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 which transform Shutterstocks immense but limited media catalog into an infinite resource. We have transitioned from a single model DALL-E 2 based β-suite into a profitable dedicated credits-based licensing model that strategically leverages multiple text-to-image models from OpenAI, Google, Amazon, a Databricks partnership and an internal Stable-Diffusion deployment to deliver the best text-to-image generator on the web that treats image creators equitably. Our product-suite has driven a 70%+ monthly retention and is driving rapid market share growth, surpassing 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 award-winning Marketing AI SaaS service built that enables brands such as Pepsico and Unilever to understand market trends by agrregating insights from 3.5 Million customers "in-the-moment" of consumption through an AI-driven mobile chatbot platform.

I directed the 50+ technology organization made up 3stream-alligned departments; i; acquisition, ii; annotation and iii; reporting. Each department had an engineering manager, software developers, applied science, DevOps, QA, and data analysts with a product lead (reporting into the CPO). I was accountable for the technical and scientific direction for each tribe to enable autonomous execution.

Some core achievements that our teams acheived in line with our applied science strategy;

- **Aquisition:** We enabled a 75% reduction in QA time on fraudulent image submission based on algorithms identifying 80% of near duplicate image submissions and screen captures as part of a review recommendation engine.
- **Annotation:** Manual coding costs where reduced by >60% through the (re-)implementation of cross-modality deep-learning image and text classification system from a naive text-only based shallow nueral network. This was achieved due to a 365% increase in automated codes discovered by extending automatic coding to include images using a multimodal two-tower based classification paradigm.
- **Reporting:** The general release of GPT-3 enabled full automation of the end-to-end survey curation, quality assurance, one-shot encoding, to also include automated research report writing based on the surveys we collected and annoated. Our product enabled client requirements and survey deliver to drop from > 2 weeks to days. Streetbees-X.

Head of NLP Centre of Excellence
Zalando :: Berlin (Remote)
Jul 2020 - Oct 2021

Zalando wished to expedite moving near-term research innovation from the Zalando research team so that the business would have more immediate benefit, and Zalando research could focus on blue skies research. Four Centres of AI Excellence were planned to focus on enabling and seeding other Zalando teams with near and mid-term innovations. This is where recent advances in the state of the art (e.g., in NLP) would have immediate and near-term (1-5 year) impact.

I set up and led the first of the new centers, the NLP Centre of Excellence. I provided technical, product, and scientific leadership for the nascent Natural Language Processing (NLP) Centre of Excellence. Our initial cross-functional team of 10 was made up of 3 senior researchers, 2 senior product managers, 3 data engineers, and a data analyst. The team was planned to grow to >20. I set and communicated the strategic product, technical, and scientific direction in collaboration with my product, science, and technology team. The department seeded new teams across Zalando by hiring and building pre-baked teams with leaders to take those teams forward. The department also built a foundational NLP platform product which acted as an anchor to enable continual research in the center.

Some accomplishments include: - Two leads from the center now lead new teams based on work they developed in the center (a new customer reviews applied science and engineering team & a new semantic search applied science and engineering team). - Led product discovery, architecture, and early implementation of our core customer feedback analysis product "classlytics". Classlytics was GDPR compliant by design enabling multilingual search and message routing of customer feedback for 18 languages from over 40 different customer journey touchpoints (e.g., return slips & online feedback forms). The product safety inspection team used it as 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.

Board Member
Zalando SE
May 2018 - Jun 2020 (2 years 2 months)

German companies are "co-determined," that is, they are led by a board of directors that is split between shareholder representatives and employee representatives. I was invited to apply for a vacant position on the board given my background in machine learning and technology that was deemed to be highly complementary to the wider board structure.

I was one of 3 elected employees on the 8-seat supervisory board of Zalando charged with fiduciary care of the company. I participated in quarterly board meetings and ensured due diligence was applied to significant Zalando policy changes, investment, divestments, reviewing executive-level promotions and remuneration, and partaking in strategic investor and key brand relationship meetings. For example: - Oversaw the divestment in the Brieselang Logistics site, Zalando inhouse fashion brand, Kickz, Bread & Butter, and the closure of the Lisbon technology hub. - Oversaw the expansion of the board from the 3 original founders to 5. - Participated in strategic offsites and round tables with Kinnevik and Nike. - Raised issues with the process and the algorithmic evaluation of employees, which helped to drive change in the bi-annual employee appraisal process.

Head of Customer Data Platform
Zalando
Jan 2016 - Jul 2020 (4 years 7 months)

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. The Zalando Dublin site was set up to be a data science innovation hub, known as the Fashion Insights Centre. Three departments were set up on the site: the fashion content platform to provide insights into the latest trends in fashion, the smart product platform to enable deep and rich metadata about products onboarded onto the platform, and the customer data platform to provide a 360-degree view of customers interacting with the platform. The core challenge for all these departments was to integrate into the wider Zalando business.

I was an early founding team member of the customer data platform and eventually became the head of applied science for that department. At the department's peak, I led a team of 25 managers, applied scientists, engineers, and product managers, enabling teams to leverage factual and predicted customer data to optimize customer experience. I helped propose, design, and build services that were integrated into the business processes of 4 Zalando business units: Lounge, Markets, Zalon, ZMS, and Fashion Store.

Some accomplishments include: - Our fashion attribute prediction 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. - Our audience generation tools were used by ZMS, Zalon, and Markets teams for reach and performance-based campaign targeting. Some early campaigns outperformed legacy systems by 40x. We also developed a full customer segmentation model known as Z-types in collaboration with ZMS, which features in Zalando's 2017 annual report. For example, Z-Types were leveraged by G-Star to reach 8 Million Users selling 35K items. - 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.

Head of Department (Jan 2019 - July 2020) **Engineering and Applied Science Manager (April 2017 - Jan 2019)**
Senior Product Manager (Feb 2017 - April 2017)
Lead Applied Scientist (Jan 2016 - Feb 2017)

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.