

Sangdoon Yun, Ph.D.

Research Scientist
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Research Interests

Computer Vision, Machine Learning, Visual Tracking, Object Recognition, and Deep Learning.

Education

Seoul National University Ph.D. in Electrical and Computer Engineering.	Mar. 2013 - Aug. 2017
Seoul National University M.S. in Electrical and Computer Engineering.	Mar. 2011 - Feb. 2013
Seoul National University B.S. in Electrical Engineering and Computer Science.	Mar. 2006 - Aug. 2010

Publications

Sangdoon Yun, Dongyoon Han, Seong Joon Oh, Sanghyuk Chun, Junsuk Choe, and Youngjoon Yoo, "CutMix: Regularization Strategy to Train Strong Classifiers with Localizable Features" IEEE International Conference on Computer Vision (**ICCV 2019**), 2019. [**Oral presentation**] (accept ratio=4.3%)

Byeongho Heo, Jeesoo Kim, **Sangdoon Yun**, Hyojin Park, Nojun Kwak, and Jin Young Choi, "A Comprehensive Overhaul of Feature Distillation" IEEE International Conference on Computer Vision (**ICCV 2019**), 2019.

Jeonghun Baek, Geewook Kim, Junyeop Lee, Sungrae Park, Dongyoon Han, **Sangdoon Yun**, Seong Joon Oh, and Hwalsuk Lee, "What Is Wrong with Scene Text Recognition Model Comparisons? Dataset and Model Analysis" IEEE International Conference on Computer Vision (**ICCV 2019**), 2019.

Sanghyuk Chun, Seong Joon Oh, **Sangdoon Yun**, Dongyoon Han, Junsuk Choe, and Youngjoon Yoo, "An Empirical Evaluation on Robustness and Uncertainty of Regularization Methods" Uncertainty & Robustness in Deep Learning, **ICML Workshop**, 2019.

Youngmin Baek, Bado Lee, Dongyoon Han, **Sangdoon Yun**, and Hwalsuk Lee, "Character Region Awareness for Text Detection", IEEE Computer Vision and Pattern Recognition (**CVPR 2019**), 2019.

Byeongho Heo, Minsik Lee, **Sangdoon Yun**, and Jin Young Choi, "Knowledge Distillation with Adversarial Samples Supporting Decision Boundary", Association for the Advancement of Artificial Intelligence (**AAAI 2019**), 2019

Byeongho Heo, Minsik Lee, **Sangdoon Yun**, and Jin Young Choi, "Knowledge Transfer via Distillation of Activation Boundaries Formed by Hidden Neurons", Association for the Advancement of Artificial Intelligence (**AAAI 2019**), 2019

Donghoon Lee, **Sangdoon Yun**, Sungjoon Choi, Hwiyeon Yoo, Ming-Hsuan Yang, and Songhwai Oh, "Unsupervised Holistic Image Generation from Key Local Patches", European Conference on Computer Vision (ECCV 2018), 2018.

Sangdoon Yun, Jongwon Choi, Youngjoon Yoo, Kimin Yun, and Jin Young Choi, "Action-Driven Visual Object Tracking with Deep Reinforcement Learning", IEEE Transactions on Neural Networks and Learning Systems (TNNLS).

YoungJoon Yoo, Seonguk Park, Junyoung Choi, **Sangdoon Yun**, and Nojun Kwak, "Butterfly Effect: Bidirectional Control of Classification Performance by Small Additive Perturbation", arXiv:1711.09681, 2017.

Sangdoon Yun, Jongwon Choi, Youngjoon Yoo, Kimin Yun, and Jin Young Choi, "Action-Decision Networks for Visual Tracking with Deep Reinforcement Learning", IEEE Computer Vision and Pattern Recognition (CVPR 2017), 2017. (Spotlight)

Youngjoon Yoo, **Sangdoon Yun**, Hyung Jin Chang, Yiannis Demiris, and Jin Young Choi, "Variational Autoencoded Regression: High Dimensional Regression of Visual Data on Complex Manifold", IEEE Computer Vision and Pattern Recognition (CVPR 2017), 2017.

Jongwon Choi, Hyung Jin Chang, **Sangdoon Yun**, Tobias Fischer, Yiannis Demiris, and Jin Young Choi, "Attentional Correlation Filter Network for Adaptive Visual Tracking", IEEE Computer Vision and Pattern Recognition (CVPR 2017), 2017.

Junho Cho, **Sangdoon Yun**, Kyoungmu Lee, Jin Young Choi, "PaletteNet: Image Recolorization with Given Color Palette", 2nd NTIRE: New Trends in Image Restoration and Enhancement workshop and challenge on super-resolution in conjunction with (CVPR 2017), 2017.

Sangdoon Yun, Kimin Yun, Jongwon Choi, and Jin Young Choi, "Density-Aware Pedestrian Proposal Networks for Robust People Detection in Crowded Scenes", International Workshop on Crowd Understanding in conjunction with European Conference on Computer Vision (ECCV 2016), 2016.

Kimin Yun, Jongin Lim, **Sangdoon Yun**, Soo Wan Kim, and Jin Young Choi, "Attention-Inspired Moving Object Detection in Monocular Dashcam Videos", International Conference on Pattern Recognition (ICPR 2016), 2016.

YoungJoon Yoo, Kimin Yun, **Sangdoon Yun**, JongHee Hong, Hawook Jeong and Jin Young Choi, "Visual Path Prediction in Complex Scenes with Crowded Moving Objects", IEEE Computer Vision and Pattern Recognition (CVPR 2016), 2016.

Sangdoon Yun and Jin Young Choi, "Voting-based 3D Object Cuboid Detection Robust to Partial Occlusion from RGB-D Images", IEEE Winter Conference on Applications of Computer Vision (WACV 2016), 2016.

Hawook Jeong, **Sangdoon Yun**, Kwang Moo Yi, and Jin Young Choi, "Category Attentional Search for Fast Object Detection by Mimicking Human Visual Perception", IEEE Winter Conference on Applications of Computer Vision (WACV 2015), 2015.

Sangdoon Yun, Kimin Yun, Soo Wan Kim, Youngjoon Yoo, and Jiyeoup Jeong, "Visual Surveillance Briefing System: Event-based Video Retrieval and Summarization", IEEE International Conference on Advanced Video and Signal based Surveillance (AVSS 2014), 2014. (Oral)

Tushar Sandhan, Youngjoon Yoo, Hanjoo Yoo, **Sangdoon Yun**, and Moonsub Byeon, "Multi-Task Learning with Over-Sampled Time-Series Representation of a Trajectory for Traffic Motion Pattern Recognition", IEEE International Conference on Advanced Video and Signal based Surveillance (AVSS 2014), 2014.

Sangdoon Yun, Hawook Jeong, Woo-Sung Kang, Byeongho Heo, and Jin Young Choi, "Self-organizing Cascaded Structure of Deformable Part Models for Fast Object Detection", IEEE International Conference on Pattern Recognition (**ICPR 2014**), 2014.

Sangdoon Yun, Soo Wan Kim, Kwang Moo Yi, Haan-ju Yoo, Jin Young Choi, "Multiple ground plane estimation for 3D scene understanding using a monocular camera", Proc. 27th International Conference of Image and Vision Computing New Zealand (**IVCNZ 2012**), 2012. (**Oral**)

Patent

US Patent 14/532,483. "Method and apparatus for processing image", May, 2015, published.

Research Experience

Postdoctoral Researcher Perception and Intelligence Lab., Seoul National University	Sep. 2017 - Feb. 2018
Graduate Research Assistant Perception and Intelligence Lab., Seoul National University	Mar. 2011 - Aug. 2017
Visiting Student Robotics Lab., The University of Auckland, New Zealand.	Jan. 2016 - Jan. 2016

Awards and Honors

Award (top 30%), Vision Meets Drones: A Challenge (**ECCV 2018 Workshop**)
 Best Paper Award, 30th Workshop on Image Processing and Image Understanding (**IPIU 2018**)
 Best Poster Award, 30th Workshop on Image Processing and Image Understanding (**IPIU 2018**)
 Best Paper Award, 29th Workshop on Image Processing and Image Understanding (**IPIU 2017**)

Work Experience

Development of Predictive Visual Intelligence Technology Apr. 2014 - present
 Sponsored by the ICT R&D program of MSIP/IITP. The goal of the project is developing predicting algorithms such as traffic flows.

Development of Real-time 3D Trajectory Estimation in Multi-camera Situation Jan. 2016 - Sep. 2016
 Sponsored by Samsung SDS. The goal of the project is developing 3D trajectory estimation algorithm using multi-camera.

UAV Visual Surveillance System Mar. 2014 - Feb. 2015
 Sponsored by Samsung S1. The goal of the project is developing visual surveillance algorithms for unmanned aerial videos such as moving object detection in a non-stationary camera.

Intelligent Visual Surveillance System Mar. 2010 - Aug. 2013
 Sponsored by Samsung Techwin Co., Ltd. The goal of the project is developing visual analysis algorithms, such as background subtraction, object tracking and behavior understanding, and integrated system.

Teaching Experience

Convex Optimization, Seoul National University Teaching Assistant for Prof. Jin Young Choi	Fall 2013
Introduction to Random Variables and Random Processes, Seoul National University Teaching Assistant for Prof. Jin Young Choi	Spring 2013

Skills

Programming Languages:	Python, C++, C, MATLAB
Deep Learning Frameworks:	Tensorflow, PyTorch, Caffe, MatConvNet
Operating Systems:	Linux, Mac OS X, Windows

Professional Activities

Reviewer	
Neural Information Processing Systems (NIPS)	2018
IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)	2018
IEEE Transactions on Neural Networks and Learning Systems (TNNLS)	2017
IEEE Winter Conference on Applications of Computer Vision (WACV)	2016
Image and Vision Computing New Zealand (IVCNZ)	2013

Last updated: July 29, 2019