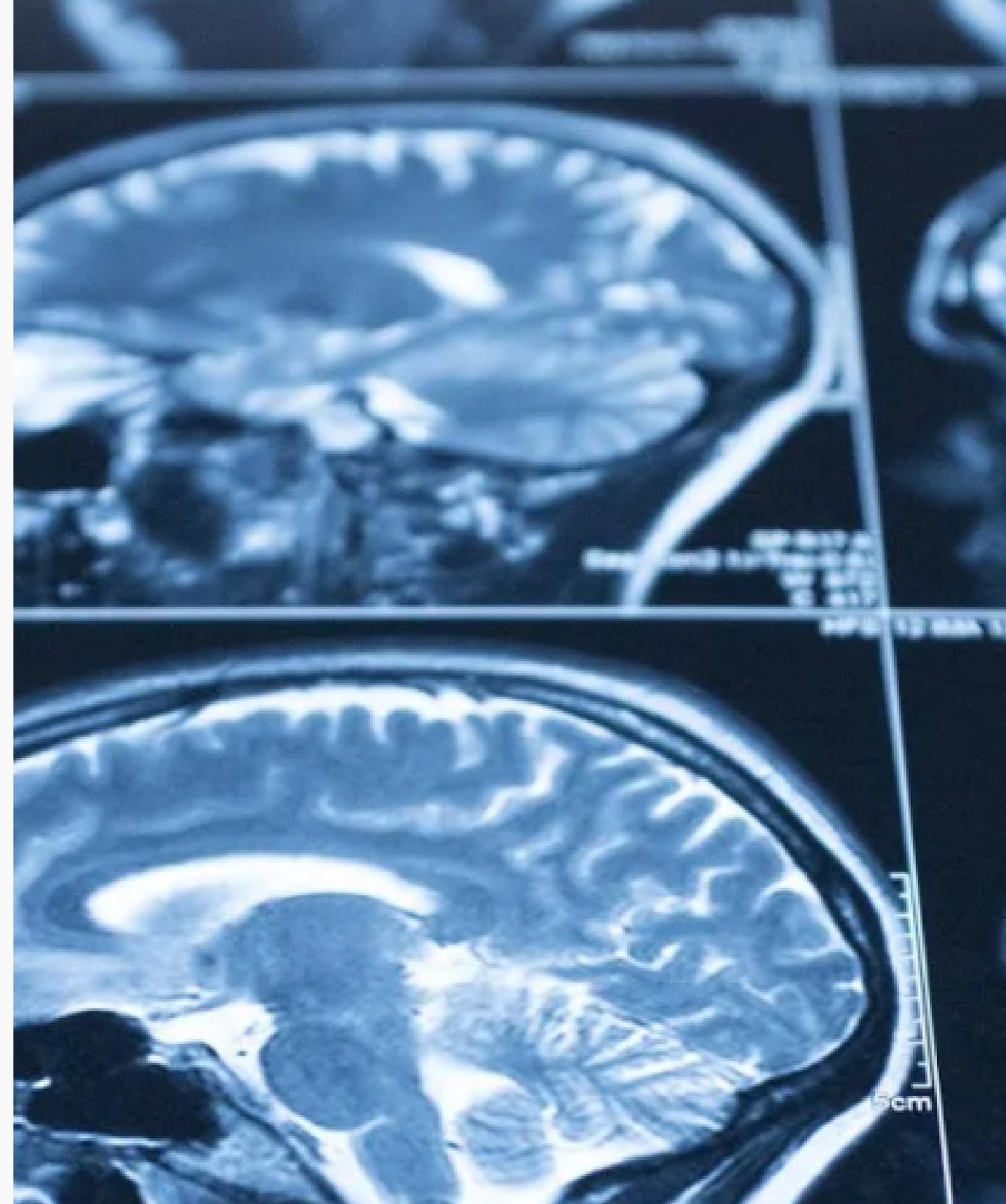


DeepMeds

On a mission to leverage AI technologies to reduce contrast agent usage and associated expenses in medical imaging tests and to improve patient safety.

Arash@DeepMeds.io

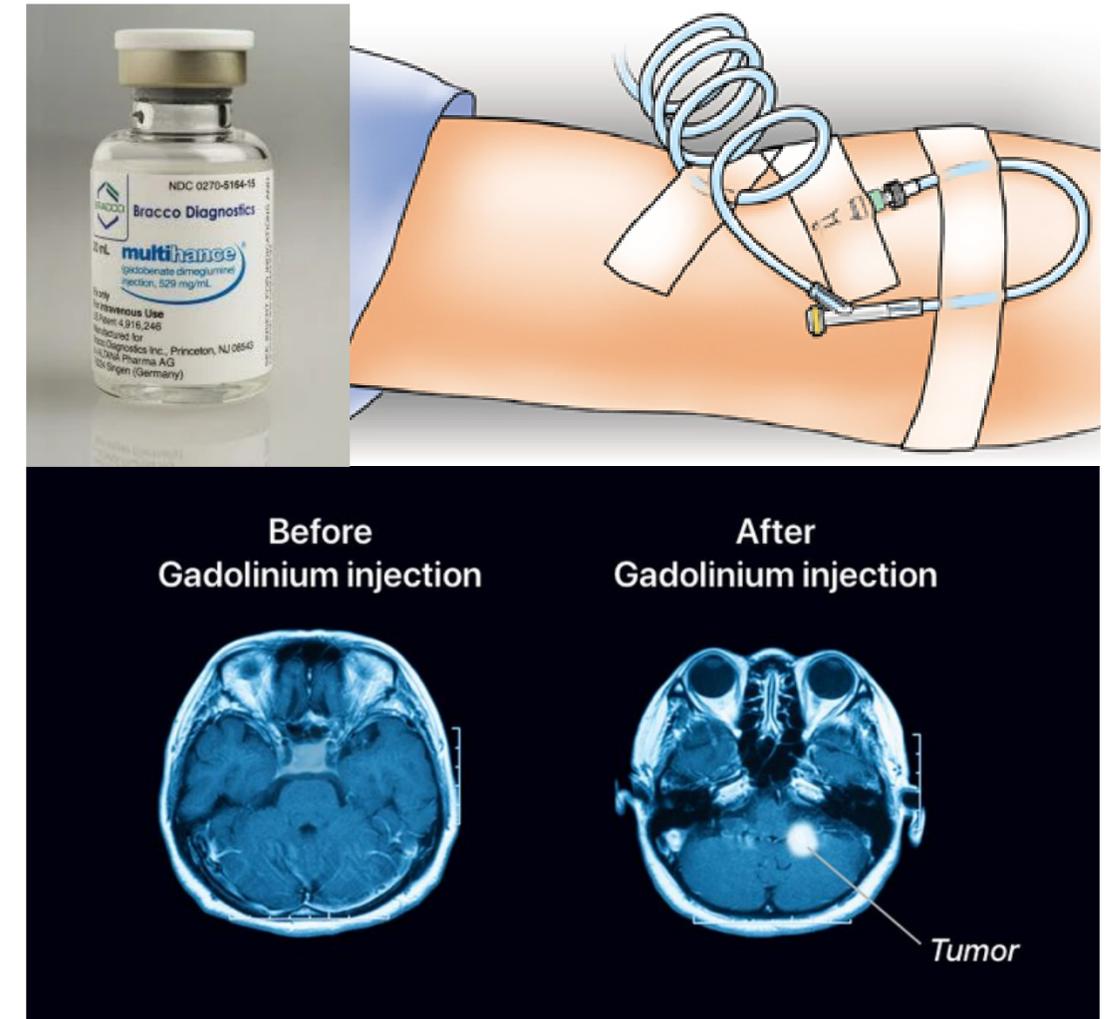
J U L Y 2 0 2 2



Introduction

Contrast agents are chemical substances injected into the body **to enhance the quality of MRI scans** of internal organs, blood vessels, and tissues.

Contrast Agents are used in over **100 million medical imaging tests**.



Problem

Contrast agents are the **biggest expense for consumable items** in a radiology department:

- They add, on average, \$ 137 to an MRI scan of a patient.

Contrast agents may have adverse Health Effects:

- CAs remain in the body, including the brain. Non-clinical studies have demonstrated that they could be harmful to tissues.
- Patients with kidney problems, children, and pregnant women cannot undergo a full dose injection.

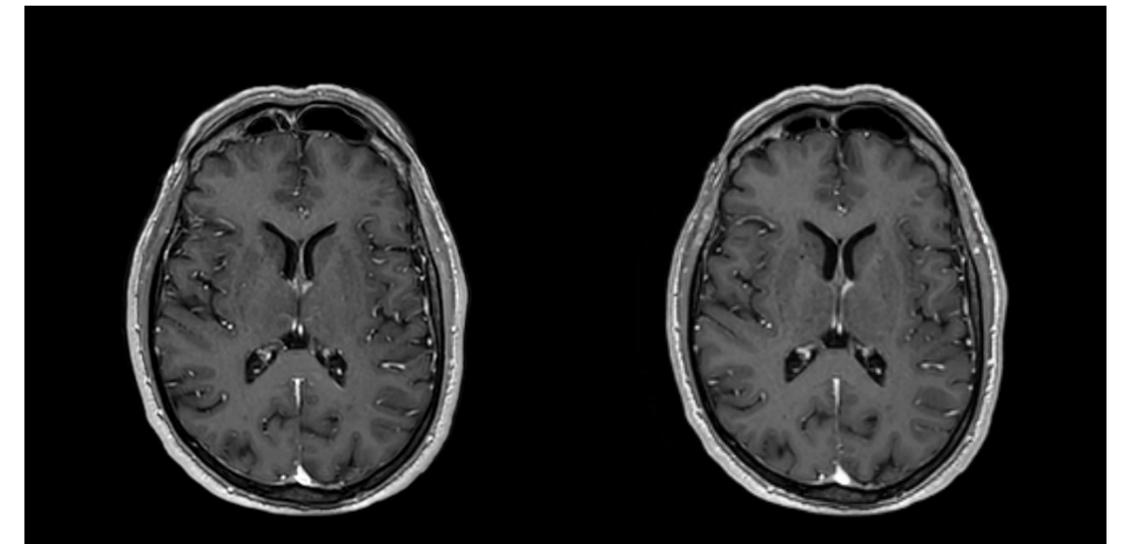
Solution

Our solution is a **deep-learning-based software that reduces the use of contrast agents by at least 80% and generates images with higher contrast than an image with a full dose injection.**

DeepMeds innovative algorithm relies on its dataset, which has been trained using its exclusive and huge amount of data.

Full Dose
(100% of a dose)

DeepMeds
(The same result with
only 20% of a dose)



Team



ARASH ATASHNAMA FOUNDER-CEO



- MBA.
- Second-time entrepreneur.
- Technology consultant-health tech.



DR SHAHRAM AKHLAGHPOUR CO-FOUNDER-CMO



- Associate Professor of Vascular and Interventional Radiology.
- Published +100 research papers with over 1700 citations in total.



AMIRHOSSEIN SHAFIE CO-FOUNDER-CTO



- Experienced Software engineer.
- A.I. expert.



FRED KORANGY CHAIRMAN OF THE BOARD



- A seasoned technology entrepreneur with the experience of raising more than \$ 100 million from the capital market.
- 4 US patents in the field of big data and analytics.



DR AMIR SEPEHRI ENGINEERING ADVISOR



- Ph.D. in statistics from **Stanford University**. 
- Research Data Scientist at **Meta**. 
- Served as a scientific advisor to health-tech startups.

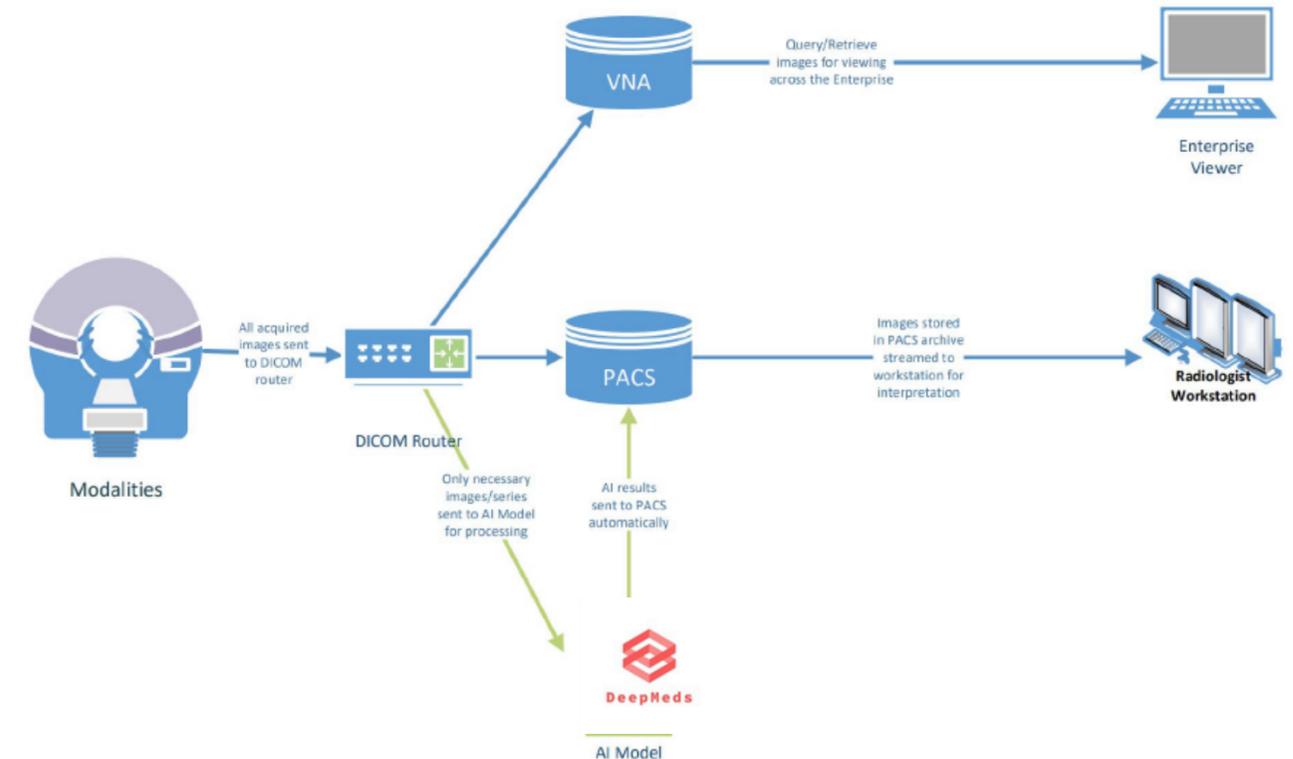
Business Model

Our primary customers are

- DICOM image viewers software companies
- PACS software development companies.
- Imaging device manufacturers

We offer our product as **API integration** with their systems so that radiologists (end-users) **don't have to change their workflow** in order to use our technology.

Our revenue model is PAY-PER-API-CALL.



Competition



1. **SubtleGAD** is a software company based in the US that uses **deep learning technology to reduce C.A.s dose.**

The product is currently in the investigational stage and is not commercialized.

In November **2021**, SubtleGad Medical **partnered with Bayer** to apply A.I. in medical imaging.



2. Other direct competitors in the contrast agent market are **suppliers of contrast agents**, including Bayer and G.E. Healthcare.

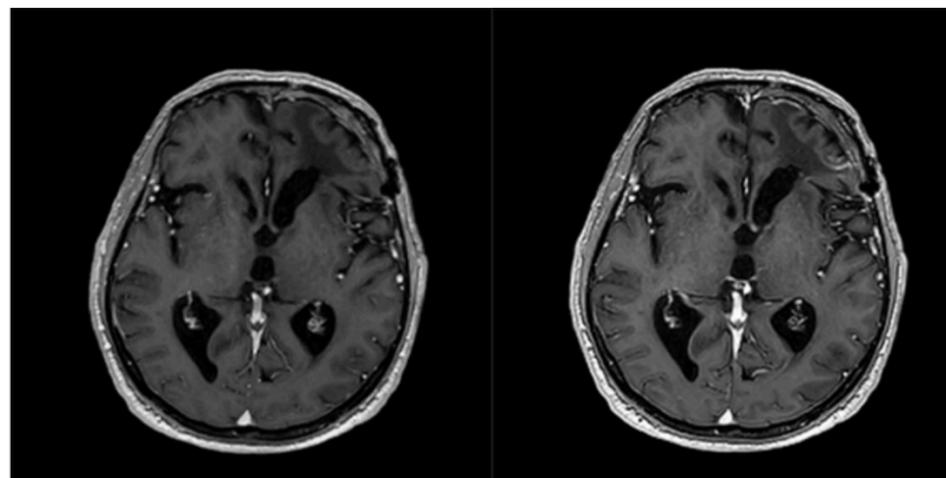
Competitive Advantage

- **Higher Contrast:**

DeepMeds innovative algorithm produces images with higher contrast and details in all parts of the image compared to a full-dose image.

Full Dose

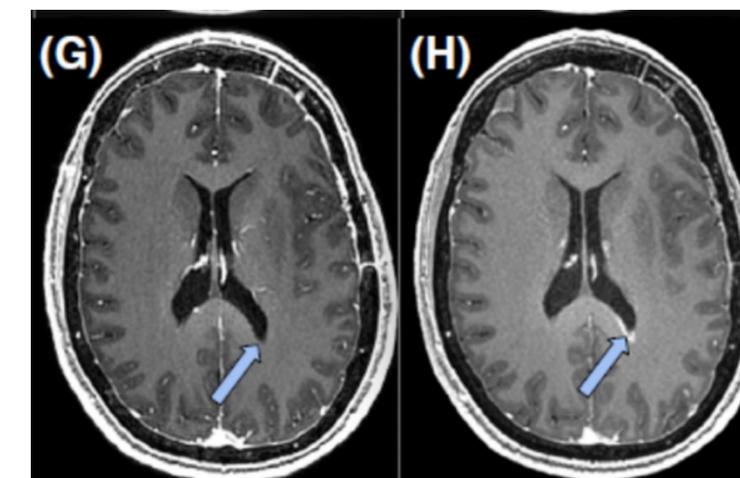
DeepMeds



Higher contrast level

Full Dose

SubtleGad



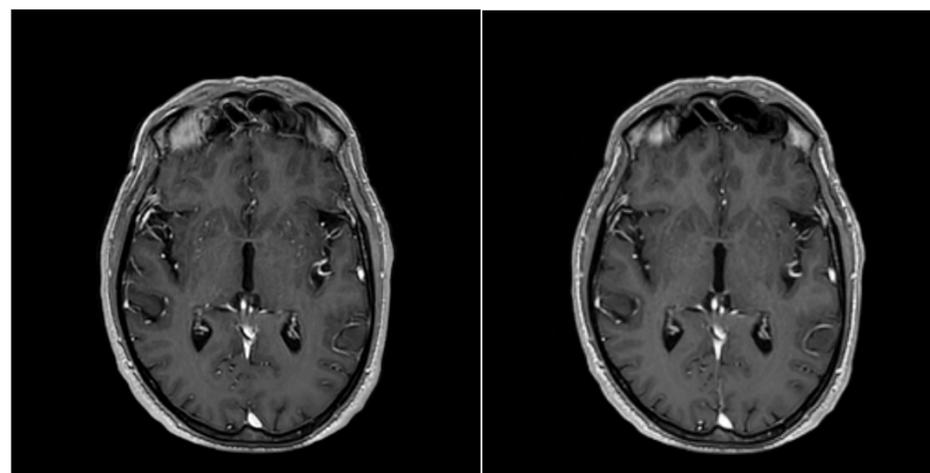
Overenhancement

- **Higher Accuracy:**

DeepMeds proprietary technology can detect even the smallest traces of contrast agents.

Full Dose

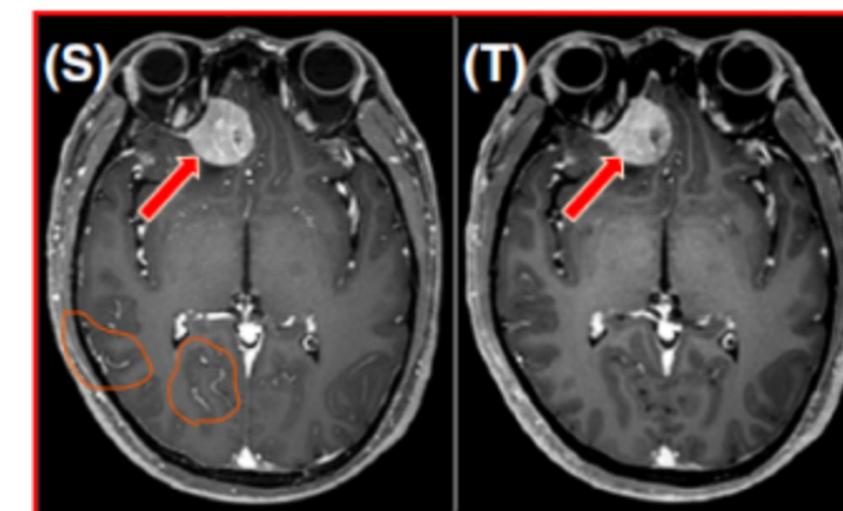
DeepMeds



Detecting CAs in small vessels

Full Dose

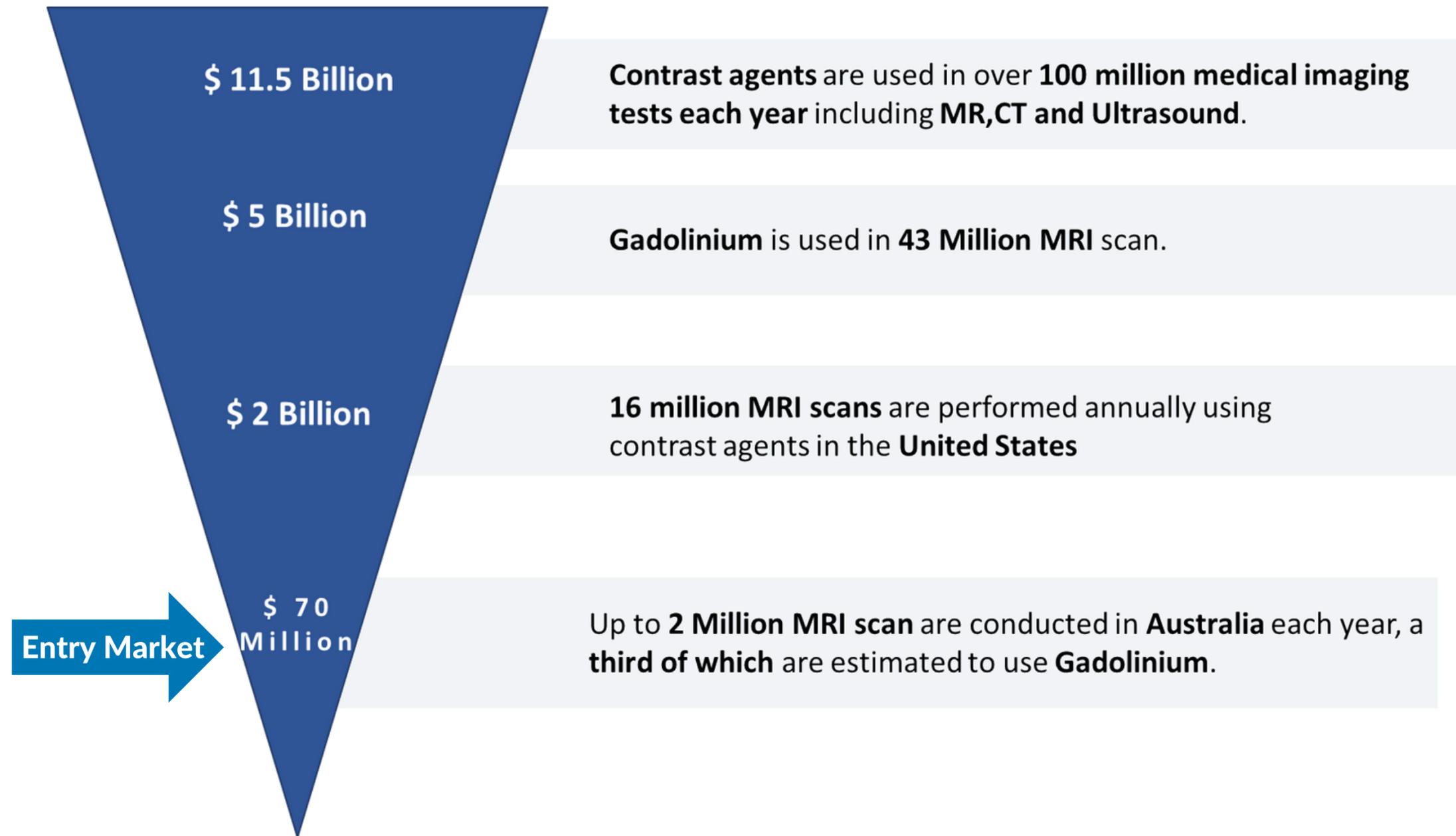
SubtleGad



Weakness in detecting CAs in small vessels

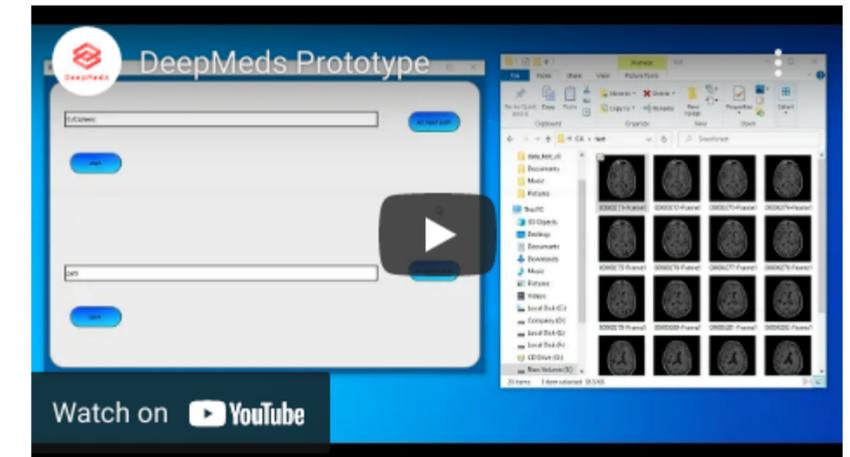
Data source: <https://doi.org/10.1002/mrm.28808>
Comparison analysis performed by a radiologist

Market Size



Progress

1. Made **partnership with one of the largest imaging centers** as a data supplier.
2. Obtained brain MRI images from **500 patients** under a specific protocol and built the dataset.
3. Hired a team of A.I. engineers and built the **POC with 94% accuracy.**
4. **Made cooperation with Altoimaging** to test the MVP in their clinics.
5. **Made Cooperation with Cirrus Medical** to integrate our software into their image viewer
6. Established the company in Australia (**DEEPMEDS PTY LTD**)



[Link to the POC on youtube](#)



alto imaging

<https://www.altoimaging.com.au/>



Regulatory requirements and IP Protection

- DeepMeds is classified as **Class IIb** (Software intended to diagnose or screen for a disease or condition), meets the definition of a **SaMD by FDA and TGA**, and must obtain regulatory approvals before commercialization.
- DeepMeds work closely with leading advisory firm and Clinical Research organizations in medical technology to **develop the regulatory strategy**.
- DeepMeds collaborates with a **patent and trademark attorney** to establish an IP roadmap to optimize the patent protection strategy.



Milestones

Phase 1-12 Months remaining

In this phase, the main goal is to check the technical feasibility of a solution and understand the pathway to market by validating the clinical need.

Phase 2- 12 Months

This phase aims to build a basic implementation appropriate from a clinical and regulatory point of view.

Phase 3-12 Months:

the main goal of the phase is to complete the certification and validation steps.

Bootstrapping-\$100k

Pre-Seed-Raising \$600k

Seed-Raising \$2.5M

Series A-Raising \$3.5M

Outcome:

An MVP that has been tested on different data sources and has a clear regulatory and IP protection roadmap.

Outcome:

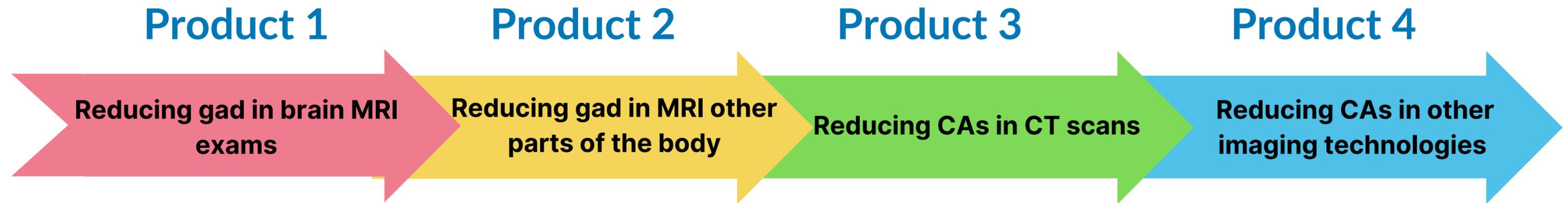
A product deployed in different clinics is ready for medical device certification.

Outcome:

A product that is ready to be commercialized and deployed in the majority of appropriate clinical settings.



Future Roadmap



DeepMeds

Thank You



Appendix 1-Hypothetical case study

Considering a radiology center has an average of **20 daily contrast-enhanced scans** (40% of patients), and the **average weight of patients is 80 kg**:

- The suggested dose for adults is 0.1 mmol per kilogram (1 mmol= 2 ml). So, an 80 kg patient would need 8 mmol contrast, and **20 patients need 320 ml** (20×16 ml).
- The injector needs to be filled with three bottles of 100 ml and one bottle of 50 ml Multienhance (Bracco) contrast during a day (3*100 + 50= 350 ml), which costs them **AUD 2,868.44 per day or \$143 per patient** (3 x \$858.48 + \$293). (Price references: <https://www.drugs.com/price-guide/multihance>).
- Assuming that contrast is injected in roughly 6,000 procedures, they spend **AUD 860,532 on contrast agents each year,**

Using DeepMeds technology will enable them to **save AUD 688,000 annually.**
(Saving \$115 per patient)



Appendix 2-CAs Prices

- There are three contrast agents available in the market that are used the most: Multihance (Bracco), Clariscan (GE Healthcare), and Dotarem (Guerbet).
- There is no linear relationship between the volume of the contrast agent and the price.

Intravenous Solution

529 mg/mL Multihance intravenous solution		from \$165.59 for 25 milliliters ^
Quantity	Per unit	Price
25 (5 x 5 milliliters)	\$6.62	\$165.59
50 (5 x 10 milliliters)	\$6.31	\$315.73
75 (5 x 15 milliliters)	\$6.10	\$457.62
100 (5 x 20 milliliters)	\$5.63	\$562.89
250 (5 x 50 milliliters)	\$5.86	\$1,464.54
500 (5 x 100 milliliters)	\$5.84	\$2,919.57

Important: When there is a range of pricing, consumers should normally expect to pay the lower price. However, due to stock shortages and other unknown variables we cannot provide any guarantee.

Intravenous Solution

376.9 mg/mL (0.5 mmol/mL) Dotarem intravenous solution		from \$288.55 for 50 milliliters ^
Quantity	Per unit	Price
50 (5 x 10 milliliters)	\$5.77 – \$6.12	\$288.55 – \$306.11
75 (5 x 15 milliliters)	\$5.95	\$446.48
100 (10 x 10 milliliters)	\$3.57 – \$5.82	\$356.99 – \$581.53
150 (10 x 15 milliliters)	\$3.01 – \$3.22	\$451.76 – \$483.35
200 (10 x 20 milliliters)	\$3.00 – \$3.21	\$599.18 – \$641.30
600 (6 x 100 milliliters)	\$2.74	\$1,641.65

Important: When there is a range of pricing, consumers should normally expect to pay the lower price. However, due to stock shortages and other unknown variables we cannot provide any guarantee.

Intravenous Solution

376.9 mg/mL (0.5 mmol/mL) Clariscan intravenous solution		from \$264.50 for 50 milliliters ^
Quantity	Per unit	Price
50 (10 x 5 milliliters)	\$5.29	\$264.50
100 (10 x 10 milliliters)	\$5.20 – \$5.71	\$519.50 – \$570.50
150 (10 x 15 milliliters)	\$5.16 – \$5.67	\$774.50 – \$851.00
200 (10 x 20 milliliters)	\$5.15 – \$5.66	\$1,029.50 – \$1,131.50
1000 (10 x 100 milliliters)	\$5.11	\$5,109.50

Important: When there is a range of pricing, consumers should normally expect to pay the lower price. However, due to stock shortages and other unknown variables we cannot provide any guarantee.

All prices are in USD