutes of Innovation for Future Society, **Nagoya University**
- April 2017 – March 2018
Research Fellow, Center for Frontier Medical Engineering (CFME), **Chiba University**

3 Academic Background

- April 2013 – March 2017
Miyao Laboratory, Information Platform Group, Department of Information Engineering,
Graduate School of Information Science, **Nagoya University**
- April 2011 – March 2013
Horita Laboratory, (Media Information and Communication Technology (MICT)),
Department of Intellectual Information Engineering, Graduate School of Science and Engineering
for Education, **University of Toyama**
- April 2007 – March 2011
Department of Intellectual Information Engineering, Faculty of Engineering, **University of Toyama**
- March 2007
Seiryō High School, General Course Graduation

4 Academic Degree

- March 2017, Ph.D. of Information Science in Nagoya University
- March 2013, Master of Engineering in University of Toyama
- March 2011, Bachelor of Engineering in University of Toyama

5 Research Field

- Information Engineering, Information Science, Computer Science
- Multi-view 3D Image and Video, Three-dimensional Image Processing, Three-dimensional Display
- 3DCG, Computational Imaging, Texture Informatics
- Image Media Quality, Visual Media Processing, Visual Information Science
- Image and Signal Processing, Digital Watermarking, Sparse Coding
- Color Information Science and Engineering, Colorization, Color Management
- Picture Coding / Image Media Processing, Super-resolution, 360 Degrees Image and Video
- Multivariate Analysis, Data Mining, Machine Learning
- Human Interface and Interaction, Human Factor, Medical Virtual Reality
- Medical System, Healthcare Informatics, Medical Imaging

6 Teaching and Research Experience

- (After) September 2022
(He will be arrived at a new academic post.)
- April 2022 –
Principal Investigator, Research Division, Computational Imaging Lab
Research on Imaging and Computer Science.
- October 2021 –
Specially Appointed Assistant Professor, Education and Research Center for Mathematical and Data Science, Hokkaido University
Education and Research for Mathematical and Data Science.
 - MDS Platform (Clustering such as Regression Analysis, Hierarchical Clustering, Non-hierarchical Clustering, Naive Bayes Method, and Support Vector Machine Method)
 - MDS Platform (Optimization)
- August 2021 – September 2021
Assistant Technical Staff, Medical IT Center, Nagoya University Hospital
A Study Support on Medical Information System to Smart Hospital.
- April 2019 – July 2021
Assistant Professor, Department of Information Sciences, Faculty of Science and Technology, Tokyo University of Science
Education and Research on computer sciences to the bio-medical science and technology field.
 - Introduction to Computer Systems and its Exercises (UNIX, Internet, TeX, C Language Programming)
 - Experiments in Information Sciences I (OCaml)
 - Exercises in Information Sciences I (Java)

- Experiments in Information Sciences II (PBL)
- Exercises in Information Sciences II (Application of C Language Programming, Network Programming, SQL, PHP, JavaScript, Multimedia, Embedded System, Image Processing)
- Experiments in Information Sciences III
- Exercises in Information Sciences III
- Advanced Studies and Researches (Group Meeting, Image Processing Seminar, Skill Seminar, Journal Club)
- April 2018 – March 2019
Assistant Technical Staff,
Research Division of Transportation and Information Systems, Institutes of Innovation for Future Society,
Nagoya University
 - Research Technical Assistance on Transportation and Information Systems in the Next Generation Mobility Society
- April 2017 – March 2018
Research Fellow, Center for Frontier Medical Engineering, Chiba University
 - Education and Research on developing the Medical Support System using Virtual Reality System and Medical Image Engineering in Nakaguchi Laboratory.
- April 2014 – March 2015
Teaching Staff, School of Culture-Information Studies, Sugiyama Jogakuen University
 - Video and Animation Production (April 2014 – September 2014)
 - Graphics Design (October 2014 – March 2015)
- October 2013 – March 2014
Research Assistant, Graduate School of Information Science, Nagoya University
 - Outstanding Graduate COE support subsidy
- April 2013 – September 2013
Teaching Assistant, Nagoya University
 - Fundamental Seminar A (for Information Platform, Usability)
- October 2011 – March 2012
Teaching Assistant, University of Toyama
 - Liberal Principles of Exercise (C Language)

7 Qualification

- Mental calculation Grade 1
- Calculation on the Abacus Test Semi-first Step Grade
- Calligraphy First Step Grade
- The EIKEN Test in Practical English Proficiency Grade 2
- Car Driver License for Standard Vehicle
- High School Specialized Teacher's Certificate
- TOEIC 620

8 Technical Skill

8.1 Programming Languages

- C / Visual C++ / C#
- Java
- OCaml / ML
- LISP
- Assembly
- PHP
- Python
- R
- JavaScript
- HTML5 / CSS3

8.2 Tools

- MATLAB
- Scilab
- OpenCV
- Autodesk Maya
- Blender
- Unity
- Adobe Photoshop
- Adobe Premiere
- Adobe After Effect
- JM / High Efficiency Video Coding Software

9 Research Fund, Grant, and Scholarship

- FY2021
Education and Research Fund for Faculty Member in Tokyo University of Science
- FY2020
Education and Research Fund for Faculty Member in Tokyo University of Science
- FY2019
Education and Research Fund for Faculty Member in Tokyo University of Science
- FY2017
Traveling abroad Travel Expenses Assistance in the Telecommunications Advancement Foundation (IWAIT 2018)
- FY2016
Support Grant for Student to participate in the International Conference by ITE (ITC-CSCC 2016)

- FY2016
Scholarship for Ph.D. Student because of having the academic excellent result and submitting the doctor thesis
- FY2015
Research Grant for Ph.D. Student in Nagoya University
- FY2014
Research Grant for Ph.D. Student in Nagoya University
- FY2013
Outstanding Graduate COE Support Subsidy in Nagoya University

10 Affiliated Society, Contribution to Society

10.1 Affiliated Society

- The Institute of Image Information and Television Engineers (ITE)
(Member, from February 2011)
- The Institute of Electronics, Information and Communication Engineers (IEICE)
(Member, from August 2013)
- The Institute of Electrical and Electronics Engineers (IEEE)
(Member, from February 2014)
 - IEEE Signal Processing Society (IEEE SPS)
(Member, from February 2014)
 - IEEE Engineering in Medicine & Biology Society (IEEE EMBS)
(Member, from October 2020)
 - IEEE Computer Society (IEEE CS)
(Member, from October 2020)
- The Institute of Image Electronics Engineers of Japan (IEEEJ)
(Member, from April 2015)
- The Institute of Information Processing Society of Japan (IPSI)
(Member, from January 2017)
- The Japanese Society of Medical Imaging Technology (JAMIT)
(Member, from April 2018)
- The Japan Society of Computer Aided Surgery (JSCAS)
(Member, from July 2018)
- The International Society for Optical Engineering (SPIE)
(Early Career Professional Member, from June 2020)
- Japan Association for Medical Informatics (JAMI)
(Member, from August 2021)
- Society for Imaging Science and Technology (IS&T)
(Member, from December 2021)

10.2 Committee Experience

- Proctor, *International Collegiate Programming Contest (ICPC 2019) Asia Yokohama Regional Online First Round Contest*
(July 2019)

10.3 Review Experience

- Reviewer, *IEICE Transactions on Information and Systems (JPN Edition, in Japanese)*
(from June 2022 to now, by once)
- Reviewer, *Discrete Dynamics in Nature and Society*
(from June 2022 to now, by once)
- Reviewer, *IEICE Transactions on Communications (JPN Edition, in Japanese)*
(from June 2022 to now, by once)
- Reviewer, *IEEE Transactions on Emerging Topics in Computational Intelligence*
(from February 2022 to now, by once)
- Reviewer, *IEEE Transactions on Dependable and Secure Computing*
(from February 2022 to now, by once)
- Reviewer, *IEICE Electronics Express*
(from December 2021 to now, by once)
- Reviewer, *Tomography*
(from October 2021 to now, by twice)
- Reviewer, *Advanced Intelligent Systems*
(from October 2021 to now, by once)
- Reviewer, *IPSJ Transactions on Consumer Devices & Systems*
(from October 2021 to now, by once)
- Reviewer, *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*
(from October 2021 to now, by twice)
- Reviewer, *Multimedia Systems (MMSJ)*
(from September 2021 to now, by six times)
- Reviewer, *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*
(from June 2021 to now, by once)
- Reviewer, *IEEE Signal Processing Letters (SPL)*
(from May 2021 to now, by once)
- Reviewer, *Optical Review*
(from May 2021 to now, by once)
- Reviewer, *IEEJ Transactions on Electrical and Electronic Engineering*
(from April 2021 to now, by once)
- Reviewer, *Signal, Image and Video Processing (SIVP)*
(from April 2021 to now, by three times)
- Reviewer, *IEICE Transactions on Information and Systems*
(from April 2021 to now, by once)
- Reviewer, *Journal of the Society for Information Display (J. SID)*
(from June 2020 to now, by once)
- Reviewer, *Sensors (SENSC9)*
(from February 2020 to now, by twice)
- Reviewer, *Journal of the Institute of Electrical Engineers of Japan C*
(from October 2019 to now, by four times)
- Reviewer, *APSIPA Transactions on Signal and Information Processing*
(from September 2019 to now, by once)

- Reviewer, *IEEE Journal on Emerging and Selected Topics in Circuits and Systems* (**IEEE JETCAS**)
(from August 2019 to now, by once)
- Reviewer, *Electronics* (**ELECGJ**)
(from July 2019 to now, by four times)
- Reviewer, *IEEE Journal of Biomedical and Health Informatics* (**JBHI-EMBS**)
(from July 2019 to now, by nine times)
- Reviewer, *Multimedia Tools and Applications* (**MTAP**)
(from March 2019 to now, by fifteen times)
- Reviewer, *Neurocomputing* (**NEUCOM**)
(from February 2019 to now, by six times)
- Reviewer, *Symmetry* (**SYMMAM**)
(from January 2019 to now, by twice)
- Reviewer, *Applied Sciences* (**Applsci**)
(from July 2018 to now, by ninth times)
- Reviewer, *IEEE Access*
(from July 2018 to now, by eleventh times)
- Reviewer, *Journal of Imaging* (**J. Imaging**)
(from June 2018 to now, by twice)
- Reviewer, *IEEE Transactions on Circuits and Systems II: Express Briefs* (**TCAS-II**)
(from February 2018 to now, by five times)
- Reviewer, *IEEE Transactions on Circuits and Systems I: Regular Papers* (**TCAS-I**)
(from February 2018 to now, by four times)
- Reviewer, *Journal of Imaging Science and Technology* (**JIST**)
(from February 2018 to now, by thirteen times)
- Reviewer, *IEEE Transactions on Medical Imaging* (**TMI**)
(from January 2018 to now, by once)
- Reviewer, *Signal Processing* (**SigPro**)
(from January 2018 to now, by three times)
- Reviewer, *SPIE Journal of Electronic Imaging* (**JEI**)
(from December 2017 to now, by once)
- Reviewer, *IEEE Transactions on Image Processing* (**TIP**)
(from December 2017 to now, by eighteen times)
- Reviewer, *EURASIP Journal on Image and Video Processing* (**JIVP**)
(from December 2017 to now, by three times)
- Reviewer, *IEEE Transactions on Multimedia* (**TMM**)
(from September 2017 to now, by thirty second)
- Reviewer, *IEEE Transactions on Circuits and Systems for Video Technology* (**TCSVT**)
(from June 2017 to now, by twenty times)

11 Awards

- [1]. **“Certificate of Appreciation for serving as a reviewer for Journal of Electronic Imaging during the calendar year of 2018,”**
for serving as a reviewer for Journal of Electronic Imaging during the calendar year of 2018,
February 6, 2019.
- [2]. **“Elsevier Signal Processing Certificate of Outstanding Contribution in Reviewing,”**
in recognition of the contributions made to the quality of the journal in April 2018,
June 25, 2018.
- [3]. **“Certificate of Appreciation for serving as a reviewer for Journal of Electronic Imaging during the calendar year of 2017,”**
February 17, 2018.
- [4]. **“Forum on Information Technology (FIT2016) FIT Encouragement Award 2016,”**
Gofuku Campus, Univ. of Toyama (Presentation, Sept. 7, 2016),
September 9, 2016.
- [5]. **“IEICE Tokai Section Student Award (Doctor),”**
“A Study of the 3D CG Image Quality Metrics with 8 Viewpoints Parallax Barrier Method,”
Castle Plaza Nagoya,
June 3, 2015.

12 Achievement

12.1 Peer-reviewed Journal Papers

- [1]. **Norifumi Kawabata**, **“Multi-view 3D CG Image Quality Evaluation Including Visible Digital Watermarking Based on RGB Color Information,”** 9 pages (on final revision, Conditional Acceptance).
- [2]. **Norifumi Kawabata**, **“Statistical Analysis of Questionnaire Survey on the Assessment of 3D Video Clips,”** *Displays*, Vol.71, 102110, January 2022.
- [3]. **Norifumi Kawabata** and Masaru Miyao, **“Multi-view 3D CG Image Quality Assessment for Contrast Enhancement Based on S-CIELAB Color Space,”** *IEICE Transactions on Information and Systems*, Vol. E100-D, No. 07, pp. 1448–1462, July 2017.
- [4]. **Norifumi Kawabata** and Yuukou Horita, **“Statistical Analysis of Subjective Assessment for 3D CG Images with 8 Viewpoints Lenticular Lens Method,”** *IIEEJ Transactions on Image Electronics and Visual Computing*, Vol. 4, No. 2, pp. 101–113, December 2016.
- [5]. **Norifumi Kawabata** and Masaru Miyao, **“3D CG Image Quality Metrics by Regions with 8 Viewpoints Parallax Barrier Method,”** *IEICE Transactions on Fundamentals of Electronics, Communications and Computer Sciences*, Vol. E98-A, No. 08, pp. 1696–1708, August 2015.

12.2 Peer-reviewed International Conference Papers or Proceedings

- [6]. **Norifumi Kawabata**, **“Data Set Production and Evaluation for Semantic Segmentation of 3D CG Images by H.265/HEVC,”** *Proc. of The Eleventh International Workshop on Image Media Quality and its Applications (IMQA2022)*, pp.107–113, Online (Campus Plaza Kyoto, Kyoto, Japan), March 3-4, 2022 (Accepted).
- [7]. **Norifumi Kawabata**, **“Visualization for Texture Analysis of the Shitsukan Research Database Based on Luminance Information,”** *Image Quality and System Performance (IQSP XIX) (Electronic Imaging Symposium (EI2022))*, vol.19, IQSP-198, pp.1–6, Online (San Francisco, CA, USA), January 16-20, 2022.

- [8]. **Norifumi Kawabata** and Toshiya Nakaguchi, “**Color Laparoscopic High-Definition Video Quality Assessment for Super-Resolution,**” *Proc. of The 25th International Workshop on Advanced Image Technology (IWAIT2022)*, 7A5, pp.1–6, The Hong Kong Polytechnic University, Hong Kong (Hybrid), January 4-6, 2022.
- [9]. **Norifumi Kawabata**, “**3D CG Image Noise Removal and Quality Assessment Based on Sparse Dictionary Learning,**” *Proc. of The 2021 IEEE 3rd Global Conference on Life Sciences and Technologies (LifeTech 2021)*, OS-AIT1-3 (Advanced Image Technology in Applied Life Science: IoT & Deep Learning Perspectives), pp.225–226, Nara Royal Hotel, Nara, Japan (Hybrid), March 9-11, 2021.
- [10]. **Norifumi Kawabata** and Toshiya Nakaguchi, “**Color Laparoscopic Image Region Segmentation after Contrast Enhancement Including SRCNN by Image Regions,**” *Proc. of SPIE (The International Forum on Medical Imaging in Asia (IFMIA2021))*, no.85, 6 pages, National Taiwan University of Science and Technology, Taiwan (Online), January 24-26, 2021.
- [11]. **Norifumi Kawabata** and Toshiya Nakaguchi, “**Laparoscopic Image Region Segmentation Based on Texture Analysis by Regions,**” *Proc. of The Tenth International Workshop on Image Media Quality and its Applications (IMQA2020)*, PS2-4, 6 pages, National Taiwan University of Science and Technology, March 12-13, 2020.
- [12]. **Norifumi Kawabata** and Toshiya Nakaguchi, “**Color Laparoscopic Image Diagnosis for Automatic Detection of Coded Defect Region,**” *Proc. of The 5th Asia Color Association Conference (ACA2019 Nagoya)*, Vol. 5, P1-25, pp. 487–492, Meijo Univ., Nagoya, Japan, November 29–December 2, 2019.
- [13]. **Norifumi Kawabata**, “**Computational Classification of Texture Contents in the Shitsukan Research Database,**” *Proc. of The 26th International Display Workshops (IDW’19), Workshop on Applied Vision and Human Factors*, Vol. 26, VHF7-3, pp. 1185–1188, Sapporo Convention Center, Sapporo, Japan, November 27-29, 2019.
- [14]. **Norifumi Kawabata**, “**HEVC Image Quality Assessment of the Multi-view and Super-resolution Images Based on CNN,**” *Proc. of 2018 IEEE 7th Global Conference on Consumer Electronics (GCCE 2018)*, POS1A-3, pp. 38–39, Nara Royal Hotel, Nara, Japan, October 9-12, 2018.
- [15]. **Norifumi Kawabata**, “**Image Diagnosis for Coded Defect Detection on Multi-view 3D Images,**” *Proc. of The Ninth International Workshop on Image Media Quality and its Applications (IMQA2018)*, PS-10, pp. 110–119, Kobe Univ., Kobe, Japan, September 27-28, 2018.
- [16]. **Norifumi Kawabata**, “**Multi-view 3D CG Image Quality Evaluation and Analysis for Application Procedure between H.265/HEVC and Watermarking,**” *Proc. of The 21st International Workshop on Advanced Image Technology (IWAIT2018)*, D3-3, 4 pages, The Imperial Mae Ping Hotel, Chiang Mai, Thailand, January 7-9, 2018 (Traveling Abroad Travel Expenses Assistance in the Telecommunications Advancement Foundation).
- [17]. **Norifumi Kawabata**, “**Image Quality Assessment for Multi-view 3D CG Images and 5K High Definition Images Based on S-CIELAB Color Space,**” *Proc. of The 24th International Display Workshops (IDW’17), Workshop on 3D/Hyper-Realistic Displays and Systems*, Vol. 24, 3D5-1, pp. 849–852, Sendai International Center, Sendai, Japan, December 6-8, 2017.
- [18]. **Norifumi Kawabata** and Masaru Miyao, “**Multi-view 3D CG Image Quality Assessment for Contrast Enhancement Including S-CIELAB Color Space in case the Background Region is Gray Scale,**” *Proc. of The 31st International Technical Conference on Circuits/Systems, Computers and Communications (ITC-CSCC2016)*, T2-6-3, pp. 579–582, Municipal Center (Jichikaikan), Okinawa, Japan, July 10-13, 2016 (ITE (The Institute of Image Information and Television Engineers) International Conference Support Grant).
- [19]. **Norifumi Kawabata** and Masaru Miyao, “**Multi-view 3D CG Image Quality Evaluation Including Visible Digital Watermarking Based on Color Information,**” *Proc. of The Eighth International Workshop on Image Media Quality and its Applications (IMQA2016)*, OS1-3, pp. 18–26, Noyori Conference Hall, Higashiyama Campus, Nagoya Univ., Nagoya, Japan, March 10-11, 2016.

- [20]. **Norifumi Kawabata** and Masaru Miyao, “**3D CG Image Quality Assessment for the Luminance Change by Contrast Enhancement Including S-CIELAB Color Space with 8 Viewpoints Parallax Barrier Method,**” *Proc. of The 1st International Conference on Advanced Imaging (1st ICAI2015)*, T107-01, pp. 632–635, National Center of Science (Hitotsubashi Memorial Hall), Tokyo, Japan, June 17-19, 2015.
- [21]. **Norifumi Kawabata**, Masaru Miyao, and Yuukou Horita, “**3D CG Image Quality Metrics Including the Coded Degradation by Regions with 8 Viewpoints Parallax Barrier Method,**” *Proc. of The Seventh International Workshop on Image Media Quality and its Applications (IMQA2014)*, PS-9, pp. 102–105, Keyaki Hall, Nishi Chiba Campus, Chiba Univ., Chiba, Japan, September 2-3, 2014.
- [22]. **Norifumi Kawabata** and Yuukou Horita, “**Statistical Analysis and Consideration of Subjective Evaluation of 3D CG Images with 8 Viewpoints Lenticular Lens Method,**” *Proc. of The Sixth International Workshop on Image Media Quality and its Applications (IMQA2013)*, T1-2, pp. 23–32, Takanawa Campus, Tokai Univ., Tokyo, Japan, September 12-13, 2013.
- [23]. **Norifumi Kawabata**, Keiji Shibata, Yasuhiro Inazumi, and Yuukou Horita, “**Image Quality Evaluation of 3D CG Images with 8 Viewpoints Lenticular Lens Method,**” *Proc. of The Fifth International Workshop on Image Media Quality and its Applications (IMQA2011)*, D-10, pp. 88–90, Campus Plaza Kyoto, Kyoto, Japan, October 4-5, 2011.

12.3 Technical Reports

- [24]. **Norifumi Kawabata** and Masaru Miyao, “**Multi-view 3D CG Image Quality Assessment by Using S-CIELAB Color Space Including Visible Digital Watermarking by Regions in case the Background Region is Gray Scale,**” *IEICE Tech. Rep., Image Media Quality*, vol.116, no.68, IMQ2016-1, pp.1–6, Nishi-Chiba Campus, Chiba Univ., May 2016.
- [25]. **Norifumi Kawabata** and Masaru Miyao, “**3D CG Image Quality Metrics for the Contrast Enhancement of the Object Region Including S-CIELAB Color Space with 8 Viewpoints Parallax Barrier Method,**” *IEICE Tech. Rep., Image Media Quality*, vol.115, no.48, IMQ2015-4, pp.17–22, Gofuku Campus, Univ. of Toyama, May 2015.

12.4 Dissertation

- [26]. **Norifumi Kawabata**, “**A Study of the Multi-view 3D CG Image Quality Assessment Including the Image Characteristics,**” Doctor Dissertation, Department of Information Engineering, Graduate School of Information Science, Nagoya University, January 2017.