Miles Thompson

AI / Data Science / Developer

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I 'deploy models and know things'. I love helping people smarter than me realise their vision.

EXPERIENCE HIGHLIGHTS

Te Hiku Media, New Zealand   2020 –
Machine Learning Engineer / AI Lead Dev
- Machine learning engineer, technical architect, developer and dev-ops, building and deploying 100% custom AI models at cloud scale using PyTorch, Python, FastAPI, Kubernetes
- The contributions of our small research lab were recognised when *our founder appeared on the **Time100 most influential people in AI list**, in 2024*

Chatterize / Speakia, New Zealand / China   2019 – 2021
Contract CTO
- Brainstormed strategy, helped with pitching, chose the AI platform, hired development team and led early development and deployment of our AI based language learning app
- After achieving hockey stick shaped user growth in the complex Chinese mobile app market, and a rebrand as "Speakia", we were ***acquired by EduMaxi, May 2022***

CreditSights, New York, USA   2005 – 2019
Chief Technology Officer (CTO)
- As first CTO, then senior technical architect, helped build the early risk tools, product stack and financial modeling capability of this well-known New York financial research company
- My contributions are reflected in strong growth during our startup phase, while I was CTO, as well as solid revenue growth to $50m+ during my time there overall. CreditSights was ***acquired by Fitch Ratings in 2020***

EDUCATION

BSc Hons I, Maths, University of Otago, New Zealand   1995
First class honours — Mathematics (aka "Summa cum laude").

BA, Sociology, University of Canterbury, New Zealand   1994
Bachelor of Arts — Sociology

SPECIFIC SKILLS - HIGHLIGHTS

Cloud / AI / Dev Ops: AWS, Kubernetes, Terraform, Azure, FastAPI, Bash, Linux
Data science / neural models: Python, PyTorch, Tensorflow, NeMo, Pandas, Numpy, Transformers, Conformers, GANs, Bayesian modeling, Financial Risk Models
Web development: ReactJS, NextJS, VueJS, Angular, Firebase, Wordpress, Apache, Network Ops,
Product development: UX, Design, Figma, Lean methodology, Customer discovery, Startup founder
Preferred programming languages: Python, C#, Infrastructure as code (Terraform/YAML etc)

EXPERIENCE - HIGHLIGHTS AS INDIVIDUAL CONTRIBUTOR

'Connie' - Speech recognition and synthesis for Māori and NZ English   2021 - 2024
Machine learning engineer, AI lead dev
- Led development of a bilingual, AI language model, from scratch *without using any dubiously obtained data.*
- Managed, architected and built cloud based kubernetes cluster to deploy highly scalable AI API at https://papareo.io
- Achieved *higher accuracy than any other vendor* for our target languages, including in the NZ English subset.
- Our benchmarks and process were published at **NeurIPS 2024. Fit for our purpose, not yours: Benchmark for a low-resource, Indigenous language**
- I also presented our research at **ICML 2023: Enabling a sovereign digital future for indigenous languages**

'Rongo' - On device pronunciation feedback   2021
Machine learning engineer, individual contributor
- Conceived and coded an on-device "pronunciation feedback" model using internal values of neural model
- Presented research as a poster at **NeurIPS 2021 conference: Scoring pronunciation accuracy via close introspection of a speech recognition recurrent neural network**
- Achieved first in education and fifth overall in the NZ IPhone App market for our 2021 app https://rongo.app

Resilience App: Bayesian simulation for communications in a disaster   2019 - 2021
Mathematical modeler, project founder, open source contributor
- Authored a white paper and code simulating the impact of prioritized messaging in a disaster situation
- Identified ways that resilient communications can transform aid and finance to the developing world and reliable communication during disaster or crisis situations
- Based on this work, co-founded and helped organise hundreds of volunteers to deliver food via an app in LA during the early months of the COVID pandemic, resulting in the 'resilience app' open source project
- Thousands of boxes of donated food were delivered and hundreds of volunteers contributed to the app

Reserve Bank of New Zealand: Empowering financial modeling   2019
Contract programmer
- Optimized performance of mission critical Reserve Bank database and ETL process for acquiring, aggregating, filtering and analyzing data from reporting financial institutions
- In a short contract we succeeded in delivering a five fold performance improvement and other user experience improvements over an already heavily optimized system. Garnered a lot of appreciation from banking analysts for making their jobs easier and more productive

RealityVirtual: Virtual reality assets from photographs   2019
Machine learning engineer
- Trained a generative adversarial network (GAN) that generates the digital assets necessary for high fidelity virtual reality from simple photographs (texture maps, bump maps)
- Deployed a working demo of our model as an interactive web tool. Received positive investor interest

CreditSights   2005 - 2019
Technical architect, 'all of market' daily bond pricing system
- Re-architected and implemented an ETL process that ingests all of market daily bond pricing. Optimized a process that used to run once a week so that it could run in a few hours while simultaneously building a faster more accessible system, empowering analysts to make easier queries and calculations.

Technical architect, GraphQL based API
- Technical architecture, team lead and hands on implementation for a GraphQL based API to provide content and financial data, interactive financial risk models and other content via a JSON end-point

The Great Outdoors: Algorithmic theater before generative AI was a thing   2016 - 2017
Machine learning engineer, member of troupe
- Created a machine learning model to realise the theatrical vision of renowned director Annie Dorsen and her troupe, creating an ever changing theater piece incorporating the current zeitgeist based on 'found text'
- Built a custom data pipeline that sifts, classifies and selects text from the internet based on measures of entropy and other semantic factors and deployed it into a form factor that could travel with the troupe
- *The Great Outdoors opened to good reviews in The Netherlands, Paris, Berlin, New York, and Boston (review)*

Hashmapd: Applying 'deep learning' to social media, in the early days of deep learning   2010 - 2011
Machine learning engineer, startup founder
- Along with my co-founders Dr Abraham and Dr Frean, used early deep learning models to process social media text using 'semantic hashing'
- Built a product demo, explored potential investment but ultimately made all our code open source in 2014

Medigenesis: medical collaborative filtering and cluster analysis system   2000 - 2001, 2008
Technical architect, technology lead, co-inventor
- Working with digital medicine pioneer Dr Sidney Baker (MD) led a team of eight developers to realise his vision for applying statistical techniques to medical data. The system recommends treatments that work for 'others like you' based on medical profile, especially effective for complex and chronic diseases
- Along with Dr Baker, was awarded a patent for work completed in 2001. Patent granted 2009
- Later, in 2008 helped secure funding to pivot to a non-profit structure and relaunched the project as 'Autism 360'

TESTIMONIALS

Shaun McCarthy: Research Engineering Leader, Object Indexing @ Reality Labs (Meta)
Shaun was my direct manager at CreditSights 2008 - 2013

Miles is easily able to switch from thinking from a customer point of view, to a business point of view, and then a technical point of view. This allows him to come up with innovative solutions that make the appropriate trade-offs between functionality, delivery times & costs as well as long term efficiency. He's externally aware, and not limited by "not invented here" - often coming up with simple ways of removing complexity from a problem, leading to people commonly wondering "now, why didn't I think of that?".

Judith Chinitz: MS, MS, CNC Co-Founder Biome Restoration Ltd
I worked for Judy as a software vendor on Medigenesis (2000 - 2001) and later on Autism360.org (2008)

I have known Miles for almost two decades. I worked closely with him for several years on a highly innovative, complex and extensive internet-related project. He is a brilliant man, not only knowledgeable in his chosen field but in so many other ways. Miles is one of those all-too-rare minds: a truly creative and out-of-the-box thinker, with genuine intellectual curiosity. He learns for the joy of learning, exploring many areas of interest with passion and insight. Perhaps most importantly of all, Miles is a truly good man.

I will never forget how, in a moment of extreme professional crisis for me, he was the one person to stand by me and offer help for no reason other than I needed it. He was also the only one to volunteer enormous amounts of his time to provide me with the computer expertise I do not have, when trying to resurrect an internet site for a worthy cause. I cannot recommend Miles highly enough. For almost 20 years I have considered it an honor to be considered his friend. And should the opportunity ever arise again to work with him, I would be the first to jump at the chance.