# MilesThompson

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20+ years stellar experience as developer, technical architect and tech lead in key positions on Wall Street and in New Zealand. Startup co-founder, machine learning engineer, scrum master, team player.

## Skills

- Technical leadership and proven track record of on-time delivery of successful IT projects
- Hands on, senior developer in all things Microsoft and .NET (C#, Azure, SQL-Server etc..)

- Web (NodeJS, Angular, React, Design)
- Data (Modeling, Python, Machine Learning, AI)
- Team Leadership (Scrum, Agile, Founder)
- Strategic Leadership (Technical, Business, CTO)

## Selected Experience

MAR 2018 –
### AI and Distributed Systems / GoodBright Consulting

As a consultant, I have successfully designed, trained and deployed machine learning solutions for three different clients since going out 'on my own' last year. I have also provided strategic business advice, helped with Bayesian modeling and been co-author of a whitepaper on the mathematics of complex distributed systems.

2002 – MAR 2018
### CTO, Technical Architect / CreditSights Inc, NYC

As the first CTO, I built an effective technology team and the first few iterations of the flagship financial products at CreditSights. I established significant capacity in product development, internal systems and desktop support. After return to NZ, as technical architect, I helped grow out the company's product offerings, facilitated expansion to multiple offices, revenue growth to over $50mm and our leading position in independent financial research.

## Education

DECEMBER, 1995
### BSc Hons I, Math / University of Otago, NZ

First Class Honours, Mathematics, aka "Summa cum laude".

DECEMBER, 1994
### BA, Sociology / University of Canterbury, NZ

JUNE 2016
### Certified Scrum Master / *Scrum Alliance*

# Recent Experience

MAY 2019 -
## Technical Advisor / Chatterize

Technical advisor on the Chatterize Advisory Board, with a particular focus on machine learning as applied to speech recognition, natural language understanding, conversational interfaces, and learning assessment for the Chinese ESOL market.

**Platform/Skills**: Speech Recognition, Speech Assessment, WeChat, Natural Language Understanding, Machine Learning, China

JUL 2019 –
## Data Optimization / Reserve Bank of New Zealand

Working with a team from Reserve Bank I helped achieve a more than fivefold performance improvement in a system for tracking and aggregating balance sheet and other financial data. This work involved analysis and optimizations in the performance of the desktop Excel Add-in, the .NET service-oriented middle tier, and in the SQL Server database and will enable a much-improved capability for economic and statistical analysis of NZ regulated financial institutions within the reserve bank.

**Platform/Skills**: SQL Server, C#, .Net, Asp.Net Web Services, WSDL, SOAP, Excel Add-In

AUG 2018 – JUN 2019
## Data Modeling, Consultancy / Private Contract

Working closely with well-known Kiwi startup founder on his latest project I developed new mathematical models for channeled communication networks that can transform aid and finance to the developing world as well as communication during disaster or crisis situations. Much of this work is under NDA but has included writing a white paper and building network simulations in C#, Bayesian models and other work in Python. It also included building a prototype mobile app in react-native.

**Platform/Skills**: C#, Machine Learning, React Native, Distributed Networks, IPFS, SSB, DAT, Bayesian Modeling

JUL 2018 – JAN 2019
## Machine Learning Engineer, AR / RealityVirtual.co

Working with the team at RealityVirtual.co I built, trained and helped create a command line deployment for a machine learning pipeline that can generate 3D assets such as diffuse light textures and bump maps from a simple photograph. This technology will save creatives and studios many hundreds of hours. RealityVirtual continue to push the quality envelope with this pipeline in their client work but we have also had significant interest from the industry in commercializing this product.

**Platform/Skills:** Python, Tensorflow, Pytorch, Image Processing, CNN, GAN, RNN, AR, VR, 3DFX

MAR 2018 – JUN 2019

## Machine Learning Engineer, ASR / Te Hiku Media

Developed a first of its kind, end-to-end automated speech recognition system for te reo Māori. This work has involved the organization of data, configuration, and training of full end-to-end, deep neural speech models on a new language. We also tested Markov based approaches, developed a text to audio prototype and explored speech assessment aspects. I also played project management and technical leadership roles on this project. We are very proud of the high levels of accuracy of our speech model and I will soon be pushing some enhancements to the deep speech pipeline back upstream to Mozilla DeepSpeech.

**Platform/Skills:** Python, Machine Learning, AWS, Tensorflow, CMU Sphinx, Markov Modeling, DeepSpeech, RNN

AUG 2008 – JAN 2018

## Technical Architect / CreditSights.com

After stepping down from CTO role at CreditSights, I returned to NZ with my family and acted as a senior technical architect, design lead and occasionally scrum master across a number of successful projects.

- Technical design lead on the GraphQL based API which provides the flagship CreditSights content and numerical risk information via a JSON end-point to a React web front end. I also worked closely with the front-end engineers on this application.

  **Platform/Skills**: C#, .Net Core, Node, .Net MVC.API, GraphQL, ElasticSearch, React, Javascript

- As scrum master and technical design lead (very hands on with coding) I created a lighthouse project that allowed our financial analysts to track, comment on and share financial fundamentals in Excel and via the Web, share and comment on various calculated formulas and other derived and summary data about the companies they analyze and then approve this for publication on the web, and in our PDF presentations.

  **Platform/Skills**: C#, .Net MVC, Angular, Node, Excel DNA, VSTO, SQL-Server, Scrum

- As data engineer I built a system to receive entire-market daily bond pricing for the BAML indexes, perform calculations (such as bond return and volatility, and custom calculations) store this information in a way optimized for efficient query and processing and then made this pipeline accessible to our more technical financial analysts so they could add their own calculations to the process. I optimized a batch process that used to run once a week, so that it could process in minutes while simultaneously making the system much faster, more accessible and more extensible for more complex calculations and faster querying.

  **Platform/Skills:** C#, SQL-Server, ETL, Python, Luigi, Airflow, Apache Spark, DataBricks, Azure, AWS

- As a hands-on C# programmer, technical architect, and (sometimes) product owner / project manager I led development on the flagship financial products of numerical financial models and written analysis through multiple major product iterations over many years.

  **Platform/Skills:** C#, SQL-Server, Asp.Net, .Net Core, CMS, Python, R, CI, CD, Dev-Ops

SELECTED PERIODS, 2017, 2018
## Machine Learning Engineer, NLP / The Great Outdoors

Working with renowned theater director Annie Dorsen, I created a data pipeline to download sentences from the global social stream and, using customized machine learning techniques, generate a unique script for each performance. The show has opened in The Netherlands, Paris, Berlin, New York, Boston and is still touring.

**Platform/Skills**: Python, Machine Learning, GenSim, Apache Spark, Motorway, NLP, Text Modeling, Entropy Modeling

2013 - 2014
## Machine Learning Engineer, NLP / Hashmapd.com

With my co-founders, Dr Abraham and Dr Frean, I built a pipeline that processes tweets, computes their semantic hash (using a custom NN) and draws a density map of the people based on what topics they discuss. We validated a strong market demand for the social media 'semantic intelligence' products but in the end did not pursue this fully. We are proud of the techniques and custom pipeline we developed (now open source) as well as in having been some of the first to build commercial applications based on Dr Geoffrey Hinton's 'deep learning' research.

**Platform/Skills**: Python, Machine Learning, Theano, CouchDB, T-TSNE, Lean Startups, Customer Development, Co-Founder

2008-2009
## Team lead, Developer / Autism360.org

After helping to ensure funding from the Moody's foundation in 2008, I put together a team of remotely distributed developers, and designers and built a cutting-edge 'medical collaborative filtering' site for families affected by autism. Going way beyond simple information site, this site allows you to enter the symptomatic data of people on the autism spectrum and then using clustering techniques (for which I was awarded a patent) recommends 'treatments that have worked well' for 'other people like you'. I am proud to have helped many people and families on the spectrum, though I myself am neuro-typical.

**Platform/Skills**: Java, SQL-Server, XSLT, Web Design, UX, Collaborative filtering, Team Lead, Co-Founder

MAR 2002 – AUG 2008

# Chief Technology Officer / CreditSights.com

CreditSights is the leading independent financial research provider, providing written analysis and quantitative models of the fixed income market on a subscription basis. When I started, we were a small group of less than fifteen people (with me as the 'tech guy'). When I left, we had annual revenues over $50mm.

During my time as the first CTO we upgraded all critical systems at least once, sometimes twice. This included Accounting, ERP, CRM, Business Information dashboards, systems support, server hosting and significantly improved in-house infrastructure across backup, email, desktop support as we expanded across three remote offices (London, Boston, Hong Kong).

On the product side I managed two major rewrites of the flagship financial analysis and quantitative analysis product as well as many interim upgrades. During my time we explored a range of product ideas in desktop/web financial risk products across various delivery factors (mobile, desktop, web) and various markets (retail wealth management, equity, fixed income). I ensured we always had the best of class systems needed by a fast growing, early stage and believe our strong early growth over the years that I was CTO are a testament to my success in this area.

**Platform/Skills**: C#, Microsoft.Net, Business Strategy, Technical Leadership

1999-2002

# Technical Architect, Technical Sales / Cyber Elves

As project manager, client liaison and later technical sales lead for the New York office of our NZ Based development agency I delivered multiple successful projects. Designed and delivered a patented cutting-edge medical project using UML, Java, Oracle, XML, SQL-Server. Leading teams of up to ten developers I managed successful delivery of six different projects for various clients primarily in Java, ASP, Perl, JavaScript, web 1.0 technologies. Built encryption module in Oracle PL-SQL.

**Platform/Skills**: Java, SQL-Server, Perl, Oracle, Team Lead, Sales

1998

# Programmer / Solnet NZ

Created proof of concept, back end internet banking architecture for the National Bank of NZ. Delivered a Microsoft COM to CORBA bridge using Java, J++, EJB (iPlanet), Visigenics.

**Platform/Skills**: Java, J++, Microsoft COM, Banking, Corba, J++

1997 - 1998

# Programmer / Reuters NZ

Designed and delivered a real time electricity market and news infoweb site using Visual Basic, Reuters Triarch, Java, Javascript. Designed and delivered a Y2K compliance tracking database utilizing UML/RUP methodology, MS-Access and ASP in under 4 weeks.

**Platform/Skills**: Reuters Triach, Visual Basic, UML, MS Access, Classic ASP

# AWARDS AND PAPERS

**Patent, 2001,** Co-Inventor medical collaborative filtering and cluster analysis system
(Patent granted 2009: https://patents.google.com/patent/US20030061072)

**Moderator, March 2002**, "Enterprise Content Management" panel discussion
New York Software Industry Association, Annual Software Summit.

**Academic paper, February 1997**, "Sausage Software Intranet - Evolution in free fall".
Australian Computing Society. Lorne, Victoria, Australia

**Academic paper, November 1995**, "A Neural Statistical Hybrid"
International Association of Neural Networks and Expert Systems Proceedings, Dunedin 1996

# TESTIMONIALS

## Shaun McCarthy

Senior Manager, Machine Learning & Relevance, Amazon Video
*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, deliver 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?".

I miss our rapid-fire white-boarding sessions: whether they be covering what roadmap items will deliver the most customer value for our investment, or which components should be separated out in our architecture to ensure long term flexibility, or if matrix factorization or topic modelling would lead to customers finding content on our site more easily. Miles realizes that calculated risk taking is crucial when delivering quickly, understanding that many decisions are reversible and do not need extensive study. When something doesn't quite work as expected, Miles is deeply self-reflective, and constantly looking at ways to improve, being vocally self-critical - even when others would feel this is awkward. This helps him earn the trust of others, and lift everyone to a higher standard.

## Judith Chinitz

MS, MS, CNC Co-Founder Biome Restoration Ltd
*I worked with Judy as co-founder of Autism360.org (2007-2008) and in other roles.*

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 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.

# REFERENCES

On request, I would be glad to provide references who can confirm and expand on the details described above