

## Dr. Anthony Brew

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**Researcher, engineer, and technology leader** with >20 years of experience across academia, startups, scale-ups, and enterprises. Proven track record in technically guiding cross-functional teams, from small expert units (<10) to multi-department structures (>50), to deliver state-of-the-art AI enabled product suites which minimize technical and scientific uncertainty and while driving continuous customer impact.

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### Overview

**Formal Education:** University College Dublin, Post Doc, Machine Learning :: Comercialization; 2010 - 2011; University College Dublin, Doctor of Philosophy, Machine Learning :: Speaker Verification 2006 - 2010; Trinity College Dublin, Master of Science :: High Performance Computing, 2002 - 2003; Trinity College Dublin, Bachelor of Arts :: Mathematics, 1998 - 2002

**Hard Skills:** Generative AI, Recommender Systems, Automated Content Moderation, Audience Targeting, Text and Image Processing, Classical Machine Learning & Deep Learning, Anomaly Detection/Statistical Process Control, Software Engineering & Distributed Systems,

**Soft Skills:** Research Management, Product Management, Cross-Functional Team Leadership, Systems Design, Strategic Planning, Program Management, Agile Methodologies

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### Experience

**Senior Manager, Generative AI**  
**Shutterstock - Dublin, Ireland**  
*July 2023 - Present*

Shutterstock is a two-sided marketplace which enables contributors to sell images. Generative AI is a disruptor to this business model.

My team enables Shutterstock to deliver state-of-the-art Generative AI-powered image creation and editing tools. We have built a profitable credits-based product offering that strategically leverages multiple text-to-image models from external vendors e.g. (OpenAI & Google) strategic partnerships (e.g. Databricks ) and our own internal models to deliver a state-of-the-art image generation suite. We attain a 70%+ monthly retention rate, and we are driving rapid market share growth within stock-photography, currently we surpass several other significant media types served by Shutterstock. This has been enabled by cohesive UX & functional integration into Shutterstock.com accelerated by the following technical machine learning strategy:

- **Generative Model Optimization:** We have developed and deployed techniques to maximize the connection between user-intent and their written prompts through automated prompt refinement and parameter selection, improving conversion rates by up to 30% on some vendor supplied models.
- **Generative Model Recommendations:** We have delivered an automated text-to-image recommendation system that leverages contextual data (such as user prompts) to select the best text-to-image generators, increasing conversion rates by over 10% while maintaining fixed costs. This was enabled by deploying an in-house testing system that enables traffic routing/testing system at the user-input/prompt level speeding up validation time by ~100%.
- **Safety and Indemnity:** We have rolled out novel automated safety and indemnity moderation mechanisms that have achieved ~100% recall for core brand integrity areas (e.g. child safety), while maintaining high precision to avoid impacting non-violating users.

**VP of AI & Engineering**  
**Streetbees :: London & Lisbon (Remote)**  
*Oct 2021 - July 2023*

Streetbees is Series-B funded Marketing AI SaaS service that enables brands such as Pepsico and Unilever to understand market trends by aggregating insights from > 3.5 Million customers (Bees) "in-the-moment" of consumption. This is enabled via an AI-driven mobile chatbot platform which drives open-form surveys, automated annotation of survey responses and ML driven market insights based on the collected data.

I led the overall technology organization (>50) made up 3 [stream-aligned](#) teams; i; acquisition, ii; annotation and

iii; reporting. Each team had an engineering manager, leads, software developers, data science/machine learning, DevOps, QA, and data analysts with an embedded product lead. I was ultimately accountable for the technical and scientific direction for the overall organization and for each team to enable autonomous execution.

The following are some notable achievements my teams achieved in line with our technology & machine learning strategy;

- **Aquisition:** We enabled a 75% reduction in human moderation time needed for fraudulent image submission based on algorithms that automatically identified > 80% of near duplicate image submissions and screen captures as part of a review recommendation engine.
- **Annotation:** Manual coding costs were additionally reduced by >60% through the (re-)implementation of cross-modality deep-learning image and text classification system enhancing a legacy text-only classification system. This was achieved due to a 365% increase in automated codes discovered using a multimodal two-tower based classification paradigm to review the complete survey submission.
- **Reporting:** GPT-3's release enabled complete automation of the end-to-end survey curation & delivery, quality assurance, one-shot encoding, to also include automated research report writing based on the surveys we collected and annotated. The resulting product enabled client requirements and survey delivery to drop from > 2 weeks to days. This innovation led to a complete company pivot (away from syndicated survey's) to the green-field rapid deployment product we created [Streetbees-X](#).

### **Head of NLP Centre of Excellence**

**Zalando :: Berlin (Remote)**

*Jul 2020 - Oct 2021*

Zalando set up four Centres of AI Excellence to drive focus on enabling and seeding other Zalando teams with innovations from rapidly developing fields of (NLP, Image Processing, Econometrics and Forecasting).

I helped to set up and led the NLP Centre of Excellence. I was accountable for the technical, product, and scientific direction of the centre of excellence. An expert cross-functional team of 10 was made up of senior researchers, senior product managers, senior data engineers, and a data analyst. The goal of our department was to support and seed new technology teams across Zalando by facilitating by building new teams with leaders & technical teams in place to take incubated technologies forward and drive further product focused research.

Some accomplishments include:

- **Platform Capabilities** We developed and delivered a GDPR-compliant multilingual customer feedback search and message routing tool ingested data from 18 languages from over 40 different customer journey touch-points (e.g., return slips & online feedback forms) effectively capturing all of Zalando's customer feedback in a single platform.
- **Content Moderation** We incubated an automated moderation team for product safety based feedback from customer returns built on a [state-of-the-art](#) research developed by the center. It had a high recall (95%+) human in the loop automated escalation tool to forward safety concerns to their manual inspection team to expedite the removal of potentially unsafe products from Zalando.
- **Product Led Scientific Advances** We developed [novel text clustering techniques](#) that enabled easy discovery of new categories of customer feedback and product risks that made themselves present in incoming data. The team also developed one of the first [zero-shot classification](#) techniques built on top of the transformer architecture and contributed this into the [Flair](#) open source NLP project which was initially developed by Zalando research.

### **Board Member**

**Zalando SE**

*May 2018 - Jun 2020*

Member of the 8-seat supervisory board of Zalando alongside shareholder representatives Cristina Stenbeck (Kinevik), Anders Holch Povlsen (CEO Bestseller Group), Kelly Bennet (CMO Netflix), Mariella Röhm-Kottmann (KPMG), Alexander Samwer (Rocket Internet) and fellow Zalando employees Konrad Schäfers (Zalando) & Beate Siert (Zalando). Together we were ultimately accountable with the fiduciary care of Zalando covering significant policy changes, investments, divestment's, executive-level promotions and remuneration, and strategic investor and key brand relationship engagements.

### **Head of Customer Data Platform**

## **Zalando**

*Jan 2016 - Jul 2020*

Zalando is the largest fashion e-commerce platform in Europe. In 2015, Zalando aimed to rapidly expand its technical workforce. It did this by opening new technology hubs in Dublin & Helsinki.

I was a founding team member of the Customer Data Platform and became the Head of applied science for that department (being promoted up from Senior Scientist, to Manager to Head). I led a team of 25 made up of managers, applied scientists, engineers, and product managers. This was made up of three teams. 1/ Customer Preference Recommendations, 2/ Customer Price Predictions and 3/ Cross Device Graph. My teams built and integrated services across all of 4 Zalando's business units: Lounge, Markets, Zalor, ZMS, and Fashion Store.

Some accomplishments include:

- **Customer Preference Recommendations** Our fashion attribute recommendation services (e.g., category, brand, price) drove customer preference collection, recommendation carousels, personalized navigation, gift card recommendation, personalized newsletters, offsite targeted advertising, and as an implicit signal into search ranking. Each integration enabled by significant A/B test results that often demonstrated double-digit improvements in performance over existing solutions.
- **Audience Targeting** Our predictive audience generation tools were used by ZMS, Zalor, and Markets teams for reach and performance-based campaign targeting. Some of our early campaigns outperformed legacy systems by 40x.
- **X-Device Graph** Our cross-device graph replaced the marketing team's user association model for advertising attribution, leading to a 40% increase in attributed sales. We also integrated this into Zalando's A/B testing platform with double-digit de-noising for tests that leveraged cookies.

## **Lead Applied Scientist**

**IBM**

*Apr 2012 - Jan 2016*

Lead Applied Scientist in the IBM SmartCloud division responsible for invention, optimization, and delivery of machine learning software to optimize and simplify IT Network monitoring. I was hired into a product group driving machine learning enabled Metrics Management and helped form a new team focused on machine learning based event analytics.

Some notable achievements.

- **Event Analytics:** Part of a discovery team of two individual contributors that explored and built new event analytics capabilities, which successfully warded off immediate competitive pressure. Given clear market traction I helped grow a cross-functional team to 14 contributors covering the USA, UK, and Ireland with design, UX, engineering, and applied science. I prototyped, co-invented, co-developed concrete implementation of 16 patents around event analytics algorithms and technologies which when deployed enabled a 30% reduction of client workloads with a 10% reduction in Mean Time to Repair for the remaining workload.
- **Metrics Management:** I drove a software and analytics engineering redesign of the core of the metrics anomaly generation product. This redesign yielded a 1000X improvement in disk IO (3.5 GB writes per 5 minute interval reduced to 3.5 MB per interval) and a 40X speed up (5 minutes per interval reduced to 7 seconds) with a 2.5 X reduction in memory footprint (70GB reduced to 20GB). The redesign enabled "pluggable" independently testable machine learning extensions. This doubled the number of detection methods provided by the system (e.g., adding memory leak detectors) and reduced the false alerts raised by the system by 50%.

## **Data Scientist / Software Engineer**

**Swrve**

*June 2011 - Mar 2012*

Developed Swrve's SaaS A/B testing engine and implemented tracking metrics based on tracking event streams. Implemented front-end UX in Ruby & JQuery, backend in Java with a Redis, Cassandra, and MySQL storage layer, hosted on Amazon EC2.

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## **Hobbies & Errata**

- **Open Water Swimming (Dublin Swimming Club) & Water Polo (Sandycove)** I'm an active member of Ireland's oldest swimming club Dublin Swimming Club and once a year you will find me swimming Dublin's Liffey, Dun-Loaghaire Harbor, Glendalough and Irelands Eye to Howth (without a wetsuit, but with togs!). I play a little Water-Polo (without horses!) with Sandycove in the Leinster League and my kids.
- **Technology Projects, 3D printing & building actual things** I'm a builder, I enjoy designing and building things tangible things, from Halloween gadgets, to 3D printed replacement parts to garden sheds. I also like to attack things with code, such as the site I build for my Dad which leveraged optical character recognition & generative text & image processing to help digitize his [lifes work](#). I also bake a mean pineapple upside down cake!