



# Physician level accuracy at 1/10th of the cost

This AI-powered gut health app **transformed their algorithm** and **15X'd their labeled training data** at a fraction of the cost with Centaur Labs services.

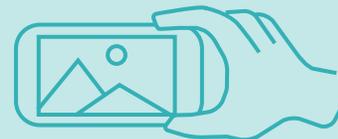
## BACKGROUND

Auggi is a gut health app that identifies connections between patients' gastrointestinal triggers and symptoms, empowering them with actionable insights to lower the frequency and severity of symptoms. GI issues affect one fifth of Americans and can be very difficult to measure, analyze and remediate due to the complex interactions between diet, exercise and lifestyle habits.

A key component of Auggi's product is a proprietary computer vision algorithm to classify images of users' stool samples according to the seven-point Bristol Stool Scale.

The Auggi team, composed of engineers from MIT, Cornell and Harvard, built an initial computer vision algorithm trained on 1,000 user-submitted stool images. These images were labeled by two US-Based physicians on a home-grown annotation platform.

## AUGGI PROCESS



1

User snaps a photo of their stool and uploads it to Auggi



2

Auggi algorithm classifies stool sample according to Bristol Stool Scale



3

Auggi returns personalized connections between user's GI triggers and systems

# CHALLENGE

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After a year of continued user growth, the Auggi team was ready to improve their algorithm. For the next iteration, the team wanted to increase the number of training images by 15,000 in order to yield a more robust and accurate model. Additionally, to ensure a sustainable labeling pipeline at scale, they needed to balance **speed, accuracy** and **cost**.

## ISSUE #1

### LOW-QUALITY LABELERS

The Auggi team initially turned to 3rd-party labeling service, Amazon Mechanical Turk. However, the labelers on these services lacked the expertise to accurately classify medical data.

## ISSUE #2

### INTERNAL ANNOTATION PLATFORM

Next, the team built their own annotation platform to meet their labeling needs. This process required recruiting, vetting, and QAing a large team of labelers in addition to managing the labeling software infrastructure.

## ISSUE #3

### EXPERTS DISAGREE

Stool consistency rating, like many other medical evaluations, can be highly subjective. Even experts often disagree on a specific score. Most labeling services only offer a single label which offers no information about the confidence on that label.

**15,038**

images labeled

**376,385**

skilled opinions collected

**25**

average opinions / image

## SOLUTION

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Auggi turned to Centaur Labs to provide multiple expert opinions per image, for a fraction of the cost.

In all, Centaur Labs collected hundreds of thousands of opinions on 15K stool images. Going beyond a single label per image allowed Auggi to identify highly controversial cases and those that arguably may have had more than one correct answer. Auggi believed that having a greater number of expert opinions per image would result in a more robust algorithm across the full spectrum of Bristol scores.



## BENEFITS



### TURN-KEY SOLUTION

Centaur offers a full service solution that ingests raw images and returns highly accurate labeled images, managed through a simple platform. This removes the need for hiring, vetting, and quality assurance typically associated with labeling services.



### PRICE

Centaur's price was extremely affordable relative to others. In fact, the price per image was roughly 1/10th the cost of the standard practice of hiring physicians on an hourly basis. As David Hachuel, Co-Founder and CEO of Auggi says, "the price was beyond good, even for an early stage startup like ourselves."

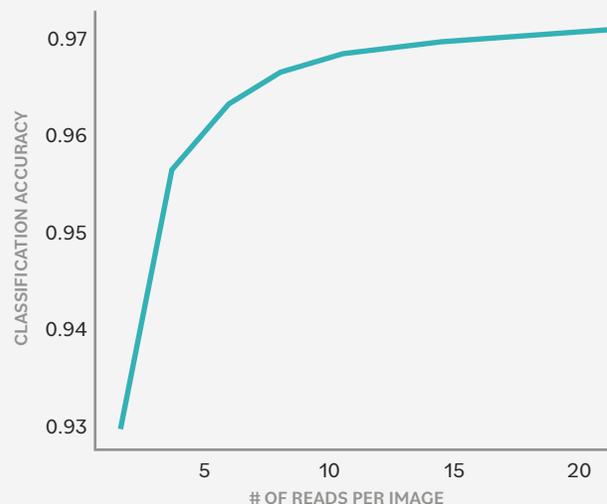


### MULTIPLE OPINIONS PER IMAGE

By offering 15+ opinions per image, Centaur captures a more nuanced view into the underlying data, allowing for significantly more robust algorithm development. Centaur results include confidence scores, aggregated from multiple opinions by the skilled crowd. This information is lost by competitors who return a single value for each image.

By leveraging Centaur's labeling service that included multiple expert opinions per image, **Auggi was able to improve their model's overall accuracy within one Bristol Class to 94%.**

LABELING ACCURACY IMPROVEMENT BY UTILIZING MULTIPLE OPINIONS



Centaur's unique crowd-based labeling technology was a key enabler for us to quickly scale our data and algorithms. Our partnership with them played a large role in our success."

**David Hachuel** Co-Founder and CEO of Auggi



**READY FOR YOUR OWN BREAKTHROUGH?**

Start your trial project with Centaur Labs today

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