What is the current state-of-the-art for image restoration for images captured in non-ideal visual environments? We are organizing the **5th UG2+ workshop and challenge in CVPR 2022**. UG2+ 2022 consists of keynote talks, contributed paper presentation & poster session, a special session on privacy and ethics of visual recognition, a challenge competition, and a panel discussion with the invited speakers.

Prize Challenges

Register: https://forms.gle/Td6DQuAJuuoLptN58

Track 1: Object Detection in Haze Conditions

A dependable vision system must reckon with the entire spectrum of complex unconstrained and dynamic degraded outdoor environments. It is highly desirable to study to what extent, and in what sense, such challenging visual conditions can be coped with, for the goal of achieving robust visual sensing.

This challenge aims to evaluate and advance object detection algorithms' robustness in haze condition.

Track 2: Action Recognition from Dark Videos

Videos shot under adverse illumination are unavoidable, such as night surveillance, and self-driving at night. It is therefore highly desirable to explore robust methods to cope with dark scenarios. It would be even better if such methods could utilize web videos, which are widely available and normally shot under poor illumination.

This challenge aims to promote action recognition algorithms' robustness with special focus on dark videos.

Track 3: Atmospheric Turbulence Mitigation

The theories of turbulence and propagation of light through random media have been studied for the better part of a century. However, under turbulence and propagation of light through random media, progress of modern image reconstruction algorithms (e.g., deep learning methods) has been slow.

This challenge aims to promote the development of new image reconstruction algorithms for incoherent imaging through anisoplanatic turbulence.

Call for Papers

https://cmt3.research.microsoft.com/UG2CHALLENGE2022

Original high-quality contributions are solicited on the following topics:

- Novel algorithms for robust object detection, segmentation or recognition on outdoor mobility platforms, such as UAVs, gliders, autonomous cars, outdoor robots, etc.
- Novel algorithms for robust object detection and/or recognition in the presence of one or more real-world adverse conditions, such as haze, rain, snow, hail, dust, underwater, low-illumination, low resolution, etc.
- The potential models and theories for explaining, quantifying, and optimizing the mutual influence between the low-level computational photography (image reconstruction, restoration, or enhancement) tasks and various high-level computer vision tasks.
- Novel physically grounded and/or explanatory models, for the underlying degradation and recovery processes, of real-world images going through complicated adverse visual conditions.
- Novel evaluation methods and metrics for image restoration and enhancement algorithms, with a particular emphasis on no-reference metrics, since for most real outdoor images with adverse visual conditions it is hard to obtain any clean "ground truth" to compare with.

Important Dates

Paper submission Deadline	March 22, 2022 (11:59PM PST)
Paper Acceptance Announcement	March 30, 2022 (11:59PM PST)
Challenge result submission Deadline	May 1, 2022 (11:59PM PST)
Challenge Winner Announcement	May 20, 2022 (11:59PM PST)
CVPR Workshop	June 19, 2022 (Full day)

Invited Speakers

Ming-Hsuan Yang
University of California, Merced
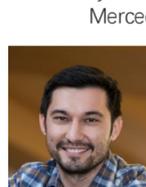
Danna Gurari
University of Colorado Boulder

Xiaohua Zhai
Google Brain

Achuta Kadambi
University of California, Los Angeles

Ulugbek Kamilov
Washington University in St. Louis

Angie Liu
Johns Hopkins University

Qifeng Chen
Hong Kong University of Science and Technology

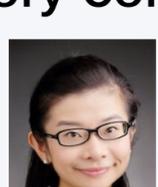**Daniel LeMaster**
Air Force Research

Russell Hardie
University of Dayton

Advisory Committee

Zhangyang Wang
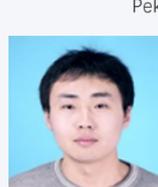UT Austin

Jiaying Liu
Peking University

Walter J. Scheirer
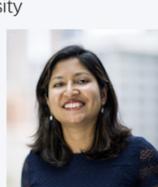University of Notre Dame
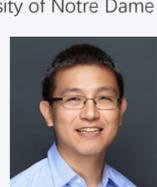
Stanley H. Chan
Purdue University

Wenqi Ren
Chinese Academy of Sciences

Shalini De Mello
NVIDIA

Keigo Hirakawa
University of Dayton

Organizing Committee

Wuyang Chen
UT Austin

Wenhan Yang
Nanyang Technological University, Singapore

Yuecong Xu
Institute for Infocomm Research (I2R), A*STAR, Singapore

Zhenghua Chen
Institute for Infocomm Research (I2R), A*STAR, Singapore
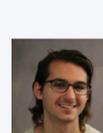
Zhenyu Wu
Wormpex AI Research

Zhiyuan Mao
Purdue University

Dejia Xu
UT Austin

Nicholas Chimitt
Purdue University

Sponsors

Contact

For further questions please contact: cvpr2022ug2challenge@gmail.com

Workshop Website:

http://www.ug2challenge.org/