Interactive Simulation

Micro & Macro

Exchange **Y**our **E**yes **S**imulator

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Motivation

Most simulations online:
2D stills

Adapted to suggestion of
Frank Zwick & Sven Fiebiger
GOTOXY-AV Media GbR

Raise awareness of
eye diseases

Obtain better understanding
of eye diseases

Interactive
Simulation

Concept

Scenario: Food shopping

- Common and well known
- Gamifyable

Focus on common eye diseases

Exhibit various states of the disease

Explore and alter diseases through different parameters

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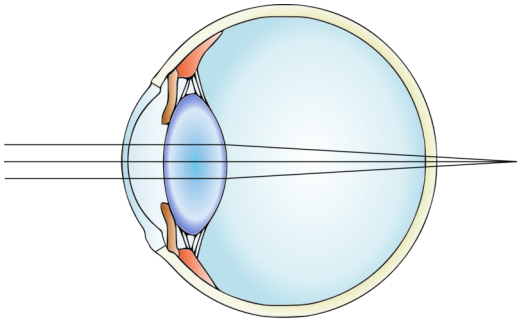
Simulation

Implementation

Myopia & Hyperopia

Limit focal range



Use existing focal blur asset

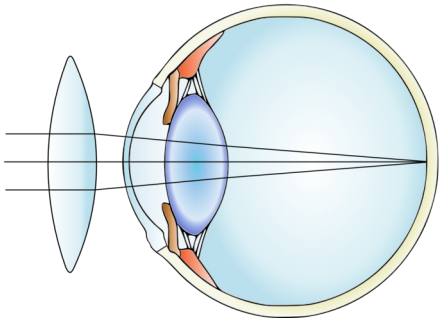


Figure 1: Hyperopic eye

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Implementation

Color vision deficiency

Implementation inspired by Machado [1]

Individually adjustable cone response curves

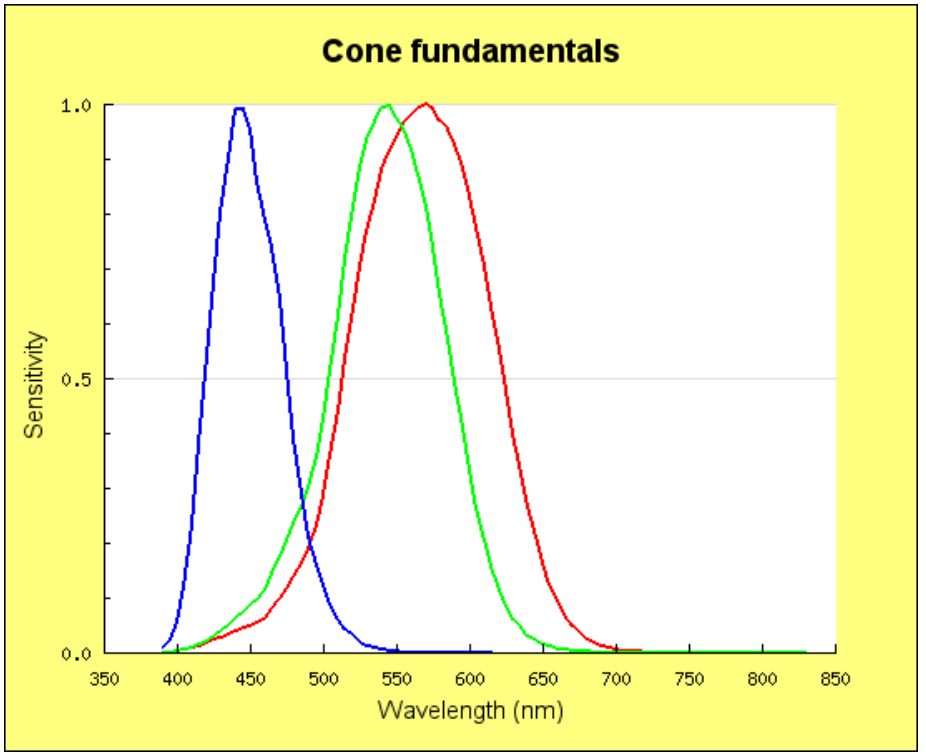

Figure 2: Human cone response functions.

Implementation

Glaucoma

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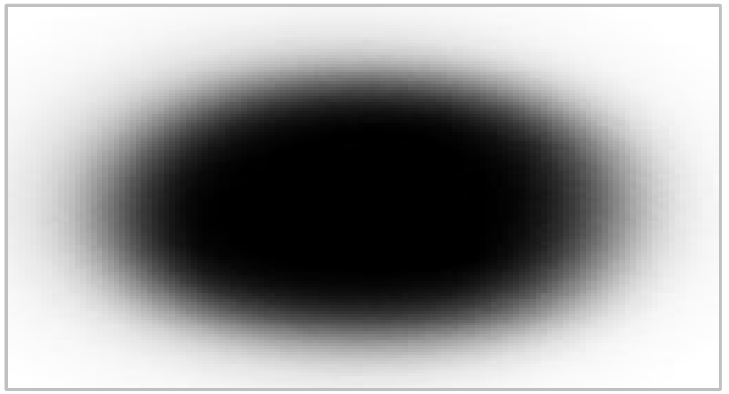

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Implemented texture based blur

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References

[1] Gustavo M. Machado, Manuel M. Oliveira, and Leandro A. F. Fernandes. “A Physiologically-based Model for Simulation of Color Vision Deficiency”. In: *IEEE Transactions on Visualization and Computer Graphics* 15.6 (Nov. 2009), pp. 1291–1298.