Technology Commercialization Opportunity

Enhancing Perceived Image Quality at Capture using Gaze Detection

Technology Description

Improving the perceived quality of the main subject matter in an image improves the overall perceived quality of that image. New developments in camera technology allow the determination of where in the scene the photographer is looking. These developments include viewing screens on cameras, as opposed to viewfinders; the addition of cameras directed at the photographer as well as the scene, and gaze-tracking technology. This technology is especially useful for the people photographing with the cameras embedded on their tablet computers, whose large displays are particularly conducive to gaze detection. These three technological developments can be used to determine the main object of interest in the captured scene. Image segmentation can be used to further identify and isolate the object of interest.

With the area or object of interest identified, the available information at capture may be processed so as to optimize the image quality for the identified area or object. The optimization of the image could include gamut mapping and tonal rendering such that any compromises that must be made occur in areas other than the main object of interest. Further, the background and other areas away from the main object of interest could be processed to increase the saliency of the object of interest. This could include blur or tonal adjustments of background areas. The main object of interest could also be processed to increase saliency by adjusting tonal values to increase contrast or saturation.

While this entire process can be automated, through an 'Enhance Main Subject' setting, for instance, 'off-ramps' from the process allowing the photographer control may also be included. For example, the identified object of interest could be outlined or false-colored or otherwise distinguished on the camera's view screen at the time of capture so that the photographer could be made aware of the identified area. If the photographer does not agree that the area identified was the main subject matter, he or she would have the option to change it. Similarly, if the photographer did not approve of the image as processed, the camera system would allow the user to revert to the image as taken.

Keywords: Image capture, gaze detection, perceptual image quality, image segmentation, pre-process, image understanding and analysis.

Technology Readiness

The Enhancing Perceived Image Quality at Capture using Gaze Detection technology is presently at this level of readiness:

Idea	**Concept**	Prototype	Alpha Version	Beta Version	Released

The inventors of the Enhancing Perceived Image Quality at Capture using Gaze Detection technology will work with licensees to develop and implement it in products.

Intellectual Property
US patent application 20140160340.

Applications
Enhancing Image Quality at Capture using Gaze Detection may be used on any capture device that includes cameras capturing both scene and user information. This could be either still cameras or video cameras. This technology is especially useful for the people photographing with the cameras embedded on their tablet computers, which have large displays that are particularly conducive to gaze detection.

Target Customers
- Camera manufacturers
- Human-computer interface companies

Opportunity
RIT's Intellectual Property Management Office (IPMO) is interested in working with those parties who are qualified and interested in the commercialization of this Gaze Guided Image Capture intellectual property. Arrangement types include licensing the application to existing organizations or new organizations that have expertise in the field or related fields.

Contact
Those interested in learning more about this opportunity should contact:
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