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.

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 Recomendations**: 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-alligned](#) 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 applied science 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 where 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 such as NLP.

I led the first of the new centers, 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 3 senior researchers, 2 senior product managers, 3 data engineers, and a data analyst. Our goal as a department was to support and seed new technology teams across Zalando by facilitating the hiring and building of new teams with leaders & technical teams to take the incubated technologies forward.

Some accomplishments include:

- **Platform Capabilities** We developed and delivered a GDPR-compliant multilingual customer feedback search and message routing tool that injested data containing 18 languages from over 40 different customer journey touch-points (e.g., return slips & online feedback forms) effectively capturing all of Zalandos customer feedback in a single platform.

- **Team Incubation** 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 product risks that made themselves present in the data. The team also developed one of the first [zero-shot classification](#) techniques built on top of the transformer archtcture and contributed into the [Flair](#) open source NLP project which was initially developed by Zalando research.

Board Member
Zalando SE
May 2018 - Jun 2020

One of 3 employees representative who sat on the 8-seat supervisory board of Zalando charged with fiduciary care of the company. Along with my peers on the board we were accountable to ensure due diligence was applied to significant Zalando policy changes, investment, divestment's, reviewing executive-level promotions and remuneration, and partook in 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 Recomendations, 2/ Customer Price Predictions and 3/ Cross Device Graph. My teams built and integrated services across all of 4 Zalandos business units: Lounge, Markets, Zalon, ZMS, and Fashion Store.

Some accomplishments include:

- **Customer Preference Recomendations** 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, Zalon, 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 (3 years 10 months)

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.

Event Analytics: - Part of a discovery team of 2 that explored and built new event analytics capabilities, which successfully warded off immediate competitive pressure. - Helped grow the team to 14 contributors covering the USA, UK, and Ireland with design, UX, engineering, and applied science. - Invented and developed a patented set of event analytics suite of algorithms that enables a 30% reduction of client workloads with a 10% reduction in Mean Time to Repair for the remaining workload. - Lead author on 16 patents, became a member of the IBM Ireland and Tivoli Patent Review Committees.

Metrics Management: - Led a software and analytics engineering redesign of the core of the metrics anomaly generation product. - This yielded a 1000X improvement in disk IO (3.5 GB writes per 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). - Continuous Improvement was enabled by "pluggable" independently testable extensions. Using this, we doubled the number of anomaly 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.