



PEER Hub ImageNet (PHI) Challenge

PEER has developed the first structural engineering dataset that incorporates machine-learning models of detecting and categorizing damage in images. The PEER Hub ImageNet (PHI) dataset tool will enhance the field and application of vision-based structural health monitoring for researchers and practitioners in natural hazards engineering.

CALL FOR PARTICIPATION

Contribute to the PHI dataset in two ways!

- **NOW:** Help build the dataset – provide images with or without labels and annotation at <http://apps.peer.berkeley.edu/spo/>. Contributors will be acknowledged on this site.
- **SUMMER 2018:** Enter the PHI Challenge contest.

PHI CHALLENGE CONTEST

PEER is organizing the first image-based structural damage recognition competition to enhance the field of vision-based structural health monitoring. The contest will **open July 15 and close September 15, 2018.**

- **Train** your algorithm and model.
A dataset of labeled and annotated images will be provided so that contestants can train their machine-learning algorithms and models.
- **Test** and submit results.
A dataset of unlabeled images will be provided so that predications of labels and annotations can be generated. A few classifications of identification are the following: Component type, Damage check, Damage level, Damage type, and Material type. The contest submittal should include the labeled dataset as well as a brief report that summarizes assumptions, methodology, tools, and detailed computations.
- **Apply** to be eligible.
Researchers, practitioners, and students in the fields of structural and civil engineering, computer science, data science, and other related fields are encouraged to participate.

The application period for individuals and teams will open July 15, 2018. Two contestant pools are as follows: (1) Computer Science / Data Science (CS/DATA) and (2) non-CS/DATA. Notification of eligibility in either of these two contestant pools will be issued upon receipt of application.

• **Winners**

Winners in each category for single detection tasks as well as for overall performance will be announced late September 2018.

WHO BENEFITS?

Algorithms developed in the PHI Challenge can be used to automatically detect damage from images taken after earthquakes or other natural hazards. Accurate and automated labeling encourages crowd-sourced data and allows engineers to focus more on the interpretation of the image data, which can increase the efficiency of a tagging process after a major natural hazard.

Researchers will have a large, accurately labeled structural image dataset that can be used as a basis for future studies. Practitioners can test their machine-learning and deep-learning algorithms and models on the PHI dataset.

Automated damage detection is an advanced tool for determining the extent of damage, and it will enhance the ability of the engineering community to respond in a timely manner to the aftermath of natural hazards, thereby serving the population at large.

MORE information

<http://apps.peer.berkeley.edu/phichallenge>