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TrueImage: Better Images for Telemedicine

Stanford inventors have developed TrueImage, a machine learning algorithm to assess the quality of patient images sent in for telemedicine appointments.

Remote care has become a key facet of healthcare in the wake of the COVID-19 pandemic and will likely continue into the future. Particularly in disciplines like dermatology where visual inspection is a key diagnostic tool, a persistent issue with telemedical care is that images photographed by patients are often not high enough quality to be clinically useful. The need to recapture these images before the remote consultation can occur wastes time and clinical resources.

Using machine learning, inventors at Stanford have developed a smart assist tool for patients that can analyze clinical images for quality and output a quality assessment that offers suggestions on how to improve the image with relation to blurriness, zoom, and lighting. In early studies, the tool rejects over 50% of poor quality images while retaining 80% of acceptable images. The software is designed to be integrated into existing healthcare technology platforms and is flexible in implementation, allowing this technology to benefit clinicians and patients broadly.

Stage of Development

Prototype is complete and clinical trials are starting.

Applications

- Smart clinical image photography assist for adding on to telemedicine, digital health, or electronic health record technology platforms

Advantages

- **Time and resource saver**: Avoids patients needing to retake photos, conserving valuable consultation time
- **Flexible integration**: Can interface with existing telemedicine or electronic health records platforms
- **Purpose-built**: Developed with images from Stanford Dermatology to assess images specifically for the quality features that are key to clinical diagnosis

Publications

- Vodrahalli, Kailas, et al. "Development and Clinical Evaluation of an AI Support Tool for Improving Telemedicine Photo Quality." *arXiv preprint arXiv:* 2209.09105 (2022).
- Vodrahalli, Kailas, et al. "TrueImage: A Machine Learning Algorithm to Improve the Quality of Telehealth Photos." BIOCOMPUTING 2021: Proceedings of the Pacific Symposium. 2020.

Patents

- Published Application: 20230107485
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