5th International Workshop on Image Sensors and Imaging Systems (IWISS2022)の報告

報告日：2022 年 12 月 16 日（金）
報告者：香川景一郎（静岡大学）

【日時】2022 年 12 月 12 日(月)10:00～13 日(火)16:10
【場所】静岡大学 浜松キャンパス 佐鳴会館（静岡 浜松）
【主催】映像情報メディア学会(ITE) 情報センシング研究委員会
【共催】International Image Sensor Society (IISS),
日本光学会 情報フォトニクス研究グループ(IPG)＋CMOS ワーキンググループ,
光創起イノベーション研究拠点(iPERC)
【実行委員会】
General Chair: Keiichiro Kagawa (Shizuoka Univ., Japan)
Technical Program Committee (Alphabetical order):
Chih-Cheng Hsieh (National Tsing Hua Univ., Taiwan), Keiichiro Kagawa (Shizuoka Univ., Japan), Takashi Komuro (Saitama Univ., Japan), De Xing Lioe (Shizuoka Univ., Japan), Hajime Nagahara (Osaka Univ., Japan), Atushi Ono (Shizuoka Univ., Japan)
Min-Woong Seo (Samsung Electronics, Korea)
Hiroyuki Suzuki (Gunma Univ., Japan)
Hisayuki Taruki (Toshiba Electronic Devices & Storage Corporation, Japan)
Franco Zappa (Politecnico di Milano, Italy)
【参加者数】82 人
内訳 1：大学・公的研究機関 51 人，企業 31 人
内訳 2：日本国内機関 71 人，海外機関 11 人
【参加費】 一般会員 2,000 円，一般非会員 3,000 円，学生会員 250 円，学生非会員：750 円（オンライン予稿集込み），学生聴講のみは無料（映像情報メディア学会の規定通り）
【プログラム】次ページ以降に添付
【ポスター賞】 招待講演者および IWISS2022 実行委員による投票に基づき，映像情報メディア学会情報センシング研究委員会から以下の賞 1 件を授与した.
Best Poster Award:
Yusuke Fukaya, Atsutaka Miyamichi, Keiichiro Kagawa, Keita Yasutomi, Shoji Kawahito, and Atsushi Ono, “Plasmonic polarization color filtering using 1D corrugated metallic thin films”
【次回】2024 年 11～12 月東京を予定. International Image Sensor Society 主催の国際会議 International Image Sensor Workshop と隔年で，2 年ごとに開催.

Agenda *Speaker

Day 1 (Dec. 12 (Mon))

9:00-10:00 Registration

10:00-10:10 Opening remarks

Session: Computational Imaging

10:10-10:50 Invited-1

“Coded Two-Bucket Sensors for Active and Passive Imaging”

by *Kyros Kutulakos, Rahul Gulve, Navid Sarhangnejad, Roman Genov (Univ. of Tronto, Canada)

10:50-11:30 Invited-2

“Computational lensless imaging by coded optics”

by *Tomoya Nakamura (Osaka Univ., Japan)

11:30-13:00 Lunch

Session: Plenary

13:00-14:00 Plenary

“Deep sensing --Jointly optimize imaging and processing—”

by *Hajime Nagahara (Osaka Univ., Japan)

14:00-14:20 Break

14:20-15:50 **Poster session** (17 papers)

15:50-16:00 Break

Session: Long-Wavelength Imaging

16:00-16:40 Invited-3

“InGaAs/InP and Ge-on-Si SPADs for SWIR applications”

by *Alberto Tosi, Fabio Signorelli, Fabio Telesca, Simone Riccardo, Enrico Conca（Politecnico Milano (POLIMI), Italy）

16:40-17:20 Invited-4

“Principles and applications of real-time synthetic multi-exposure laser speckle contrast perfusion imaging”

by *Martin Hultman, Ingemar Fredriksson, Marcus Larsson, Tomas Stromberg (Linkoping Univ., Sweden)

17:20-17:30 **Award ceremony**

Day 2 (Dec. 13 (Tue))

9:00-9:30 Registration

Session: Optics and Photonics for Imaging

9:30-10:10 Invited-5

“Near-infrared sensitivity improvement by plasmonic diffraction technology”
by *Nobukazu Teranishi, Atsushi Ono (Shizuoka Univ., Japan)
10:10-10:50 Invited-6
“High-speed/ultrafast holographic imaging using an image sensor”
by *Yasuhiro Awatsuji, Tomoyoshi Inoue (Kyoto Inst. Technol., Japan), Takashi Kakue (Chiba Univ., Japan), Osamu Matoba (Kobe Univ., Japan)
10:50-11:30 Invited-7
“Integration of frequency comb measurement and optical coherence tomography”
by *Yoshio Hayasaki (Utsunomiya Univ., Japan)
11:30-13:00 Lunch
Session: Direct ToF
13:00-13:40 Invited-8
“CMOS SPAD-Based LiDAR Sensors with Zoom Histogramming TDC Architectures”
by Bumjun Kim, Seonghyeok Park, Su-Hyun Han, *Seong-Jin Kim (Ulsan National Inst. of Sci. and Tech. (UNIST), Korea)
13:40-14:20 Invited-9
“Modeling and verification of a photon-counting LiDAR”
by *Sheng-Di Lin, Po-Hsuan Chen, Chun-Hsien Liu, Chia-Ming Tsai, Tsu-Hsien Sang, Gray Lin (National Yang Ming Chiao Tung Univ. (NYCU), Taiwan)
14:20-14:40 Break
Session: Indirect ToF
14:40-15:20 Invited 10
“The most energy-efficiency image sensor architecture: case study for automotive and time-of-flight sensors”
by *Min-Sun Keel, Youngtae Jang, Jonghyuk Woo, Ji Hun Shin, Sejun Kim, Minjong Kim, Kyung-Min Kim, Minwoo Lee, Jinkyeong Heo, Seunghun Yoo, Youngkyun Jeong, Haechang Lee (Samsung, Korea)
15:20-16:00 Invited 11
“What's Next in ToF Imaging: Passive Operation, One-bit Quantization, and Spatiotemporal Superresolution”
by *Miguel Heredia Conde, Faisal Ahmed, Alvaro Lopez Paredes (Univ. Siegen, Germany)
16:00-16:10 Closing remarks

Poster Session:
Poster-01: “A polarization CMOS image sensor with on-pixel polarizer optimized for microwave electric-field imaging” by *Ryoma Okada, Kiyotaka Sasagawa (Nara Institute of Science and

Technology (NAIST), Japan）, Maya Mizuno (National Institute of Information and Communications Technology (NICT), Japan), Makito Harut, Hironari Takehara (NAIST, Japan), Hiroyuki Tashiro (NAIST/ Kyushu Univ., Japan), Jun Ohta (NAIST, Japan)

Poster-02: “Snapshot super-resolution time-of-flight imaging by PSF engineering and untrained deep neural-network prior” by *Hodaka Kawachi, Tomoya Nakamura, Yasushi Makihara, Yasushi Yagi (Osaka Univ., Japan)

Poster-03: “Plasmonic polarization color filtering using 1D corrugated metallic thin films” by *Yusuke Fukaya, Atsutaka Miyamichi, Keiichiro Kagawa, Keita Yasutomi, Shoji Kawahito, Atsushi Ono (Shizuoka Univ., Japan)

Poster-04: “Design of a linkable self-encoding CMOS image sensor for a compact lensless camera with an ultra-wide field of view” by *Fuki Hosokawa, Keiichiro Kagawa (Shizuoka Univ., Japan), Kiyotaka Sasagawa, Jun Ohta(NAIST, Japan), Tomoya Nakamura（Osaka Univ., Japan）

Poster-05: “Random Sequence Modulation of Multiple-Gate of Indirect ToF for Handling Multi-ToF-Camera Interference” by *Luo Wenbin, Takafumi Iwaguchi (Kyushu Univ., Japan), Hajime Nagahara (Osaka Univ., Japan), Ryusuke Sagawa (AIST, Japan), Hiroshi Kawasaki (Kyushu Univ., Japan)

Poster-06: “Pseudo-direct ToF imaging using a multi-tap macro-pixel CMOS image sensor with oversampled reconstruction” by *Pham Ngoc Anh, Thoriq Ibrahim, Keita Yasutomi, Shoji Kawahito (Shizuoka Univ., Japan), Hajime Nagahara (Osaka Univ., Japan), Keiichiro Kagawa (Shizuoka Univ., Japan)

Poster-07: “Development of a vein imaging system with minimum value operation and scanned stripe pattern projection for contactless vein authentication” by *Sota Nakazawa, Keiichiro Kagawa (Shizuoka Univ., Japan), Takashi Komuro (Saitama Univ., Japan), Kazuya Nakano (Seikei Univ., Japan), Hiroyuki Suzuki (Gunma Univ., Japan)

Poster-08: “Estimation of scattering and chromophore concentration maps by multi-band spatial frequency domain imaging using a two-layer skin model” by *Yuto Shimada, Yu Feng, Chen Cao, Keita Yasutomi, Shoji Kawahito, Keiichiro Kagawa (Shizuoka Univ., Japan)

Poster-09: “Basic Study on Domain Specific Description of Convolution with Sliding FFT” by *Yamato Kanetaka (Nagoya Inst. of Tech. (NIT), Japan）・Yoshihiro Maeda (Tokyo Univ. of Sci. (TUS), Japan), Norishige Fukushima (NIT, Japan)

Poster-10: “Light-induced reliability issue of NMOS using in CMOS image sensor and single-photon avalanche diode” by *Chun-Hsien Liu, Sheng-Di Lin (National Yang Ming Chiao Tung Univ. (NYCU), Taiwan)

Poster-11: “An area efficient readout circuit for CMOS Image Sensor With Lateral Overflow Integration Capacitor” by *Ai Otani, Hiroaki Ogawa (Ritsumeikan Univ., Japan), Ken Miyauchi, Sangman Han, Hideki Owada, Isao Takayanagi (Brillnics, Japan), Shunsuke Okura (Ritsumeikan

Univ., Japan)

Poster-12: “A Variable-Resolution SAR ADC with 10-bit Image Capturing Mode and 5-bit Feature Extraction Mode” by *Itsuki Koshiro, Otani Ai, Ogawa Hiroaki, Okura Shunsuke (Ritsumeikan Univ., Japan)

Poster-13: “Cosmos sensor 10 um 64Mpixel Low noise and high dynamic range image sensor for space and scientific applications” by *Jose Segovia, Alberto Villegas, Rafael Dominguez, Loli Pardo, Alex Charlet (Teledyne Anafocus, Spain), Jason McClure, Sony Cheriyan (Teledyne Princeton, USA), Jason Nottingham, Jon Kurvits (Teledyne Photometrics, USA）, Ana Gonzalez (Teledyne Anafocus, Spain)

Poster-14: “Non-invasive non-contact gingival thickness imaging using visible light and near infrared light” by *Ryotaro Mori, Keiichiro Kagawa (Shizuoka Univ., Japan), Jun Tanida (Osaka Univ., Japan), Chizuko Ogata (Osaka Dental Univ., Japan)

Poster-15: “Hydra systems. A set of new ToF image sensors with high performances” by *R Dominguez, Pierre Fereyre, Jose Angel Segovia, Maria Dolores Pardo, Ana Gonzalez, Sergio Morillas, Amanda Jimenez, Gema Valles, Yoann Lochardet（Teledyne e2v, UK）

Poster-16: “Block-wise-controlled Image Sensor with Variable Resolution, Frame rate, and Exposure Time for Scene Adaptive Imaging” by Kohei Tomioka, Toshio Yasue, Kodai Kikuchi, Takenobu Usui, Kazuya Kitamura (NHK STRL, Japan), Shoji Kawahito (Shizuoka Univ., Japan)

Poster-17: “Noise Reduction Based on Quantization-Aware Multiple Image Averaging” by *Seishi Takamura（Hosei Univ., Japan）

5th International Workshop on Image Sensors and Imaging Systems

（12/12, 13，静岡大学 浜松キャンパス）

収支報告書

2022 年 12 月 16 日

情報フォトニクス研究グループに関する収入および支出はありませんでした.

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上記の通り，間違いありません.

会計担当　　香川景一郎