

**Kohei Murakami**  
Postdoctoral Scholar  
University of California San Diego  
Department of Mechanical & Aerospace Engineering  
9500 Gilman Dr., La Jolla, CA 92093-0411  
E-mail: k1murakami@ucsd.edu

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## PROFESSIONAL EXPERIENCE

- June 2022 – **Postdoctoral Scholar** – University of California, San Diego, CA, USA  
Present Project: DERConnect – NSF funded national testbed for autonomous energy grids. Modeling power system and DERs using RTDS and Typhoon-HIL, hardware in the loop test development, and use-case development.
- 2021 – 2022 **Research Scientist** – Central Research Institute of Electric Power Industry, Kanagawa, JPN  
Evaluated impacts of photovoltaic inverter installation on harmonics in distribution systems.  
Created harmonic current source models of air conditioners.
- 2016 – 2020 **Research Support Staff** – Waseda University, Tokyo, JPN  
Built distribution system models based on actual data provided by an electric power company.  
Conducted joint researches about voltage control in distribution power systems with a Japanese utility.  
Developed control system with real-time simulators (Opal-RT and dSPACE) for a smart inverter testbed.  
Demonstrated smart inverter functions with 400/200 V distribution system simulator.
- Oct 2019– **Intern** – Electric Power Research Institute (EPRI), Knoxville, Tennessee, USA.  
Jan 2020 Summarized grid forming inverter technologies developed in industry and academic research fields.  
Performed simulation and data analysis of distribution system operation with advanced inverter functions.

## EDUCATION

- 2016–2021 **Ph.D. in Engineering** – Waseda University, Tokyo, JPN.  
*Advisor:* Prof. Yasuhiro Hayashi, *Co-Advisor:* Prof. Noboru Murata  
*Thesis:* *Studies on Optimal Voltage Control using Step Voltage Regulator in Distribution Networks with Photovoltaics*
- 2012–2016 **B.E. in Electrical Engineering** – Waseda University, Tokyo, JPN.  
*Advisor:* Prof. Yasuhiro Hayashi

## PUBLICATIONS – peer-reviewed journals

1. **Kohei Murakami**, Shinya Yoshizawa, Hideo Ishii, Yasuhiro Hayashi, Hiroshi Kondo, Yuki Kanazawa, Hideo Nomura, and Takuya Kajikawa, “Dynamic Optimization of SVR Control Parameters Improving Tap Operation Efficiency of Voltage Control in Distribution Network,” *IEEE Trans. Elec. Electron. Eng.*, 2021.
2. **Kohei Murakami**, Shinya Yoshizawa, Hideo Ishii, Yasuhiro Hayashi, Hiroshi Kondo, Yuki Kanazawa, Hideo Nomura, and Takuya Kajikawa, “Semi-Centralized Voltage Control Method Using SVR based on Past Voltage Measurements in Distribution Network,” *IEEE Trans. Elec. Electron. Eng.*, 2020.

## PRESENTATIONS – conferences

1. Yu Yanagiya, **Kohei Murakami**, Shinya Yoshizawa, Hideo Ishii, and Yasuhiro Hayashi, “Voltage Control Performance Evaluation of Advanced Inverter Function for Photovoltaic Integration in Distribution Networks,” in International Council on Electrical Engineering, 2019.
2. Yu Yanagiya, **Kohei Murakami**, Shinya Yoshizawa, Hideo Ishii, and Yasuhiro Hayashi, “Voltage Control Performance Evaluation of Advanced Inverter Function for Photovoltaic Integration in Distribution Networks,” International Council on Electrical Engineering 2019 (ICEE 2019).
3. Shunsuke Kawano, **Kohei Murakami**, Shinya Yoshizawa, and Yasuhiro Hayashi, “Basic Study on Application of Real-time Satellite-observed Solar Radiation Data for Centralized Voltage Control in Distribution Networks,” The Eighth Conference on Innovative Smart Grid Technologies 2017 (ISGT 2017).

4. **Kohei Murakami**, Shinya Yoshizawa, Yu Fujimoto, Yasuhiro Hayashi, Shunsuke Sasaki, Hiroyuki Ishikawa, and Takuya Kajikawa, "Advanced Decentralized Voltage Control Method of Voltage Regulators Based on Measurements in Distribution System with PVs," The International Conference on Electrical Engineering 2016.
5. Tomohiro Otani, Yasuhiro Tuyuki, Satoru Akagi, Yuji Takenobu, **Kohei Murakami**, and Takayuki Homma, "Zn Batteries for Voltage Control in Power Distribution System: Scalable and Low-Cost Approach," 2016 TECO Green Tech International Contest.
6. **Kohei Murakami**, Shinya Yoshizawa, Yasuhiro Hayashi, Hiroshi Kondo, Yuki Kanazawa, Hideo Nomura, and Takuya Kajikawa, "Evaluation of Real-time Correction of SVR control Parameter with Regression Analysis of Voltage Violation Risk," Annual Conference of Department of Electrical Power and Energy, the Institute of Electrical Engineers of Japan 2021 (in Japanese).
7. **Kohei Murakami**, Shinya Yoshizawa, Yasuhiro Hayashi, Hiroshi Kondo, Yuki Kanazawa, Hideo Nomura, and Takuya Kajikawa, "Basic Study of Real-time Correction of SVR Control Parameters Considering Feature of Measurements in Distribution Networks," Annual Conference of Department of Electrical Power and Energy, the Institute of Electrical Engineers of Japan 2020 (in Japanese).
8. Yu Yanagiya, **Kohei Murakami**, Shinya Yoshizawa, Hideo Ishii, Yasuhiro Hayashi, Takahiro Matsuura, Hiromu Hamada, and Kenjiro Mori, "Voltage Control Method using Reactive Power Control based on Voltage Sensitivity and Volt-Watt Control for Reduction of Voltage Violation caused by PV Prediction Error," Annual Conference of Department of Electrical Power and Energy, the Institute of Electrical Engineers of Japan 2020 (in Japanese).
9. Yu Yanagiya, **Kohei Murakami**, Shinya Yoshizawa, Hideo Ishii, Yasuhiro Hayashi, Takahiro Matsuura, Hiromu Hamada, and Kenjiro Mori, "A Study on Reactive Power Control Method for Smart Inverter Using Voltage Sensitivity," Annual Conference of the Institute of Electrical Engineers of Japan 2020 (in Japanese).
10. Yu Yanagiya, **Kohei Murakami**, Shinya Yoshizawa, Hideo Ishii, and Yasuhiro Hayashi, "Evaluation of Voltage Control Functions for Smart Inverter Considering Multiple Parameter Determination Methods," Annual Conference of Department of Electrical Power and Energy, the Institute of Electrical Engineers of Japan 2019 (in Japanese).
11. **Kohei Murakami**, Shinya Yoshizawa, Yasuhiro Hayashi, Hiroshi Kondo, Hiroyuki Ishikawa, and Takuya Kajikawa, "Evaluation of Control Parameter Determination Method of SVR based on Past Voltage Measurements considering Durable Replacement Cycle," Annual Conference of Department of Electrical Power and Energy, the Institute of Electrical Engineers of Japan 2019 (in Japanese).
12. **Kohei Murakami**, Hideo Ishii, Yasuhiro Hayashi, Hamed V. Haghi, and Jan Kleissl, "Minimizing Losses in Zone-based Volt-Var Settings Through Genetic Algorithms," Annual Conference of the Institute of Electrical Engineers of Japan 2019 (in Japanese).
13. Yu Yanagiya, **Kohei Murakami**, Shinya Yoshizawa, Hideo Ishii, and Yasuhiro Hayashi, "A Study on Advanced Power Factor Control with Scheduling Function of Smart Inverter," Annual Conference of the Institute of Electrical Engineers of Japan 2019 (in Japanese).
14. **Kohei Murakami**, Shinya Yoshizawa, Yu Fujimoto, Hideo Ishii, and Yasuhiro Hayashi, "Evaluation of Zone-based Control Parameter Settings for Smart Inverter on Voltage Control in Distribution Networks," Annual Conference of Department of Electrical Power and Energy, the Institute of Electrical Engineers of Japan 2018 (in Japanese).
15. **Kohei Murakami**, Shinya Yoshizawa, Yu Fujimoto, Yasuhiro Hayashi, Shunsuke Sasaki, Hiroyuki Ishikawa, and Takuya Kajikawa, "Robust Determination Method of SVR Control Parameter based on Approximated Probability Density Function of Voltage Change," Annual Conference of the Institute of Electrical Engineers of Japan 2017 (in Japanese).
16. **Kohei Murakami**, Shinya Yoshizawa, Yu Fujimoto, Yasuhiro Hayashi, Shunsuke Sasaki, Hiroyuki Ishikawa,

and Takuya Kajikawa, "Quantitative Evaluation of Voltage Control Performance with Determination Method of SVR Control Parameter Using Electrical Power Measurements with Different Time Resolution of IT Switches," Annual Conference of Department of Electrical Power and Energy, the Institute of Electrical Engineers of Japan 2016 (in Japanese).

17. **Kohei Murakami**, Shinya Yoshizawa, Yu Fujimoto, Yasuhiro Hayashi, Shunsuke Sasaki, Hiroyuki Ishikawa, and Takuya Kajikawa, "Basic Study of Determination Method of SVR Control Parameter with Electrical Power Measurements in Distribution System with PVs," Annual Conference of the Institute of Electrical Engineers of Japan 2016 (in Japanese).

## **PROFESSIONAL MEMBERSHIPS AND AWARDS**

- Membership: IEEE (Since 2017), IEEE Power & Energy Society, CIGRE, Institute of Electric Engineers of Japan
- Excellent Presentation Award in Young Oral-presentation Competition  
Annual Conference of Department of Electrical Power and Energy, the Institute of Electrical Engineers of Japan 2021.
- Best Presentation Award in Young Oral-presentation Competition  
Annual Conference of Department of Electrical Power and Energy, the Institute of Electrical Engineers of Japan 2020.
- Best Presentation Award in Young Poster Competition  
Annual Conference of Department of Electrical Power and Energy, the Institute of Electrical Engineers of Japan 2016.
- Best Originality Award  
2016 TECO Green Tech International Contest