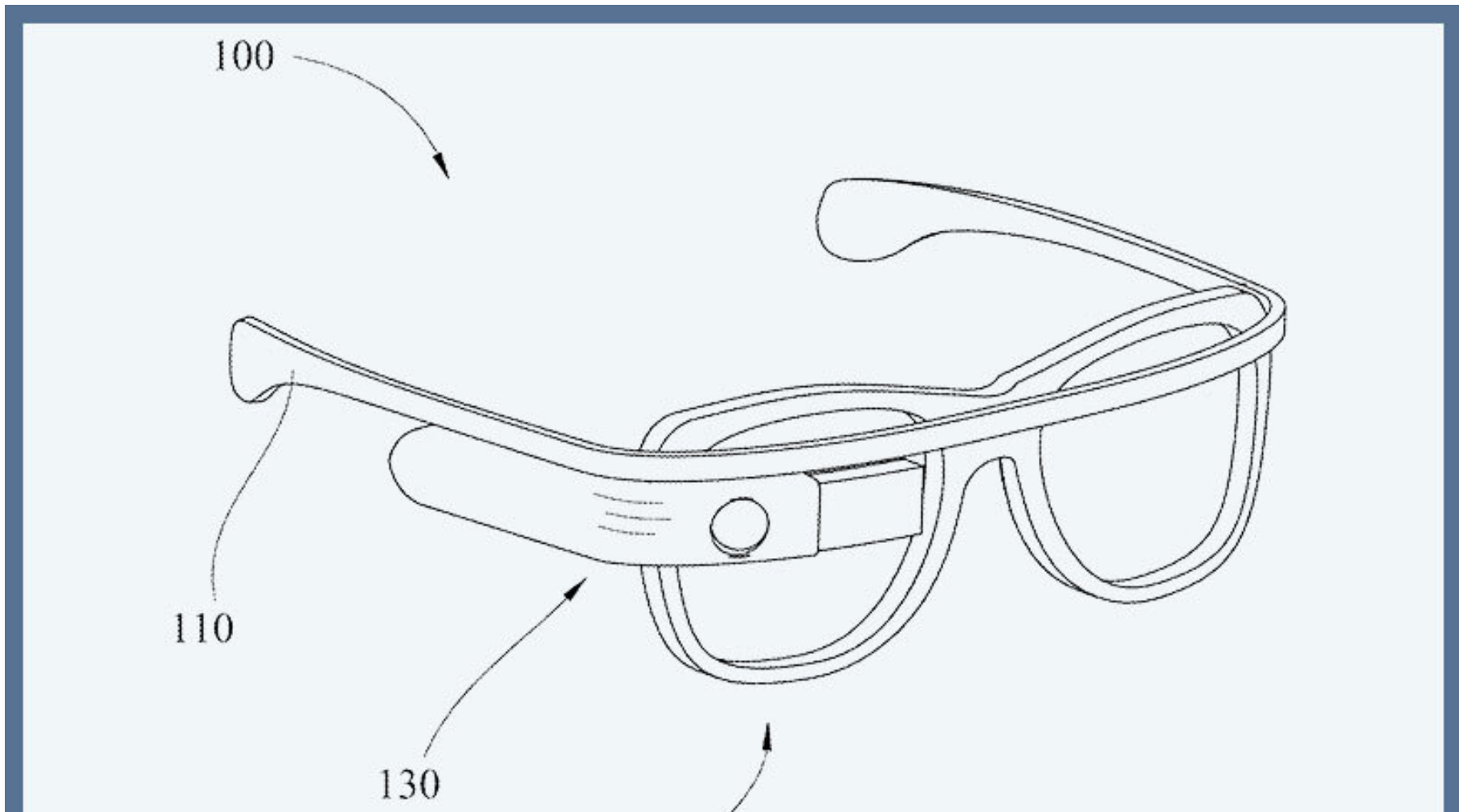


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PROFESSOR EARNS U.S. PATENT WITH HELP FROM STUDENTS

KEITH PERKINS AND COLLABORATORS INVENTED OPTICAL DEVICE.

by [Jim Hanchett](#) | October 18, 2021*Above: U.S. Patent 10,690,918: optical head-mounted display for laser safety eyewear**Read time: about 1 min*

There it is in big bold print on the government document: U.S. Patent Number 10,690,918 – awarded to [computer science](#) professor Keith Perkins and his fellow inventors.

Patent 10,690,918 is for an optical head-mounted display for laser safety eyewear. It is currently prototyped as an android application that runs on augmented reality headsets such as Google Glass.

The patent was granted after a three-year process that involved key assistance from two students. Steven Rosenthal '16 wrote much of the android application and Mathew Bartgis '20 helped debug the application and write documentation.

Perkins, Rosenthal, Bartgis and collaborators Jennifer Inman, Paul Danehy and Christopher Peters developed the prototype as part of a NASA research project. NASA was quick to send the group a congratulatory note about their innovation: "You are to be commended for your accomplishment and for your cooperation during the patenting process."

The prototype has several potential uses, as the patent application makes clear: "Alignment of high-powered lasers is required in research environments and commercial applications spanning academia, industry, defense,

government laboratories and test facilities. Currently, viewing an otherwise invisible laser beam requires cumbersome equipment such as laser viewing cards and video cameras which is inconvenient, time-consuming, and encourages unsafe behavior like working without laser safety eyewear. This patent proposes a solution to this problem by combining an optical head-mounted display integrated with laser safety eyewear, coupled with video processing software to render the beam visible. This enhanced laser eyewear system allows an operator to safely see a laser beam in real-time while also providing freedom of movement.”
