Masaki Onuki

Homepage: `http://onk.msp-lab.org/`

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Education

- **Tokyo University of Agriculture and Technology** Tokyo, Japan
  Ph.D. *2015 - 2018*
  - Outstanding Student Award from Tokyo University of Agriculture and Technology
  - Research Fellow (DC1), Japan Society for the Promotion of Science (JSPS)
- **Tokyo University of Agriculture and Technology** Tokyo, Japan
  M.E. *2013 - 2015*
  - Computer and Information Science
  - Outstanding Student Award from Graduate School of BASE,Tokyo University of Agriculture and Technology
- **Tokyo University of Agriculture and Technology** Tokyo, Japan
  B.E. *2009 - 2013*
  - Computer and Information Science

Skills

1. Programming
   - Python, C#, LaTeX, MATLAB, Javascript
2. Languages
   - Japanese (native), English (professinal working proficiency)

Experience

- **XICA Co., Ltd.** Tokyo, Japan
  Data Scientist *2023 -*
  - My duty is to analyze marketing data and develop new algorithms of marketing mix modeling (MMM).
- **Humanome Lab., Inc.** Tokyo, Japan
  Researcher *2019 - 2022*
  - My duty is to develop new AI systems for the human healthcare.
- **Huawei Technologies Japan K.K.** Tokyo, Japan
  R&D Engineer *2018-2019*
  - Developing the new image processing algorithm to further improve the image quality of the camera of the Huawei's smartphone.

- Integrating the machine learning approach into our smartphone.
- Writing academic papers regarding the image processing areas.

- **The Chinese University of Hong Kong (CUHK)** Hong Kong
  Research Assistant *2016 - 2017*
  - This position was at Prof. Blu's research group.
  - See his homepage: `https://www.ee.cuhk.edu.hk/~tblu/monsite/phps/people.php`
  - Developing the high performance of the image denoising algorithm with Prof. Blu.

- **Tokyo University of Agriculture and Technology** Tokyo, Japan
  Research Assistant *2016 - 2017*
  - Researching the basic theory of the graph signal processing with Prof. Y.Tanaka.

Awards, Grants & Honours

- **Outstanding Student Award**
  from Tokyo University of Agriculture and Technology *2018*
- **Yaujiro Niwa Outstanding Paper Award**
  from Tokyo Denki University *2018*
- **Outstanding Student Award**
  from Graduate School of BASE, Tokyo University of Agriculture and Technology *2017*
- **IEEE Signal Processing Society (SPS) Japan Student Best Paper Award**
  from IEEE SPS Japan *2016*
- **Grant for Studying Abroad**
  from Tokyo University of Agriculture and Technology *2016 - 2017*
- **Grants-in-Aid for JSPS Fellows (PI)**
  from Japan Society for the Promotion of Science (JSPS) *2015 - 2018*
- **Outstanding Student Award**
  from Graduate School of BASE, Tokyo University of Agriculture and Technology *2015*
- **Grant for International Conference (ICIP2014)**
  from Tokyo University of Agriculture and Technology *2014*
- **SIP Symposium Student Encouragement Award**
  from Signal Processing Symposimu *2014*

Scholarships & Fellowships

- **Research Fellow (DC1)**
  from Japan Society for the Promotion of Science (JSPS) *2015 - 2018*
  - Focus on developing the basic theory of the image processing.
  - As a DC1, I received around 1,800 US dollars per month from Japan government for 3 years.
  - Only 20% of all Ph.D. students in Japan are selected as up-and-coming candidates who will become excellent researchers. Only these selected students can receive the fellowships.

- **Tane Tomato Scholarship**
  from Tane Tomato Foundation *2013 - 2015*
  - Around 15 excellent graduated students are selected every year and can receive this scholarship.

Published Papers

Full Papers

- A. Takano, K. Ono, K. Nozawa, M. Sato, **M. Onuki**, J. Sese, Y. Yumoto, S. Matsushita, and T. Matsumoto, "Wearable sensor and mobile app-based mHealth approach for investigating substance use and related factors in daily life: protocol for an ecological momentary assessment study," *JMIR Research Protocols*, pp. e44275, 2023.
- Y. Sato, J. Sese, T. Matsuyama, **M. Onuki**, S. Mase, K. Okuno, K. Saito, N. Fujiwara, A. Hoshino, K. Kawada, M. Tokunaga, and Y. Kinugasa, "Preliminary study for developing a navigation system for gastric cancer surgery using artificial intelligence," *Surgery Today*, pp. 1–6, 2022.
- **M. Onuki**, S. Ono, K. Shirai, and Y. Tanaka, "Fast singular value shrinkage with Chebyshev polynomial approximation based on signal sparsity," *IEEE Transactions on Signal Processing*, vol. 65, no. 22, pp. 6083–6096, 2017.
- K. Yamamoto, **M. Onuki**, and Y. Tanaka "Non-blind deconvolution of point cloud attributes in graph spectral domain," *IEICE Transactions on Fundamentals,* vol. E100-A, no. 9, pp. 1751–1759, 2017
- **M. Onuki**, S. Ono, M. Yamagishi, and Y. Tanaka, "Graph signal denoising via trilateral filter on graph spectral domain," *IEEE Transactions on Signal and Information Processing over Networks*, vol.2, no. 2, pp. 137–148, 2016.
- A. Hamamoto, **M. Onuki**, and Y. Tanaka, "Higher order feasible building blocks for lattice structure of multidimensional linear phase biorthogonal filter banks," *Multidimensional Systems and Signal Processing*, pp. 1-19, Oct. 2015.
- **M. Onuki** and Y. Tanaka, "Design of optimized prefilters for time-domain lapped transforms with various downsampling factors," *IEICE Transactions on Fundamentals*, vol. E97–A, no. 9, pp. 1907-1917, 2014.

International Conferences

- **M. Onuki**, M. Sato, and J. Sese, "Estimating physical/mental health condition using heart rate data from a wearable device ," in Proc. *IEEE Engineering in Medicine and Biology Society (EMBC)*, pp. 4465–4468, Glasgow, Scotland, UK, July 2022.
- **M. Onuki** and Y. Tanaka, "SVD for very large matrices: An approach with polar decomposition and polynomial approximation," in Proc. *IEEE ICDM DSBDA Workshop 2018*, Singapore, Nov. 2018.
- T. Kanada, **M. Onuki**, and Y. Tanaka, "Low-rank sparse decomposition of graph adjacency matrices for extracting clean clusters," in Proc. *Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)*, Honolulu, HI, Nov. 2018.

- **M. Onuki**, Y. Tanaka, and M. Okuda, "Improved eigenvalue shrinkage using weighted Chebyshev polynomial approximation," in Proc. *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, New Orleans, USA, pp. 4541–4545, Mar. 2017.

- Y. Tanaka, S. Yagyu, A. Sakiyama, and **M. Onuki**, "Mesh-based image retargeting with spectral graph filtering," in Proc. *Asia-Pacific Signal and Information Processing Association Annual Summit and Coference (APSIPA ASC)*, Jeju, Korea, Dec. 2016.

- **M. Onuki** and Y. Tanaka, "ℓ_1-regularized optimization of undersampled prefilters for image coding," in Proc. *Picture Coding Symposium (PCS)*, Nuremberg, Germaney, Dec. 2016.

- K. Yamamoto, **M. Onuki** and Y. Tanaka, "Deblurring of point cloud attributes in graph spectral domains," in Proc. *IEEE International Conference on Image Processing (ICIP)*, Phoenix, AZ, USA, pp. 1559–1563, Sep. 2016.

- **M. Onuki**, S. Ono, K. Shirai, and Y. Tanaka, "Image colorization based on ADMM with fast singular value thresholding by Chebyshev polynomial approximation," in Proc. *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Shanghai, China, pp. 4762-4766, Mar. 2016.

- K. Suwabe, **M. Onuki**, Y. Iizuka, and Y. Tanaka, "Globalized BM3D using fast eigenvalue filtering," in Proc. *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, Orlando, Florida, USA, pp. 438–442, Dec. 2015.

- **M. Onuki**, S. Ono, K. Shirai, and Y. Tanaka, "Non-local/local image filters using fast eigenvalue filtering," in Proc. *IEEE International Conference on Image Processing (ICIP)*, Québec City, Canada, pp. 4659-4663, Sep. 2015.

- **M. Onuki** and Y. Tanaka, "Tone-mapping using graph spectral-domain filters," in Proc. *2015 Joint Conference of IWAIT and IFMIA*, Tainan, Taiwan, Jan. 2015 **(Invited Talk)**.

- A. Hamamoto, **M. Onuki**, and Y. Tanaka, "Multidimensional linear-phase perfect reconstruction filter banks with higher order feasible building blocks," in Proc. *IEEE International Conference on Image Processing (ICIP)*, Paris, France, pp. 2963–2967, Oct. 2014.

- **M. Onuki** and Y. Tanaka, "Trilateral filter on graph spectral domain," in Proc. *IEEE International Conference on Image Processing (ICIP)*, Paris, France, pp. 2046–2050, Oct. 2014.

- **M. Onuki** and Y. Tanaka, "Design of optimized prefilters for time-domain lapped transforms with various downsampling factors," in Proc. *IEEE International Conference on Image Processing (ICIP)*, Melbourne, Australia, pp. 1777–1781, Sep. 2013.