

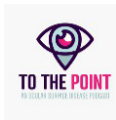


# INTEGRATING AI INTO EVERYDAY EYE CARE PRACTICE

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# DISCLOSURES

- Alcon-Consultant, Speaker
- Allergan-Consultant, Speaker
- Bausch & Lomb-Consultant, Speaker
- Dompe-Consultant
- Tarsus-Consultant
- Ocuphire-Consultant
- Oyster Point Pharma-Consultant
- Eyenovia-Consultant
- Orasis-Consultant



## ARTIFICIAL INTELLIGENCE

WHAT DO YOU THINK OF AI?  
(POLL QUESTION)

## Save big on your next hotel

**Hotels** Flights Packages Cars Cruises

Single Hotel  Multi Hotel

Where to?

Check-in - Check-out  
10/19/2025 - 10/20/2025

2 Adults, 1 Room

**Bundle + Save**  Add a car  Add a flight

**Find Your Hotel**

Hotel prices now shown with fees included.



GO TO YOUR  
**HAPPY  
PRICE**

Hi, I'm Penny, your AI travel assistant!  
How can I help you today?

**p**







what is an optometrist



All Mode **All** Images Jobs Short videos Videos Shopping More - Tools -

#### AI Overview

An optometrist is **a healthcare professional specializing in eye care**. They are trained to examine, diagnose, and treat eye conditions and vision problems.

#### Responsibilities of an Optometrist:

- Conducting comprehensive eye exams
- Prescribing corrective lenses (glasses and contact lenses)
- Diagnosing and treating eye diseases, such as glaucoma, cataracts, and macular degeneration
- Detecting early signs of systemic health conditions that may affect the eyes, such as diabetes and high blood pressure

Show more

#### Can an Optometrist Diagnose Eye Problems? - Cleveland Clinic

An optometrist is an eye care specialist. Optometrist is pronounced op-TOM-meh-brist. Optometrists examine,

Cleveland Clinic

#### What Is an Optometrist? What They Do & When To See One

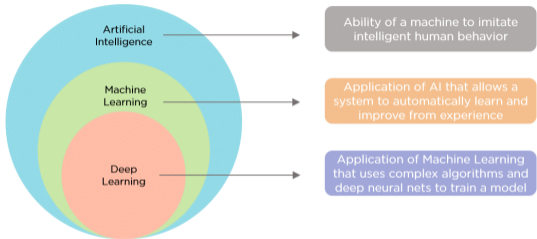
Optometrists can diagnose and treat eye diseases and vision problems. They perform eye exams to identify any problems.



## WHAT IS AI?

- AI can mean a lot of things, no single definition
- Technology that enables computers to simulate human intelligence by performing tasks like learning, problem-solving, and decision-making
- These systems learn from large amounts of data to recognize patterns and make decisions
- Used in applications ranging from search engines and virtual assistants to self-driving cars and medical diagnosis





## EXAMPLES OF ML & DL

- **Machine Learning (ML)**

- Recommendation systems: Algorithms that suggest products or videos based on your past behavior, like those used by Amazon or Netflix.
- Spam filters: An algorithm that learns to identify and filter out spam emails based on patterns in the data.

- **Deep Learning (DL)**

- Image and facial recognition: Identifying objects, people, or faces in images.
- Autonomous vehicle perception: Enabling a car to "see" and interpret its surroundings, such as identifying pedestrians, other cars, and traffic signs.

## AI LIMITATIONS

- Only as good as the data put in = “garbage in, garbage out”
- Cannot abstract think
- Lack of “common sense”
- Bias
- High cost?
- Lack of contextual understanding & emotional intelligence
- Transparency
- Ethical, Legal, & Regulatory implications

DO YOU THINK AI WILL REPLACE  
HUMANS?

(POLL QUESTION)

## WILL AI REPLACE HUMANS?

- NO!
- **Augmentation** over replacement
- Collaboration
- Shift
- New jobs, new job requirements



## RELEVANCE TO EYE CARE

### Potential to impact every aspect of eye care

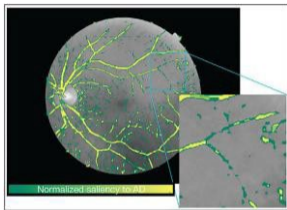
- Diagnostics & Early Detection (Imaging)
- Treatment Plans
- Personalized Treatment
- Telehealth & Accessibility
- Practice management
- Office efficiency



RESISTANT?



## RETINA AI



**Eye2Gene:** research project using AI to train on retinal scans to predict inherited retinal disease

**RetinAI:** data management platform for analyzing retinal imaging data

**iCare RETCAD:** AI-powered software for analyzing color fundus images to aid in detecting conditions like DR, AMD, and glaucoma

**RetInSight:** uses artificial intelligence to analyze routine OCT images to detect and monitor the progression of retinal diseases

**Eyenuk:** known for its FDA-cleared EyeArt system for diabetic retinopathy detection

FDA-approved AI platforms: **IDx-DR**



## IDx-DR Analysis Report

Patient ID:	VTDR
IDx Submission ID:	22-30
Exam Analysis Date:	2017-04-06
Exam Analysis Time:	11:09:15 PM
Exam Result:	Vision-threatening diabetic retinopathy detected



NOTE: The above images are reduced-resolution, compressed versions of the original images used by IDx-DR. You may use these images for diagnostic purposes.

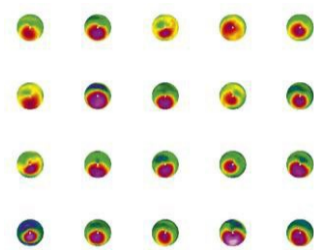
DRAG\_1212

# CORNEA AI

- **Ptenacam Random Forest Index:** A machine-learning algorithm that uses data from Scheimpflug imaging (Pentacam) to detect and grade the risk of ectasia, including early-stage keratoconus, with high accuracy.
- **KeratoDetect:** his machine-learning algorithm was trained on thousands of healthy and keratoconic eye topographies to identify keratoconus-related ectasia with high precision
- **Corvis Biomechanical Index (CBI):** Produced by the Corvis ST device, this index combines data on corneal biomechanics with tomography to help detect keratoconus
- **KerNet:** A convolutional neural network (CNN) that analyzes raw data from Scheimpflug tomography for highly accurate detection of both keratoconus and subclinical forms
- **DeepKeratitis:** model trained on a large dataset of slit-lamp images to distinguish between bacterial and fungal keratitis
- **IVCM analysis tools:** AI algorithms are trained on *in vivo* confocal microscopy (IVCM) images to automatically segment and quantify fungal hyphae or inflammatory cell
- **U-net and Mobile-CellNet:** algorithms automatically analyze specular microscopy images to calculate endothelial cell density and morphology, improving accuracy and efficiency over manual counting

## ONLY AS GOOD AS THE DATA PROVIDED

- Quality of images/data
- Only looking at KCN (not other pathology)



# GLAUCOMA EYE AI

- **Altris AI:** platform provides AI-powered optic disc analysis and ganglion cell complex (GCC) asymmetry analysis for clinicians. Its modules are compatible with multiple optical coherence tomography (OCT) systems and can help detect early glaucoma; FDA cleared
- **BegIA:** Designed for areas with limited eye care, this smartphone-based app uses AI to analyze facial images for signs of glaucoma, diabetic retinopathy, and cataracts
- **Cybersight AI:** free, telemedicine, and virtual training platform by Orbis International that helps eye care professionals in low- and middle-income countries detect common eye diseases
- **Eyetelligence** AI-enabled retinal screening platform uses clinically validated algorithms trained on extensive retinal image datasets to detect early signs of glaucoma, diabetic retinopathy, and age-related macular degeneration (AMD)

## GLAUCOMA EYE AI (CONTINUED)

- **iGlaucoma** A cloud-based, smartphone deep-learning system that analyzes visual field data via an app
- **Kalpah Innovations (RIA-G)**: cloud-based software analyzes fundus images to assess glaucoma likelihood based on measurements like disc size, cup size, and cup-to-disc (C/D) ratio
- **Medios AI-Glaucoma**: his offline AI tool works with a smartphone-based fundus camera to screen for referable glaucoma
- **Retinalyze: Advanced Glaucoma Progression AI**, which uses a Glaucoma Index of Progression (GIP), is available in the EU and Mexico

Segmentation:

Scan quality: 10/10

Severity: Red

1 / 1

All	<a href="#">Highlight</a>
Diffuse edema	<a href="#">Highlight</a>
Floater	<a href="#">Highlight</a>
Intraretinal hyperreflective foci	<a href="#">Highlight</a>
Shadowing	<a href="#">Highlight</a>
Subretinal fluid	<a href="#">Highlight</a>
Hard exudates	<a href="#">Highlight</a>
Intraretinal cystoid fluid	<a href="#">Highlight</a>

1 / 1

[Add to report](#)

[Review other scans](#)

# DRY EYE AI

- **C.DIAG**
  - An automated diagnostic aid platform that uses AI to analyze multiple exams, including meibography, for more accurate and reproducible results.
- **CSI DRY EYE SOFTWARE**
  - A machine-learning and cloud-based software that helps doctors diagnose and manage dry eye more efficiently by providing standardized assessments and patient data analysis
- **BLINK RATE MODEL**
  - analyzes video to detect and quantify blinks, which can be correlated with dry eye symptoms and other clinical tests.

DO YOU CURRENTLY USE ANY  
VERSION OF AI IN YOUR OFFICE?

(POLL QUESTION)

# AI IN THE OFFICE

ENHANCING CLINICAL EFFICIENCY

**“You can’t spell administration  
without AI”**

## AI USES IN EYE CARE



Log In

Sign Up

New Visit



# OpenEvidence<sup>®</sup>

Ask a medical question...



Write Home Care Instructions

Double Check with a Quick Curbside Consult

Write an Exam Question

Explore More Capabilities



tear osmolarity

Finished thinking

**Tear osmolarity is a quantitative measure of the concentration of solutes (primarily electrolytes) in the tear film, expressed in milliosmoles per liter (mOsm/L). It reflects the balance between tear production and evaporation, and is a key marker of tear film homeostasis.**

Elevated tear osmolarity, or tear hyperosmolarity, is a hallmark of dry eye disease (DED) and is considered an objective indicator of its severity. Hyperosmolarity results from reduced tear secretion or increased evaporation, leading to increased solute concentration in the tears. This triggers inflammatory pathways and epithelial damage on the ocular surface, perpetuating the cycle of DED.<sup>3-4</sup>

Normal tear osmolarity values are typically below 305 mOsm/L, while values above 308–316 mOsm/L

tear osmolarity

## ☰ References

### 1. Variability of Tear Osmolarity in Patients With Dry Eye.

Bunya VY, Fuerst NM, Pistilli M, et al.

JAMA Ophthalmology. 2015;133(6):662-7. doi:10.1001/jamaophthalmol.2015.0429.



### 2. Tear Osmolarity in the Diagnosis and Management of Dry Eye Disease.

Lemp MA, Bron AJ, Baudouin C, et al.

American Journal of Ophthalmology. 2010;151(5):792-798.e1. doi:10.1016/j.ajo.2010.10.032.



### 3. The Molecular Mechanisms Responsible for Tear Hyperosmolarity-Induced Pathological Changes in the Eyes of Dry Eye Disease Patients.

Harrell CR, Feulner L, Djonov V, Pavlovic D, Volarevic V.

Cells. 2023;12(23):2755. doi:10.3390/cells12232755.



### 4. Role of Hyperosmolarity in the Pathogenesis and Management of Dry Eye Disease: Proceedings of the OCEAN Group Meeting.



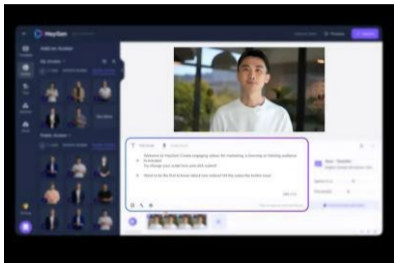
tear osmolarity



## VIRTUAL ASSISTANTS & SCRIBES

- Heidi Scribe
- Gemini (google), copilot (Microsoft 365), Grammarly, SaneBox, Shortwave
- Google Assistant, Cresta: make appointments for you
- Otter.ai, fireflies.ai, circleback.ai= record team meetings, transcription, summary

# HEYGEN



## MY OFFICE AVATAR





CHAT GPT  
CLAUDE  
GEMINI  
COPILOT  
PERPLEXITY  
META AI...AND MORE

## YOUR FAVORITE AI PLATFORM...

- Free vs paid versions
- Generate content: forms, letters, social media content, meeting content, training material
- Refine & translate: emails, forms, documents
- Brainstorm ideas
- Automate tasks
- Manage knowledge
- Communication
- Analysis: financial, reports, work flow

give me an example of how to do a staff review of someone with a c type disc personality

That's a great question — especially since people with a **C-type DISC personality** (Conscientious / Compliance style) respond best to structure, fairness, and data-driven feedback.

Here's a **sample approach and example** for conducting a staff review of a C-type team member, such as a technician or optician, adapted to their personality traits.

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### Quick Profile of a C-Type DISC Personality

**Core traits:** Analytical, detail-oriented, cautious, precise, and rule-following.

**Motivators:** Accuracy, clear expectations, quality standards, and logical processes.

**Stressors:** Criticism without evidence, ambiguity ↓ ↑, or emotional confrontation.

**Manager:**

"Thanks for meeting with me, Jordan. I really appreciate the level of precision you bring to your work — particularly how you caught three prescription data entry errors before they went out. That kind of attention prevents patient issues downstream."

**Manager:**

"Looking at the data from the last quarter, your turnaround time on frame orders averaged 2.1 days — that's 15% faster than our target. The only area where we've seen some variation is in communication speed with the lab. A few orders stayed open for several days while waiting on follow-up. Can you walk me through what's causing that delay?"

**Jordan (C-type):**

"I like to double-check the details before sending messages, so it takes a bit longer to confirm."

**Manager:**

"That makes sense — your accuracy is excellent. To balance speed and precision, maybe we can implement a checklist so you can send updates more quickly without

+ Ask anything



"CREATE AN EMAIL TO MY COLLEAGUES ABOUT  
STRESSING THE IMPORTANCE OF COLLECTING CO-PAYS AT  
THE TIME OF CHECKOUT SO WE DON'T HAVE TO CHASE  
MONEY AND WASTE OUR TIME, ENERGY, EFFORT LATER  
ON"



Hi Team,

I want to take a moment to stress how important it is that we collect patient co-pays **at the time of checkout**. This step may seem small, but it has a big impact on the efficiency and financial health of our practice.

When co-pays aren't collected up front, it creates unnecessary extra work — we end up spending time, energy, and resources chasing down payments later. This not only affects our workflow but also delays revenue that helps keep the practice running smoothly.

By collecting co-pays at checkout, we:

- Reduce administrative follow-up and billing time
- Improve cash flow
- Maintain professionalism and consistency with all patients
- Ensure our focus stays where it belongs — on patient care, not payment collection

Let's all make this a consistent habit with every patient, every time. Thank you for helping keep our processes smooth and our team efficient!

## KEY ELEMENTS OF A GOOD PROMPT

- Define AI's role
- Context & Background
- Task & Instructions: be specific
  - "create", "draft", "suggest"
- Format & style
- Specify the output
- Define audience and tone
- Indicate length

## MARKETING

- Personalized email marketing
- Social Media & Content Creation
- Targeted Ad Optimization

# What will you design today?

Your designs

Templates

Canva AI

create a post about myopia management to post on our social media pages with patients as an audience

+

🔊

➔

Design

Image

Doc

Code

Video clip

Canva AI can make mistakes. Please check for accuracy. [See terms](#) • [Give feedback](#)

## See what you can do with AI

Write

A document for remote work guidelines

Image

A city skyline at dusk

Code

A 3D game exploring space

Design

A professional real estate listing ad

Video

Create an intro clip for a calming, meditation app

Image

A character for a fantasy novel, set in snowy landscape



More designs

Add an illustration of an eye exam

With modern colors

Ask me anything

## BIAS IN AI

- Underlying prejudice in data used to create AI algorithms
- Can lead to discrimination
- Examples:
  - 2019: researchers found an algorithm used in US hospitals to predict which patients would likely need extra medical care heavily favored white patients over black patients
    - The rationale was that cost summarizes how many healthcare needs a particular person has. For various reasons, black patients incurred lower healthcare costs than white patients with the same conditions on average.
  - 2015: Amazon realized that their algorithm used for hiring employees was biased against women
    - The reason for that was because the algorithm was based on the number of resumes submitted over the past ten years, and since most of the applicants were men, it was trained to favor men over women

# ETHICAL CONSIDERATIONS IN AI

## **Patient Consent and Transparency**

- Informing patients of AI use in their care
- Ensuring informed decision-making and respect for autonomy

## **Equity in Access and Outcomes**

- Preventing digital divides in AI deployment
- Designing AI for global and underserved populations

## **Role of the Clinician in the AI Age**

- AI as augmentation, not replacement
- Maintaining empathy, communication, and trust

## REGULATORY & LEGAL CONSIDERATIONS IN AI

- FDA/EMA approval pathways for AI tools
- Beware of compliance: state & federal regulations
- Consent & transparency
- Data breaches
- Liability in AI-guided misdiagnosis
- Human oversight needed
- Professional guidelines

This is an evolving landscape

## FUTURE OF AI

- **Personalized Medicine and Predictive Care**
  - Genomics + AI = risk stratification and early intervention
  - Adaptive treatment plans using real-time data
- **Education and Skill Development**
  - Training eye care professionals to work with AI systems
  - Integrating AI literacy into medical and optometry curriculum

## TAKE AWAY THOUGHTS

- AI will reshape, but not replace clinical eye care
- Early adoption and critical evaluation are key
- Eye care professionals must lead ethical, patient-centered integration

THANK YOU



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