Yuta Suzuki （鈴木雄太）

Personal Information

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Research Interests

As a materials scientist, I am working on the knowledge discovery from materials to design novel materials; now I focus on the development of materials characterization techniques that combined with machine learning to realize "AI-assisted understanding of materials". I am interested in what kind of change will occur in the world by utilizing machine learning and related technologies, and I would like to contribute to realizing a better world from the industrial standpoint.

Education

- Bachelor of Engineering, Tokyo University of Science, Tokyo, Japan. (Mar. 2017)
- Master of Engineering, Tokyo University of Science, Tokyo, Japan. (Mar. 2019)
- Doctor of Engineering, SOKENDAI (The Graduate University for Advanced Studies), Kanagawa, Japan. (Apr. 2019 - Present)

Experience

- Research internship in OMRON SINIC X Corp. (Mar. 2019 – Aug. 2019)
- Collaborative researcher in High Energy Accelerator Research Organization. (Jun. 2016 – May 2017)
- Teaching assistant for a student experiment of materials science. (Sep. 2016 – Dec. 2016)
- Research internship in National Institute for Materials Science. (Aug. 2015 – Sep. 2015)

Skills

- Ability to perform research with other people whom in various fields.
- Open-minded for change and be able to adapt the situation.
- Experience in cutting-edge experimental materials science for 5+ years.
- Research experience in machine learning applications for 5+ years.
- Basics for Linux, Git, Docker, Python, ML libraries (e.g. sklearn, PyTorch), SQL, and Adobe (Ps, Ai).

Awards

- **Best Presentation Award,** The Japanese Society for Synchrotron Radiation Research. (Jan. 2021)
- **TUS Award 2018**, Tokyo University of Science. (Mar. 2019)
- **TUS Incentive Award (Mathematics and Physics)**, Tokyo University of Science. (Mar. 2019)
- **Best Poster Award**, The 15th Microscopic Nano-materials Science Symposium. (Mar. 2017)

Update: 2021/03/17

Research Grants

- JST ACT-I Acceleration phase, " Modality Transformation for Materials Measurement Data". (Apr. 2020 – Mar. 2022, Principal Investigator)
- JST ACT-I, " Development of Data Analysis Method for On-the-fly Crystal System Prediction". (Oct. 2018 – Mar. 2020, Principal Investigatdor)
- JSPS Research Fellowship for Young Scientists (DC1), "Development of Automated Analysis Method of High-throughput Measurement Data Utilizing Machine Learning and Materials Database". (Apr. 2019 – Mar. 2022, Principal Investigator)

Publications (refereed)

1. **Suzuki, Y**. Hino, H., Hawai, T. *et al*., "Symmetry prediction and knowledge discovery from X-ray diffraction patterns using an interpretable machine learning approach", *Scientific Reports*. 10, 21790, (2020).
2. Okuno, T., Sasaki, Y., **Suzuki, Y.**, "A Survey on Material Discovery by Deep Neural Networks", *IPSJ Transactions on Databases*. **13**, 22-31 (2020).
3. Ozaki, Y., **Suzuki, Y.**, Hawai, T. *et al.* "Automated crystal structure analysis based on blackbox optimization", *npj Computational Materials*. **6**, 75 (2020).
4. **Suzuki, Y**., Hino, H., Kotsugi, M. *et al*., "Automated estimation of materials parameter from X-ray absorption and electron energy-loss spectra with similarity measures", *npj Computational Materials*. **5**, 39, (2019).
5. **Suzuki, Y.** *et al.,* "Extraction of Physical Parameters from X-ray Spectromicroscopy Data Using Machine Learning", *Microscopy and Microanalysis*. **24**, 478–479 (2018).
   Highlighted by Citrine Informatics Newsletter: https://mailchi.mp/4927e48cc33b/data-driven-materials-scientists-use-machine-learning-to-speed-discovery-of-metallic-glass-3324369
6. And other three papers as the first author

Invited Talks

1. **Suzuki, Y.**, Ozaki, Y., "Application of Bayesian Optimization", Information-based Induction Sciences and Machine Learning Workshop, Online, Mar. 2021.
2. **Suzuki, Y.**, "Data Augmentation for Crystal Structures", Research meeting in The Institute of Statistical Mathematics: Recent Progress in Statistical Machine Learning, Tokyo Japan, Jan. 2020.
3. **Suzuki, Y.**, "Machine-learning-assisted data analysis in X-ray diffraction and absorption for high-throughput measurement", International Young Researchers Workshop on Synchrotron Radiation Science 2019, Hiroshima Japan, Sep. 2019.
4. **Suzuki, Y.**, "Materials Parameter Estimation from X-ray Absorption Spectrum by Similarity of Data", Research meeting in The Institute of Statistical Mathematics: Recent Progress in Statistical Machine Learning, Tokyo Japan, Jan. 2019.

International Conference Presentations

1. **Suzuki, Y.** *et al.*, "Machine learning approach for on-the-fly crystal system classification from powder x-ray diffraction pattern", TMS2020, San Diego US, Feb. 2020.
2. **Suzuki, Y.** *et al.*, "Automated Lattice Constant Estimation of X-ray Diffraction by Ensemble Learning", The 5th International Conference on Electronic Materials and Nanotechnology for Green Environment, Jeju Korea, Nov. 2018.
3. **Suzuki, Y.** *et al.*, "Estimation of Physical Parameters Using Dimensionality Reduction of X-Ray Absorption Spectra", The 13th International Conference on Synchrotron Radiation Instrumentation, Taipei Taiwan, Jun. 2018.
4. And three others as first author