

Jan. 6th (Sat)

09:00 - 09:30 **Registration**

09:30 - 09:40 **Opening remark (Chair: Jun Takamatsu)**

Naokazu Yokoya (NAIST)

09:40 - 10:40 **Oral session 1: Person Identification (Chair: Yasuhiro Mukaigawa)**

Format: 15 min for presentation + 4 min for question

■O1-1. Temporal-Enhanced Convolutional Network for Person Re-identification, Yang Wu, Jie Qiu, Jun Takamatsu, Tsukasa Ogasawara (NAIST)

■O1-2. Appropriate Network Architecture According to a Situation for Convolutional Neural Network-based Cross-view Gait Recognition, Noriko Takemura, Yasushi Makihara, Daigo Muramatsu (Osaka Univ.), Tomio Echigo (Osaka Electro-Communication Univ.), Yasushi Yagi (Osaka Univ.)

■O1-3. Exploiting Silhouettes Contours for Human Gait Identification, Hazem El-Alfy (Osaka Univ.), Ikuhisa Mitsugami (Hiroshima City Univ./Osaka Univ.), Yasushi Yagi (Osaka Univ.)

10:40 - 11:10 **Coffee break**

11:10 - 12:10 **Oral session 2: Robot/Egocentric Vision (Chair: Menandro Roxas)**

Format: 15 min for presentation + 4 min for question

■O2-1. Fusion of Learned and Manual Features for Robotic Picking in Warehouse Automation, Gustavo A. Garcia R., Felix Von Drigalski, Lotfi El Hafi (NAIST), Seigo Okada, Pin-Chu Yang (Panasonic), Wataru Yamazaki, Viktor Hoerig, Arnaud Delmotte, Akishige Yuguchi, Marcus Gall, Chika Shiogama, Kenta Toyoshima (NAIST)

■O2-2. Hand Pose Estimation and Motion Recognition Using Egocentric RGB-D Video, Wataru Yamazaki, Ming Ding, Jun Takamatsu, Tsukasa Ogasawara (NAIST)

■O2-3. SLAM-Device and Robot Calibration for Navigation, Ryoichi Ishikawa, Takeshi Oishi (The Univ. of Tokyo), Katsushi Ikeuchi (Microsoft)

12:10 - 13:10 **Luncheon seminar (Chair: In So Kweon)**

■L-1. Visual Localization Solutions from NAVER LABS, TBD (NAVER LABS)

13:10 - 14:30 **Oral session 3: Autonomous Driving, 3D Vision (Chair: Kota Aoki)**

Format: 15 min for presentation + 4 min for question

■O3-1. Real-Time Simultaneous 3D Reconstruction and Optical Flow Estimation, Menandro Roxas, Takeshi Oishi (The Univ. of Tokyo)

■O3-2. Multispectral Transfer Network: Unsupervised Depth Estimation for All-day Vision, Namil Kim, Yukyung Choi, Soonmin Hwang, In So Kweon (KAIST)

■O3-3. An Efficient Volumetric Mesh Representation for Real-time Scene Reconstruction using Spatial Hashing, Wei Dong, Jieqi Shi, Weijie Tang, Xin Wang, Hongbin Zha (Peking Univ.)

■O3-4. Backpropagation through Simulation: Training Artificial Neural Network for Car-following, Ruoyu Sun, Donghao Xu, Huijing Zhao (Peking Univ.), Franck Guillemand, Stephane Geronimi, Francois Aioun (PSA Peugeot Citroen)

14:30 - 15:00 **Coffee break**

15:00 - 15:24 **Spotlight session (Chair: Fumio Okura)**

Format: 1 min for presentation; no question

■P-1. A deep-learning-based 3D hand pose tracking system, Fan Yang, Kai Akiyama, Yang Wu (NAIST)

■P-2. Proposal of a wrist-mounted depth camera for finger gesture recognition, Kai Akiyama, Yang Wu (NAIST)

■P-3. 3D Level Set Method for Cell Segmentation of Preimplantation Embryos in Fluorescence Microscopy Images, Andrey Grushnikov (Osaka Univ.), Ritsuya Niwayama (European Molecular Biology Laboratory), Takeo Kanade (CMU/Osaka Univ.), Yasushi Yagi (Osaka Univ.)

■P-4. A Geometric View Transformation Model using Free-form Deformation for Cross-view Gait Recognition, Hazem El-Alfy (Osaka Univ.), Chi Xu (NJUST/Osaka Univ.),

Yasushi Makihara, Daigo Muramatsu, Yasushi Yagi (Osaka Univ.)

- P-5. Joint Intensity and Spatial Metric Learning for Robust Gait Recognition, Yasushi Makihara, Atsuyuki Suzuki, Daigo Muramatsu (Osaka Univ.), Xiang Li (NJUST/Osaka Univ.), Yasushi Yagi (Osaka Univ.)
- P-6. MultiQ: Single sensor-based multi-quality multi-modal large-scale biometric score database and its performance evaluation, Md. Zasim Uddin, Daigo Muramatsu, Takuhiro Kimura, Yasushi Makihara, Yasushi Yagi (Osaka Univ.)
- P-7. Robust Visual Localization using Effective Feature Points in Dense 3D Map, Yuta Ike, Roxas Menandro, Yasuhide Okamoto, Takeshi Oishi (The Univ. of Tokyo)
- P-8. Geometrically and Optically Robust Optical See-Through Mixed Reality System with Eye Tracking Techniques, Kenta Hasegawa, Yasuhide Okamoto, Takehsi Oishi (The Univ. of Tokyo), Taiki Fukiage (NTT Communication Science Laboratories)
- P-9. A Unified Approach of Multi-scale Deep and Hand-crafted Features for Defocus Estimation, Jinsun Park (KAIST), Yu-Wing Tai (Tencent YouTu Lab.), Donghyeon Cho, In So Kweon (KAIST)
- P-10. Noise Robust Depth From Focus Using a Ring Difference Filter, Jaeheung Surh, Hae-Gon Jeon, Sunghoon Im, In So Kweon (KAIST)
- P-11. Pixel-Level Matching for Video Object Segmentation using Convolutional Neural Networks, Jae Shin Yoon (UMN/KASIT), Francois Rameau, Junsik Kim, Seokju Lee, Seunghak Shin, In So Kweon (KAIST)
- P-12. Personalized Cinemagraphs using Semantic Understanding and Collaborative Learning, Tae-Hyun Oh (MIT), Kyungdon Joo (KAIST), Neel Josh, Baoyuan Wang (Microsoft Research), In So Kweon (KAIST), Sing Bing Kang (Microsoft Research)
- P-13. Two-Phase Learning for Weakly Supervised Object Localization, Dahun Kim, Donghyeon Cho, Donggeun Yoo, In So Kweon (KAIST)
- P-14. VPGNet: Vanishing Point Guided Network for Lane and Road Marking Detection and Recognition, Seokju Lee, Junsik Kim, Jae shin Yoon, Seunghak Shin, Oleksandr Bailo, Namil Kim (KAIST), Tae-Hee Lee, Hyun Seok Hong, Seung-Hoon Han (Samsung Electronics), In So Kweon (KAIST)
- P-15. Co-domain Embedding using Deep Quadruplet Networks for Unseen Traffic Sign Recognition, Junsik Kim, Seokju Lee (KAIST), Tae-Hyun Oh (MIT), In So Kweon (KAIST)
- P-16. Deep Representation of Industrial Components using Simulated Images, Seongheum Kim, Gyeongmin Choe, Byungtae Ahn, In So Kweon (KAIST)
- P-17. Mixed Metric Random Forest for Dense Correspondence of Cone-Beam Computed Tomography Images, Yuru Pei, Yunai Yi, Haifang Qin, Gui Chen, Tianmin Xu, and Hongbin Zha (Peking Univ.)
- P-18. Simultaneously Vanishing Point Detection and Radial Lens Distortion Correction from Single Wide-Angle Images, Sen Yang, Jiangpeng Rong, Shiyao Huang, Zeyu Shang, Yongjie Shi, Xianghua Ying, Hongbin Zha (Peking Univ.)
- P-19. A Motion Planning Method by Learning from Naturalistic Driving Data, Xu He, Donghao Xu, Huijing Zhao (Peking Univ.), Franck Guillemand, Stephane Geronimi, Francois Aioun (PSA Peugeot Citroen)
- P-20. Flow-based Dynamic 3D Shape Reconstruction using Structured Light, Rukun Qiao, Renju Li, Hongbin Zha (Peking Univ.)
- P-21. Single Depth Image Estimation Using Pixel-wise Confidence, Yeon Woo Kim, Chil Woo Lee (Chonnam Univ.)
- P-22. BRDF Reconstruction from Real Object using Reconstructed Geometry of Multi-view Images, Taishi Ono, Hiroyuki Kubo, Takuya Funatomi, Yasuhiro Mukaigawa (NAIST)
- P-23. Feature-Based Non-Rigid Registration of Serial Section Images by Blending Rigid Transformations, Takehiro Kajihara, Takuya Funatomi, Hiroyuki Kubo (NAIST), Takahito Aoto (NII), Haruyuki Makishima, Shigehito Yamada (Kyoto Univ.), Yasuhiro

Mukaigawa (NAIST)

- P-24. Acquiring Non-parametric Scattering Phase Function from a Single Image, Yuki Minetomo, Hiroyuki Kubo, Takuya Funatomi (NAIST), Mikio Shinya (Toho Univ./Dwango CG Research), Yasuhiro Mukaigawa (NAIST)

15:24 - 16:30 **Poster session**

16:30 - 17:30 **Keynote talk (Chair: Jun Takamatsu)**

- K-1. Robotic Technology to Support Daily Life Based on Human Modeling, Tsukasa Ogasawara (NAIST)

17:30 - 18:30 **Move**

18:30 - 20:30 **Banquet**

Jan. 7th (Sun)

09:00 - 09:30 **Registration**

09:30 - 10:30 **Oral session 4: Photometry (Chair: Francois Rameau)**

Format: 15 min for presentation + 4 min for question

- O4-1. Material Classification Using Frequency- and Depth-dependent Time-of-Flight Distortion, Kenichiro Tanaka, Yasuhiro Mukaigawa, Takuya Funatomi, Hiroyuki Kubo (NAIST), Yasuyuki Matsushita, Yasushi Yagi (Osaka Univ.)
- O4-2. One-shot Hyperspectral Imaging using Faced Reflectors, Tsuyoshi Takatani (NAIST), Takahito Aoto (NII), Yasuhiro Mukaigawa (NAIST)
- O4-3. Reflectance and Shape Estimation with a Light Field Camera under Natural Illumination, Thanh Trung Ngo, Hajime Nagahara (Osaka Univ.), Ko Nishino (Drexel Univ.), Rin-ichiro Taniguchi (Kyushu Univ.), Yasushi Yagi (Osaka Univ.)

10:30 - 11:00 **Coffee break**

11:00 - 11:40 **Oral session 5: Image Processing, Object Detection (Chair: Xianghua Ying)**

Format: 15 min for presentation + 4 min for question

- O5-1. Weakly- and Self-Supervised Learning for Content-Aware Deep Image Retargeting, Donghyeon Cho, Jinsun Park (KAIST), Tae-hyun Oh (MIT), Yu-Wing Tai (Tencent YouTu Lab.), and In So Kweon (KAIST)
- O5-2. StairNet: Top-Down Semantic Aggregation for Accurate One Shot Detection, Sanghyun Woo, Soonmin Hwang, In So Kweon (KAIST)

11:40 - 12:10 **Special talk (Chair: Takeshi Oishi)**

- S-1. AI, Robotics and Computer Vision: retrospective and perspective overview, Katsushi Ikeuchi (Microsoft)

12:10 - 12:20 **Closing remark and award ceremony (Chair: Daigo Muramatsu)**

Yasushi Yagi (Osaka Univ.)

12:20 - 13:20 **Lunch**

■ Shuttle bus information

Jan. 6th (Sat)

8:00 JR Nara station, west entrance -> 9:00 NAIST

17:30 NAIST -> 18:20 Kintetsu Nara station (near banquet site for student attendee)

-> 18:30 Hotel Mimatsu (banquet site for regular attendee)

Jan. 7th (Sun)

8:00 JR Nara station, west entrance -> 9:00 NAIST

13:30 NAIST -> 14:30 JR Nara station, west entrance