Korea Institute of
Science and Technology

DEEP LEARNING APPLICATION DEVELOPMENT

DATA COLLECTION

DATA PREPROCESSING

TRAINING

APPLICATION (INFERENCE)

- network structure
- hyperparameter
- optimization
- validation

Quality

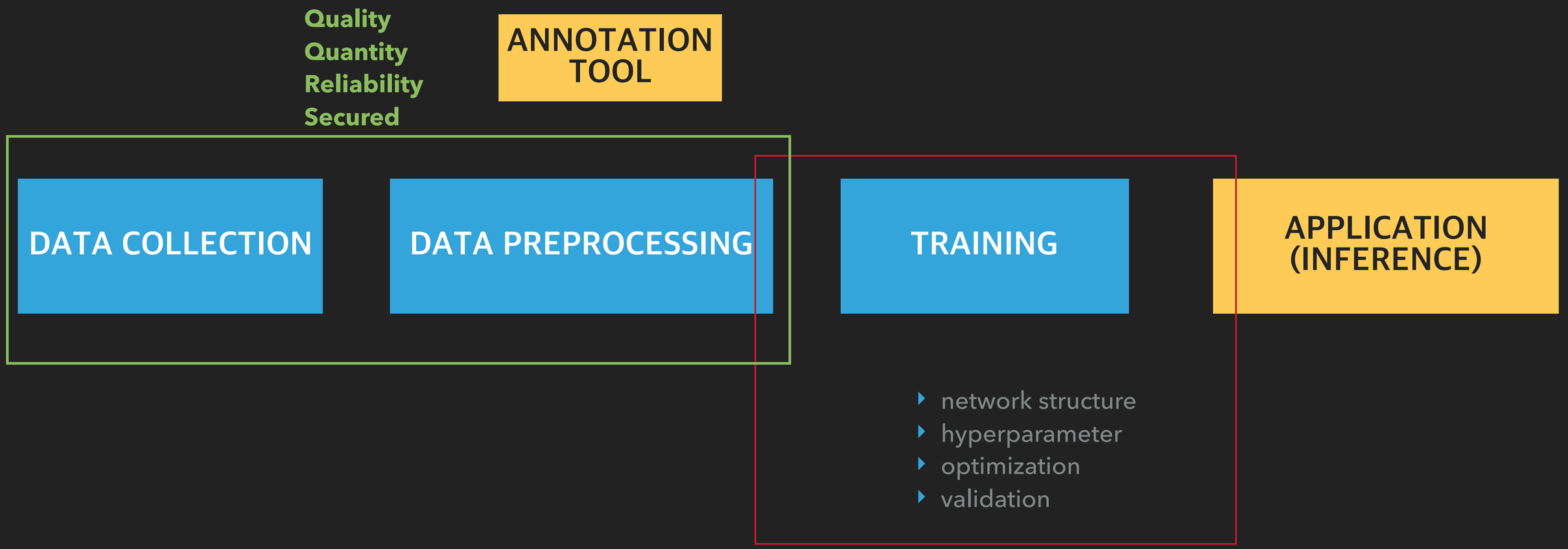
Quantity

Reliability

Secured

ANNOTATION TOOL

DEEP LEARNING APPLICATION DEVELOPMENT

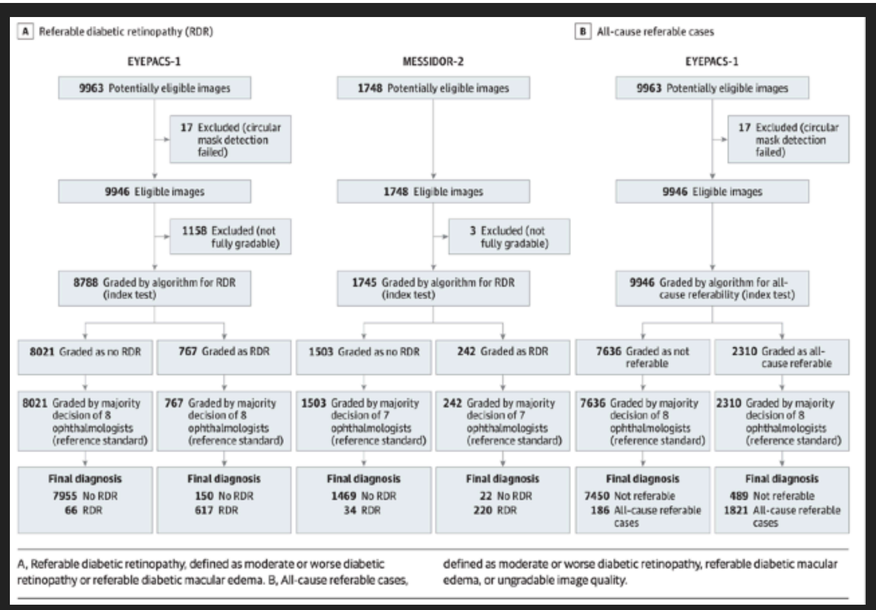
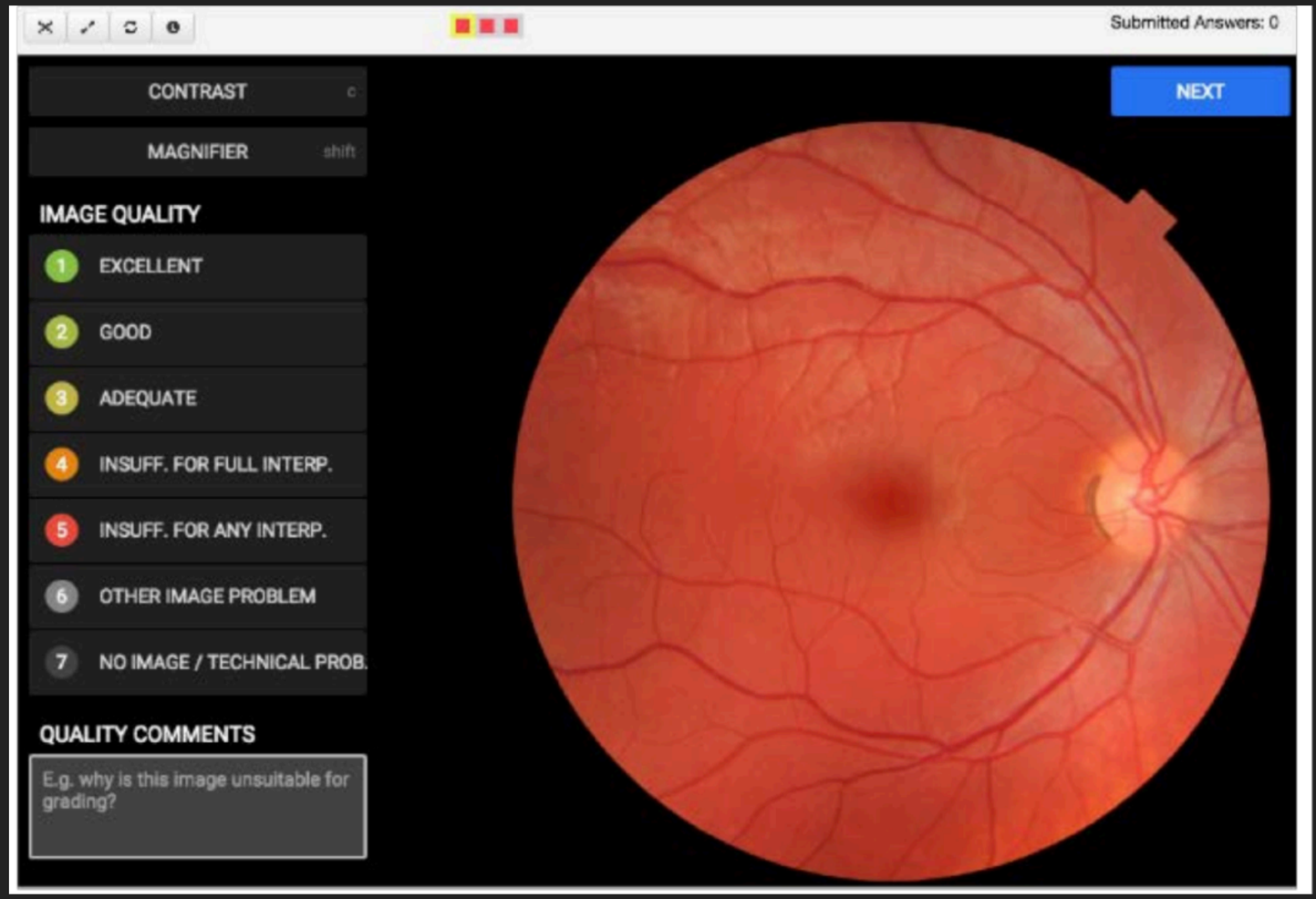


ANNOTATION TOOL

JAMA | Original Investigation | INNOVATIONS IN HEALTH CARE DELIVERY

Development and Validation of a Deep Learning Algorithm for Detection of Diabetic Retinopathy in Retinal Fundus Photographs

Varun Gulshan, PhD; Lily Peng, MD, PhD; Marc Coram, PhD; Martin C. Stumpe, PhD; Derek Wu, BS; Arunachalam Narayanaswamy, PhD; Subhashini Venugopalan, MS; Kasumi Widner, MS; Tom Madams, MEng; Jorge Cuadros, OD, PhD; Ramasamy Kim, OD, DNB; Rajiv Raman, MS, DNB; Philip C. Nelson, BS; Jessica L. Mega, MD, MPH; Dale R. Webster, PhD



A, Referable diabetic retinopathy, defined as moderate or worse diabetic retinopathy or referable diabetic macular edema. B, All-cause referable cases, defined as moderate or worse diabetic retinopathy, referable diabetic macular edema, or ungradable image quality.