Tatsunori TANIAI

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Education

The University of Tokyo, JAPAN (Apr 2009 - present)

Apr 2014 - **Pursuing a Ph.D. degree** in Information Science and Technology
Advisor: Yoichi Sato

Mar 2014: **Master of Science** in Information Science and Technology
Advisor: Takeshi Naemura

Mar 2012: **Bachelor of Engineering** in Information and Communication Engineering
Advisor: Takeshi Naemura

National Institute of Technology, Tokyo College, JAPAN (2003-2009)

Mar 2009: **Associate of Engineering** in Information Engineering
Advisor: Tetsuya KOJIMA

Research Interests

Include low and mid-level computer vision, particularly,

- **3D reconstruction** in both geometric and photometric approaches.
- **Image segmentation** especially, jointly with stereo, optical flow, etc.
- **MRF optimization** for higher-order energies or a large label space.

Awards & Honors

October 2015: **Microsoft Research Asia Ph.D. Fellowship**
from Microsoft Research Asia (One of 13 winners out of 100 applicants from Asia. Research fund of $10,000)

2014 - 2017: **JSPS Young Research Fellowship (DC1)**
from the Japan Society for the Promotion of Science. (Research fund of approx. $10,000/year for three years)

March 2014: **Dean's Award for Best Master Thesis**

from the Graduate School of Information Science and Technology, the University of Tokyo.

March 2012: **Dean's Award for Best Bachelor Thesis**
from the Faculty of Engineering, the University of Tokyo.

PUBLICATIONS

♦ Journals

[1] Tatsunori Taniai, Viet-Quoc Pham, Keita Takahashi, and Takeshi Naemura: "Image Segmentation using Simultaneous Matching of Foreground-Background Color Distributions", *IEICE Transactions on Information and Systems (Japanese edition)*, vol. J96-D, no. 8, pp. 1764–1777 (Aug 2013).

♦ International Conference Papers

[2] Tatsunori Taniai, Sudipta Sinha, and Yoichi Sato: "Joint Recovery of Dense Correspondence and Cosegmentation in Two Images", In *Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR 2016**), Las Vegas, NV, USA (Jun 2016). **(**acceptance rate: 643/2145 = 29.9%**)**

[3] Tatsunori Taniai, Yasuyuki Matsushia, and Takeshi Naemura: "Superdifferential Cuts for Binary Energies", In *Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR 2015**), pp.2030–2038, Boston, MA, USA (Jun 2015). **(**acceptance rate: 602/2123 = 28.4%)

[4] Tatsunori Taniai, Yasuyuki Matsushia, and Takeshi Naemura: "Graph Cut based Continuous Stereo Matching using Locally Shared Labels", In *Proc. of IEEE Conference on Computer Vision and Pattern Recognition* (**CVPR 2014**), pp.1613–1620, Columbus, OH, USA (Jun 2014). **(**acceptance rate: 540/1807 = 29.8%)

[5] Tatsunori Taniai, Viet-Quoc Pham, Keita Takahashi, and Takeshi Naemura: "Image Segmentation using Dual Distribution Matching", In *Proc. of British Machine Vision Conference* (**BMVC 2012**), pp.74.1–74.11, Surrey, UK (Sep 2012). **(**oral presentation. acceptance rate: 32/414 = 8%)

♦ Technical Reports

[6] Tatsunori Taniai, Yasuyuki Matsushia, Yoichi Sato, and Takeshi Naemura: "Continuous Stereo Matching using Local Expansion Moves", In *arXiv:1603.08328*, cs.CV (Apr 2016). (an extended version of [4])

♦ Invited Talks

[7] Tatsunori Taniai, Sudipta N. Sinha, and Yoichi Sato†: "Joint Recovery of Dense Correspondence and Cosegmentation in Two Images (CVPR 2016)", In *The 19th Meeting on Image Recognition and Understanding (MIRU)*, IS2-15, at Actcity Hamamatsu in Shizuoka, Japan (Aug 4th, 2016).

[8] Tatsunori Taniai†: "Solving Segmentation and Dense Correspondence Problems using Graph Cuts", In *The 1st CREST Symposium on Random Fields and Deep Learning*, at Waseda University in Tokyo, Japan (Jan 13th, 2016). (Organizers: Prof. Hiroshi Ishikawa & Prof. Takayuki Okatani)

[9] Tatsunori Taniai†: "Joint Co-segmentation and Dense Correspondence", In *The final interview of Microsoft Research Asia Ph.D. fellowships*, at Microsoft Research Asia in Beijing, China (Sep 11th, 2015).

[10] Tatsunori Taniai, Yasuyuki Matsushia†, and Takeshi Naemura: "Superdifferential Cuts for Binary Energies (CVPR 2015)", In *The 18th Meeting on Image Recognition and Understanding (MIRU)*, IS1-10, at Hotel Hankyu Expo Park in Osaka, Japan (Jul 28th, 2015).

[11] Tatsunori Taniai†, Yasuyuki Matsushia, and Takeshi Naemura: "Graph Cut based Continuous Stereo Matching using Locally Shared Labels (CVPR 2014)", In *The 17th Meeting on Image Recognition and Understanding (MIRU)*, IT1-1, at Okayama Convention Center in Okayama, Japan (Jul 29th, 2014).

Names with † are the presenters.

♦ **Domestic Conference Papers** (in Japanese)

Two papers including one refereed paper.

EXPERIENCES

Conference Reviewer: 3DV 2014

Journal Reviewer: IEEE TIP 2015, IMAVIS 2016, IEICE TIS 2016

Research Internship at Microsoft Research (May 23th – Aug 26th, 2016 in Redmond, USA)

Supervisor: Dr. Sudipta Sinha

Visiting Research at Microsoft Research Asia (Jan 26th – Apr 25th, 2016 in Beijing, China)

Supervisor: Dr. David Wipf

Research Internship at Microsoft Research (June 1st – Sep 4th, 2015 in Redmond, USA)

Supervisor: Dr. Sudipta Sinha

Part of the internship achievements has been published as a CVPR 2016 paper [2].

Research Internship at Microsoft Research Asia (Dec 11th, 2012 – Apr 17th, 2013 in Beijing, China)

Supervisor: Dr. Yasuyuki Matsushita

Part of the internship achievements has been published as a CVPR 2014 paper [4].

SKILLS

- 10+ years of programming experiences in **C++** (primary use), **C#**, and **Java**
- Coding skills by **modern C++** (not mastering level yet!)
- Visual computing using **OpenCV** (primary use) and **MATLAB**
- GPGPU programming skills using **OpenCL** and **CUDA** (basic level)
- SIMD code optimization using **SSE** and **AVX** (basic level)
- Academic literacy & conversation skills in **English.** (TOEIC 930 of 990 in May 2011)