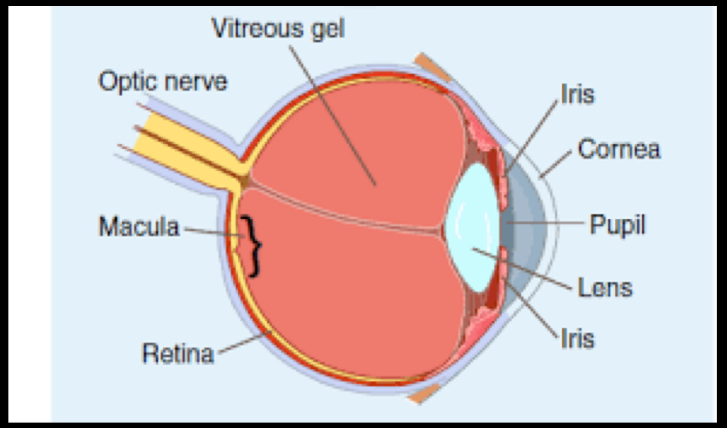
A i conic

Lighting up lives…



Daniel Mo

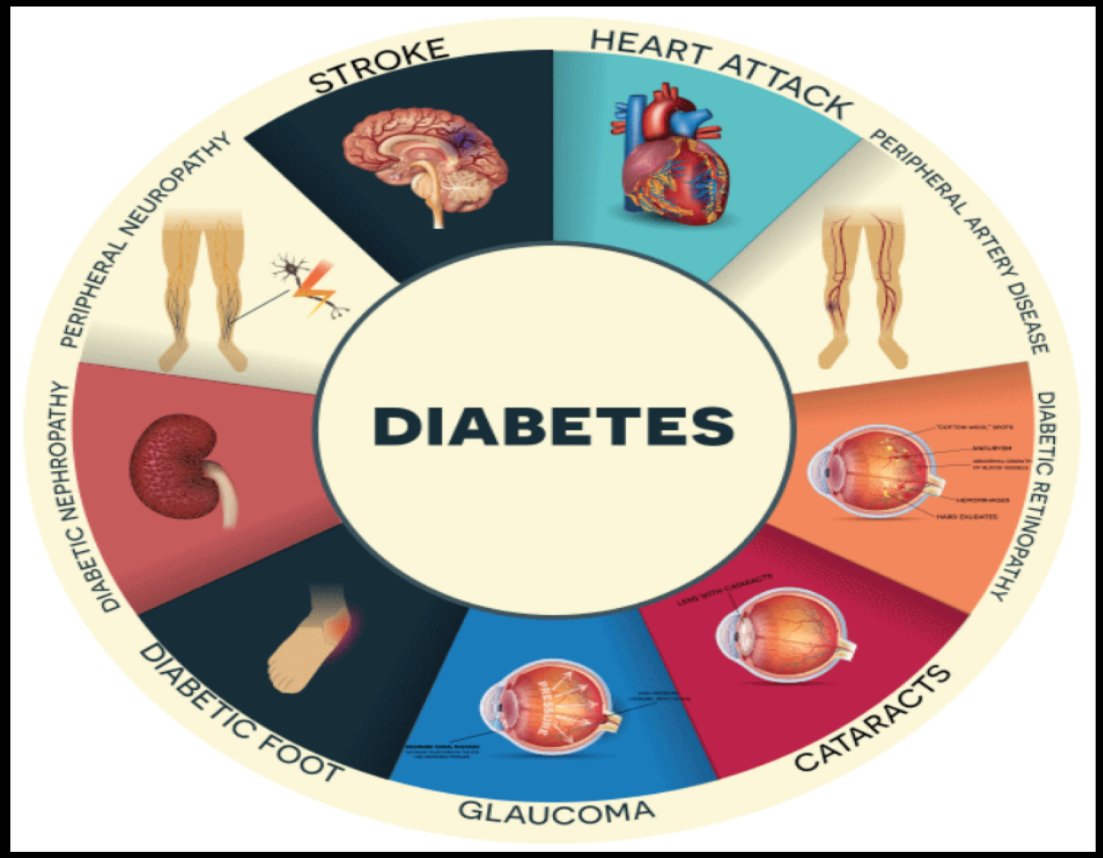
Ajay Simha

Raj Ray

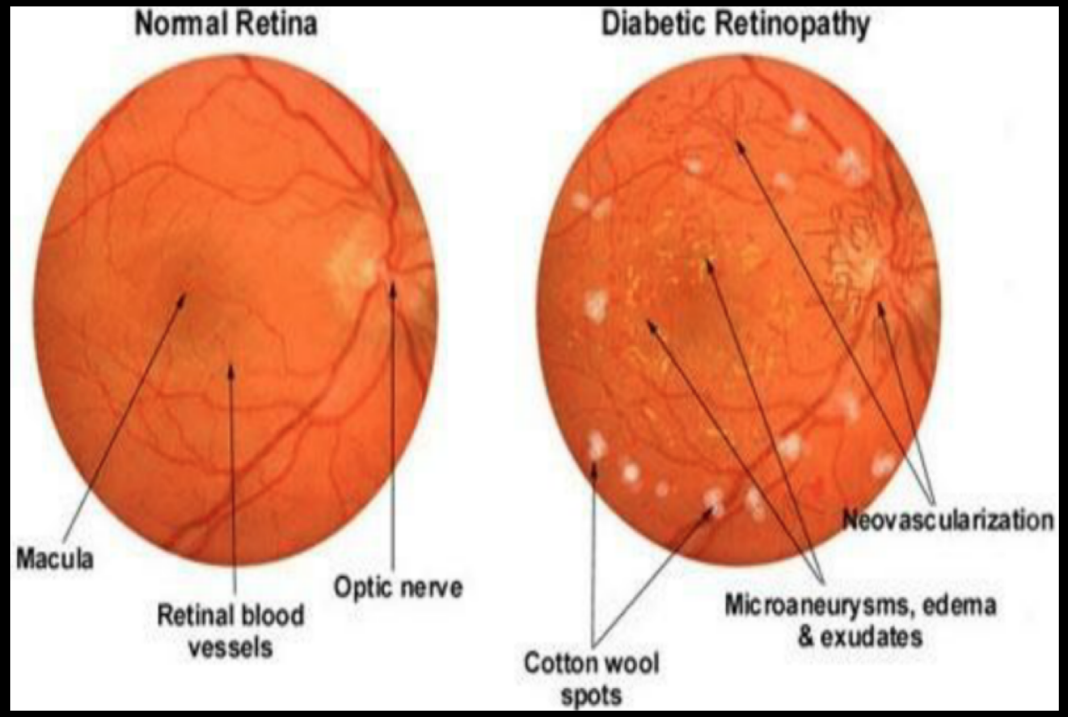
Mahesh Hariharasubramanian

Shreyas Sudheendra Rao

Diabetes?


DIABETES
STROKE
HEART ATTACK
PERIPHERAL ARTERY DISEASE
DIABETIC RETINOPATHY
CATARACTS
GLAUCOMA
DIABETIC FOOT
DIABETIC NEPHROPATHY
PERIPHERAL NEUROPATHY

A world without Diabetic Retinopathic Detection (DRD)



YOUR VISION IF NOT DETECTED

The Blindness Epidemic from Diabetes

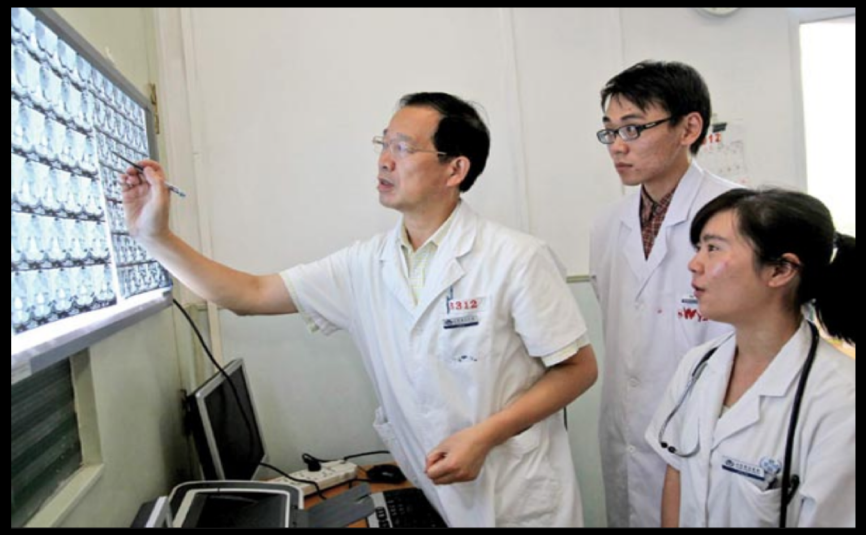
2015:

- About 415 million adults with diabetes projected to grow by 50% to 642 million adult diabetics by 2040.
- 35% - 50% of all diabetics may have retinopathy.
- Of those, 10% may be at risk, i.e., 10 million+ people may become totally blind in 12 years.
- Only 55% of diabetics obtain an eye-screening exam. This number is even lower in under-developed countries.

Today:
Global need for improved access to enhanced screening and rapid detection is immense.

Problem to Opportunity to $$$

- Experienced Clinicians required
- Takes up to 2 days for the results
- Current manual process is error-prone
- Individuals with Diabetic retinopathy continue to rise with lesser trained clinicians
- Need for automated and comprehensive method is on rise too



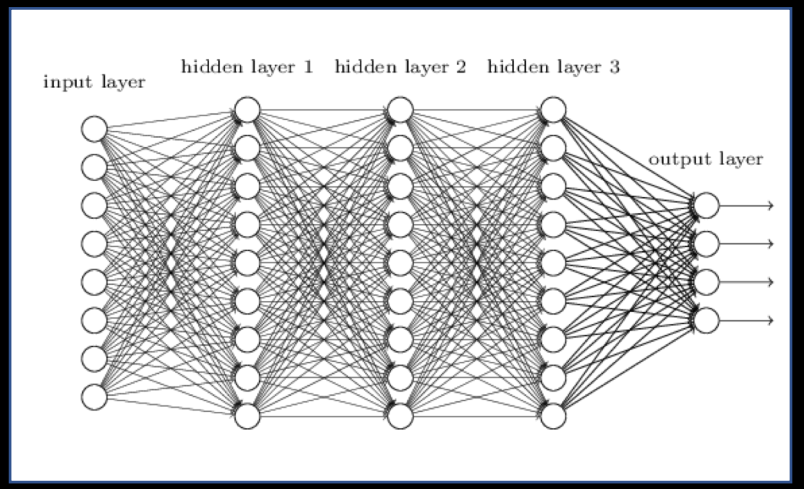
$ comes easy by learning deep

- An Application that quickly and accurately detect diabetic retinopathy (DR) without human error.

SCAN

+

Deep Learning algorithm



= Faster Result + Accurate

Underlying Magic

We used:

- Transfer learning by retraining Google's InceptionV4 model

Considering the large size data set (training set ~34 GB and test set ~52 GB) we trained on:

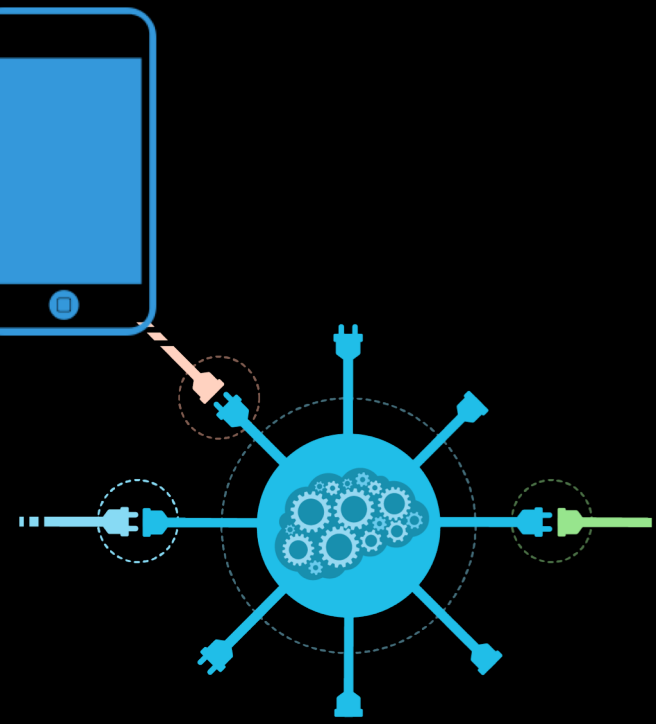
-2063 images

- Training Accuracy: 83.0%
- Validation Accuracy: 78%
- Batch Size = 100
- Number of steps = 500
- Learning rate = 0.005
- Number of Epochs = 24.24

Competition?

- Google - “Development & Validation of a Deep Learning Algorithm for Detection of Diabetic Retinopathy”, JAMA 2016
- GE - “Diabetic Retinopathy Detection via Deep Convolutional Networks”, IEEE 2017
- Cognizant - “How AI Enhances & Accelerates Diabetic Retinopathy Detection”, Digital Systems and Technology, 2018
- IDx-DR (https://www.eyediagnosis.net/) : FDA permits marketing of IDx-DR for automated detection of diabetic retinopathy in primary care. (April 12, 2018) ☹

Lets talk money!



- Create and license algorithm
  - API - allows for integration with existing scanning devices
  - Use platform to cross-sell other detection services
  - Offer anonymized patient data for a fee
  - Mobile app - allow individuals to get second opinion
- Primary customer - insurance companies
  - Cost of referral: $479[1],Cost of screening: $116[1]
- Secondary customers - free clinics, researchers, and hospitals

Go-To-Market Plan

- Initial rollout in Africa
  - High incidence of diabetic retinopathy (DR)
  - Lower cost to serve and barriers / regulations
  - Build reputation and collect data

- Mature product - launch in US
  - Free application license initially
  - Distribute to free clinics to gain market share
  - Market to insurance companies after a few success stories
  - Eventually charge for service or use it as loss leader

PRO-FORMA INCOME STATEMENT (P&L)

AI-CONIC

	2018	2019	2020	2021	2022
Sales Revenues	$35,000	$97,500	$268,000	$560,000	$1,350,000
Cost of Goods Sold	$10,000	$15,000	$23,000	$35,000	$40,000
Operating Income	$25,000	$82,500	$245,000	$525,000	$1,310,000
Expenses					
SG&A	$25,000	$70,000	$125,000	$165,000	$325,000
Equipment	$30,000	$40,000	$55,000	$75,000	$90,000
Marketing	$10,000	$25,000	$37,500	$58,000	$70,000
Rent (Office Space)	$25,000	$27,500	$30,250	$33,275	$36,603
Total Expenses	$90,000	$162,500	$247,750	$331,275	$521,603
EBITDA	($65,000)	($80,000)	($2,750)	$193,725	$788,398
Taxes	$0	$0	$0	$54,243	$260,171
Net Income	($65,000)	($80,000)	($2,750)	$139,482	$528,226

Ask (Investment Capital): $145,000 **Equity: 23%** **ROI: 5x**

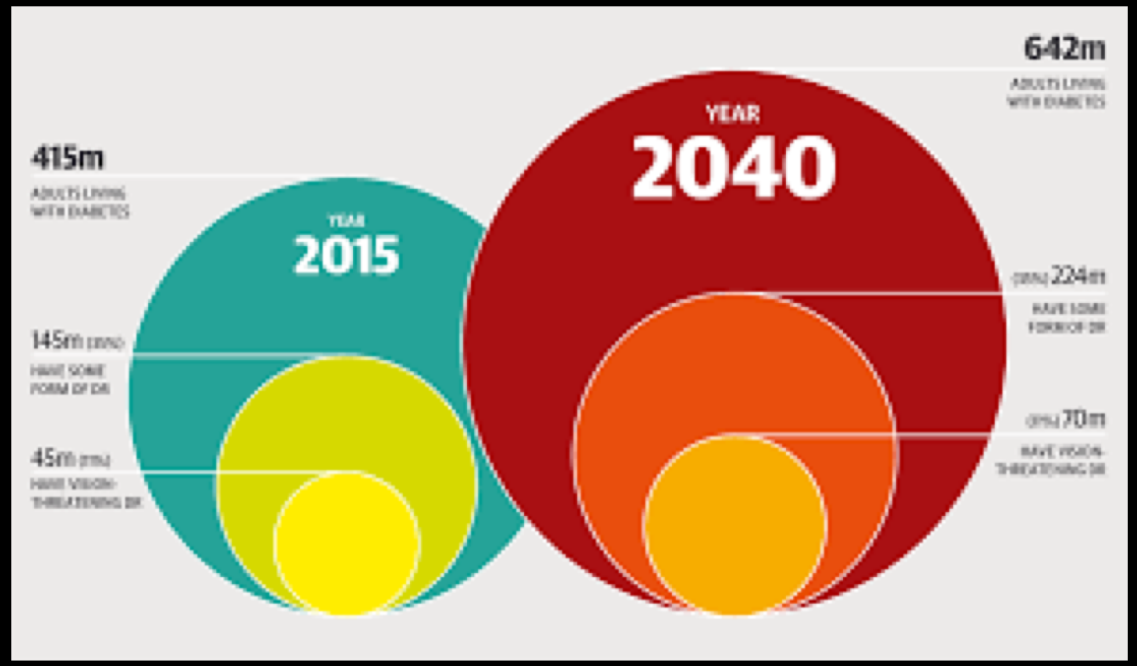
Removing Bias in Training Set

Pre-process training data to explicitly remove known biases in the population sample.

Make training set more diverse (gender, race, age and color neutral) by collecting new training data from those demographics.

Perform k-fold Cross Validation with Shuffling.

Go to Market Strategy



TAM (Total Available Market) – 500 m
SAM (Served Available Market for AI-Conic Sales Channels) – 5m
TM (Target Market for AI-Conic) – 500,000

Next Steps

Fully Integrated DevOps model

Inception 4 with TensorFlow Serving and Kubernetes

TensorFlow Lite for Smartphones

Docker Container for Microservices

Push final code and documentation to GitHub
https://github.com/mascor1331/aiconic

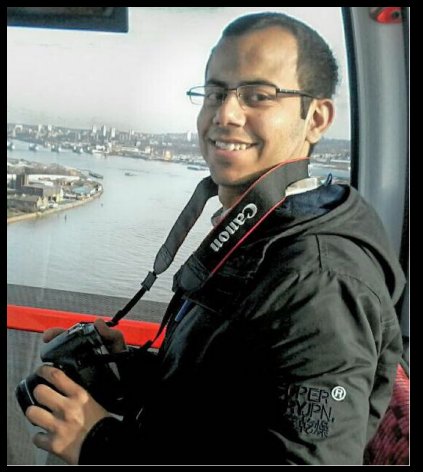
Management Team

CEO - Dan

COO - Raj

CTO - Mahesh

CMO - Shreyas



CDO - Ajay

QUESTIONS?