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Helping online customers discover images they love using Visual Search

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Abstract: Visii has built an artificial intelligence based technology that enables customers to search for images they like visually. All too often, browsing online is an unengaging and frustrating task because results aren't sufficiently relevant to what customers want. With Visii's technology, customers can discover new content by clicking on images they would like to see more of. This personalisation of the exploration experience ensures that results are consistent with customers' unique visual tastes and preferences at the time of looking, making Visii the most natural discovery process yet.

Keywords: Visii, visual search, artificial intelligence, AI, intelligent visual search, machine learning, recommender system, conversion optimisation, out of stock suggestions, merchandising, cart abandonment, personalisation and recommendations in real time, e-commerce, dating, casting, fashion, furniture, jewelry, art, photo stock repository, interior design, London

1. The success story

Headquartered in London, Visii is a Software as a Service company [1] on a mission to make information discovery easier. It built an artificial intelligence platform for visual content that improves customers' experiences of searching and discovering images online.

After their first client press release, in early summer 2017 [2], Visii has featured as one of three hot startups to follow in Amazon Web Services' (AWS) Blog and was invited to the AWS Summit 2017 as one of the UK's seven most innovative startups [3]. Their work has since been picked up by publishers like VentureBeat [4] and digital agencies like Digital Current [5] and Footprint Digital [6]. One of their large West Coast US clients raves about them saying:

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“After demoing a number of visual search products Visii was clearly the best. On top of that, the team has been a joy to work with, collaborating closely not just on the algorithms, but also on various front end solutions to make visual search a high-converting feature of our online Gallery.”

Chris Carlson - Sr. Product Manager, Saatchi Art.

2. How did it start

Visii was born out of the realisation that a simpler, faster and more engaging way to find content online must exist. Using keywords made sense for searching text, but did not for searching images.

Starting off as three people working full time, the team grew and onboarded experts in AI, machine learning, deep learning, applied mathematics, cybernetics, computer vision, UX, operations, sales, business development and marketing. They initially bootstrapped and advanced the technology in stealth to develop their novel visual conversational AI.

Visii took advantage of the buzz of the capital’s vibrant tech and intellectual ecosystem to attract some of the most technically able and creative minds the city had to offer. It enlisted PhDs from around the globe who had been attracted to the capital, including from Cambridge and Oxford in the UK. With their help, Visii was able to file 8 patents containing 138 claims of novelty at the European Patent Office.

When Visii eventually opened its capital structure, it onboarded a select group of business angels and one VC who invested more than GBP 2.5m.

3. The platform

Visii’s artificial intelligence platform underpins three core products that cater to distinct user needs: Visii Explore, Visii Collections and Visii Similar.

- Visii Explore enables customers to see personalised results pages tailored to their unique visual preferences. It leverages thousands of semantic features extracted from clients’ images using deep learning with customers’ real-time interactions to understand their in-the-moment tastes and preferences, making Visii Explore particularly well-tailored for browsing large catalogues of products and for suggesting out-of-stock ideas (Figure 1). It is Visii’s flagship product they call Intelligent Visual Search.
- Visii Collections learns grouping rules from human curated sets of images to generate new and similar suggestions enabling businesses to dramatically scale up lengthy manual processes, such as curating art collections or doing fashion merchandising.
- Visii Similar returns relevant product suggestions without the need to collect data or train recommender systems. Returning the most visually similar images that can be filtered by criteria such as stock availability, this solution provides an efficient way to help customers quickly see what similar items there are in a catalogue.

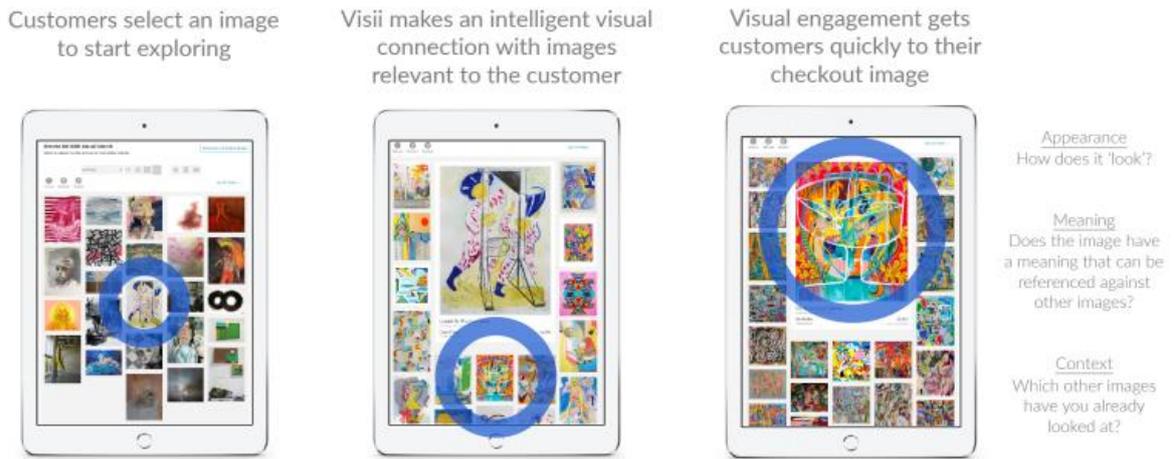


Figure 1. How Visii Explore works.

Integrating Visii products is extremely easy and adapted to clients’ individual needs. They can choose to implement Visii via API, widget or e-Commerce app, allowing them to use the solution best suited to their unique preferences and restrictions.

The impact of Visii’s AI platform on client KPIs [7] is notable (Figure 2). Visii achieved as much as 30% increase in conversions and contributed £1m in annual equivalent sales for a client selling products that had been otherwise ‘hidden’ when customers used only traditional keyword-based search & filtering tools.



Figure 2. Visii KPIs.

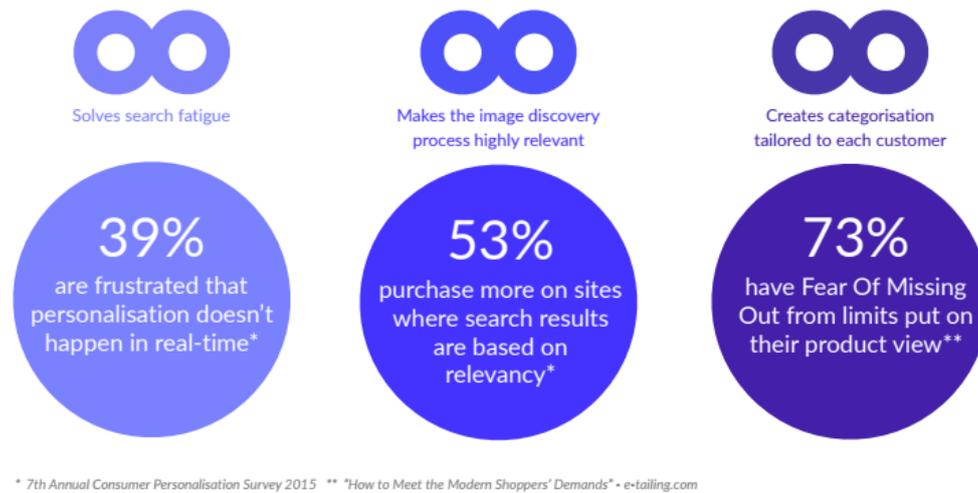


Figure 3. Problems Visii solves.

4. Strategic decisions

Visii made product development and IP protection their key initial strategic initiatives. Their third decision was to choose a B2B2C go-to-market strategy as a mean to rapidly and efficiently raise product awareness. In addition, this would give Visii necessary data enabling them to get a sense as to whether a B2C solution had enough traction, and the platform they needed to develop their next generation of products & services.

5. Looking to the future

Visii sees the future of human-to-electronic-devices interactions as dominated by vision and voice. Like how Amazon's Alexa responds to verbal instructions, users will increasingly expect to be understood through visual instructions to rapidly access the information and content they want. By enabling users to use simple selections on visual content to drive their discovery process, Visii leverages their inputs to instantly deliver meaningful results, Figure 3.

Visii's Intelligent Visual Search platform offers the basis for a more integrated and helpful information-access ecosystem. Such an approach broadens the horizon of possibilities to enhance human capabilities, giving people more time and better ways to do things the things they love.

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Arfa Karani is currently pursuing her PhD in Physics at the Cavendish Laboratory, University of Cambridge. Her research projects focus on going beyond the Shockley-Queisser limit to improve the current solar cell efficiencies.

While trying to understand the intricacies behind the science involved in converting solar energy into electricity, Arfa is interested in perceiving the applications of her research come to life. Her PhD is funded by various scholarships including the Nehru Trust for Cambridge University and the Trinity Henry-Barlow Scholarship.



She joined Innovation Forum in December 2016 and is now the Vice-President of the Cambridge Branch leading the Clean-tech sector. She is also acting as the IMAGINE IF coordinator for Cambridge, getting involved with young leaders and motivated individuals to learn more about and contribute towards the commercial impact of renewable energy sources in general, with a focus on solar energy. Arfa is interested in bridging the gap between the cutting-edge research in the field of renewable and sustainable energy and the commercial and political counterparts. To help bridge this gap, she also runs the SPIE Student Chapter based at the Cavendish Laboratory as the President of the chapter. The Student Chapter is aimed at bringing together all PhD students and the graduate research community working on optics and photonics through various events and seminars to accelerate collaborative research. It also aims to provide career development opportunities to all young scientists by providing a networking platform with industrial and academic leaders in the field.

David Libertalis, a French citizen, came to London from Brussels to do an MSci undergraduate degree in physics at Imperial College London, spending a year at the L.U.R.E. outside of Paris working on crystallography of human macromolecules. His first professional path, lead him to work in finance in both New York and London, covering the full gamut of investment asset classes. He worked at Credit Suisse and Donaldson Lufkin & Jenrette, before deciding to found Visii.

