Dr. Anthony Brew

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Summary

Researcher, engineer, and technology leader with 20 years of experience across academia, startups, scale-ups, and enterprises. Proven track record in guiding cross-functional teams, from small expert units (<10) to large multi-department structures (~60), to deliver state-of-the-art applied science product suites that minimize uncertainty and drive continuous customer impact. A hands-on leader who combines deep technical expertise with strategic direction, enabling teams to own and execute product visions autonomously. Products span recommender systems in e-commerce, generative AI, audience targeting in advertising, text and image processing across domains, and IT infrastructure monitoringâ€”all designed to maximize impactful product innovation via organic team-led invention.

Skills

Machine Learning, Software Development, Product Management, Cross-Functional Team Leadership, Systems Design, Strategic Planning, Program Management, Agile Methodologies

Education

- University College Dublin, Post Doc, Machine Learning Industrialization, 2010 - 2011
- University College Dublin, Doctor of Philosophy, Machine Learning, 2006 - 2010
- Trinity College Dublin, Master of Science, High Performance Computing, 2002 - 2003
- Trinity College Dublin, Bachelor of Arts, Mathematics, 1998 - 2002

Experience

Senior Manager, Generative AI

Shutterstock - Dublin, Ireland
July 2023 - Present

Leading the Generative Experience AI team to develop Shutterstock's AI-powered image creation and editing tools, transforming its media catalog into an infinite resource. Transitioned a DALL-E 2-based beta suite into a dedicated credits-based licensing model, leveraging models from OpenAI, Google, Amazon, and in-house Diffusion systems. The product has driven 70%+ monthly retention and rapidly growing market share, comparable to other major media types on Shutterstock. Key achievements include:

- **Model Optimization**: Developed techniques to maximize the connection between user intent and their written prompts through prompt rewriting and translation, improving conversion rates by up to 30% compared to external vendors.
- **Automatic Model Routing**: 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.
- **Safety and Indemnity**: Rolled out novel automated safety and indemnity protection mechanisms that 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 a multi-award-winning Marketing AI SaaS service built on AWS that enables brands such as Pepsico and Unilever to connect with 3.5 Million customers "in the moment" of consumption through an AI-driven mobile chatbot survey and data processing system.

In May 2022, my management portfolio was expanded from AI and data engineering to cover the entire 50+ technology organization. This is composed of senior engineering managers, tech leads, software developers, applied science, DevOps, QA, and data analysts. In collaboration with product leadership, we restructured the product and tech org into 3 cross-functional mission-oriented tribes. I helped set product, technical, and scientific direction for each tribe to enable autonomous execution.

Some examples observed since the change: - Manual coding costs reduced by 60% through implementation of task realignment and online precision and recall monitoring of the crowd workforce combined with full automation of the train-deploy machine learning annotation system. - A 365% increase in automated codes discovered by extending automatic coding to include images (not just text) in a move to a multimodal two-tower classification paradigm. - 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.

The release of ChatGPT in November 2022 enabled my team to build a fully automated end-to-end survey curation, quality assurance, one-shot encoding, and report writing product that that has been released as 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 *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.