

J. ANDREW HOWE, PHD

Produce actionable analytic insights to solve complex challenges and improve business performance



Extensive Formal Education from the United States:

- Bachelor of Science – Applied Mathematics, minor in Physics
 - I took every math and physics course the school offered, as well as a full year of chemistry. This is where I was first introduced to software development.
 - I spent my best \$2,000 ever, to purchase my first PC (66 MHz & 4 MB RAM!).
- Masters of Business Administration – concentration in Finance
 - I completed my MBA part time in less than 2 years, while working full time.
- Masters of Science in Statistics
 - I began my machine learning research career when I was still a masters student, and presented my first novel ML algorithms & results at an international conference the year after completing the degree.
- Doctor of Philosophy in Statistics
 - Doctoral Thesis: A New Generation of Mixture-Model Cluster Analysis with Information Complexity and the Genetic EM Algorithm
 - My thesis eventually resulted in two academic publications.

Data Science / Machine Learning / Predictive Modeling / Algorithm Development / Quantitative Risk Modeling

Strong Believer in Continuing Education:

- [Machine Learning with TensorFlow on Google Cloud Platform Specialization](#) – Google / Coursera
- [Deep Learning Specialization](#) – deeplearning.ai / Coursera
- [Data Structures and Algorithms Specialization](#) – University of California San Diego / Coursera
- [Big Data Specialization](#) – University of California San Diego / Coursera
- [Apache Spark for Machine Learning & Data Science](#) - databricks
- [Energy Risk Professional](#) – Global Association of Risk Professionals
- Business Writing Course – Coursera
- Emotional Intelligence (2-day) and Executive Presence (3-day) Seminars – [OLE Consulting](#)



Practical Expertise in Relevant Topics:

- Data Science & Machine Learning
- Statistical Analysis & Forecasting
- Algorithms & Predictive Models
- Business Processes & Analytical Solutions
- Database Development

Acquired in Various Industries:

- Finance
- Healthcare
- Electric Utilities
- Oil & Gas
- Insurance

Interesting Machine Learning Modeling Projects - Energy:

- I created an easy-to-understand constrained stochastic optimization algorithm to minimize total power generation cost in a partially-connected electric grid in the United Kingdom. The journal of a prestigious business school published the model and results; I also presented them at a risk modeling conference.
- I built Monte Carlo simulation-based business risk models for topics including: oil & gas upstream cash flow forecasting, drill vs. don't-drill decision-making, spark-spread gas plant valuation, and renewable energy (solar and wind) generator valuation. Further, I also developed *Introduction to Energy Risk Modeling* training materials and delivered to multiple clients.

Interesting Machine Learning Modeling Projects - Finance:

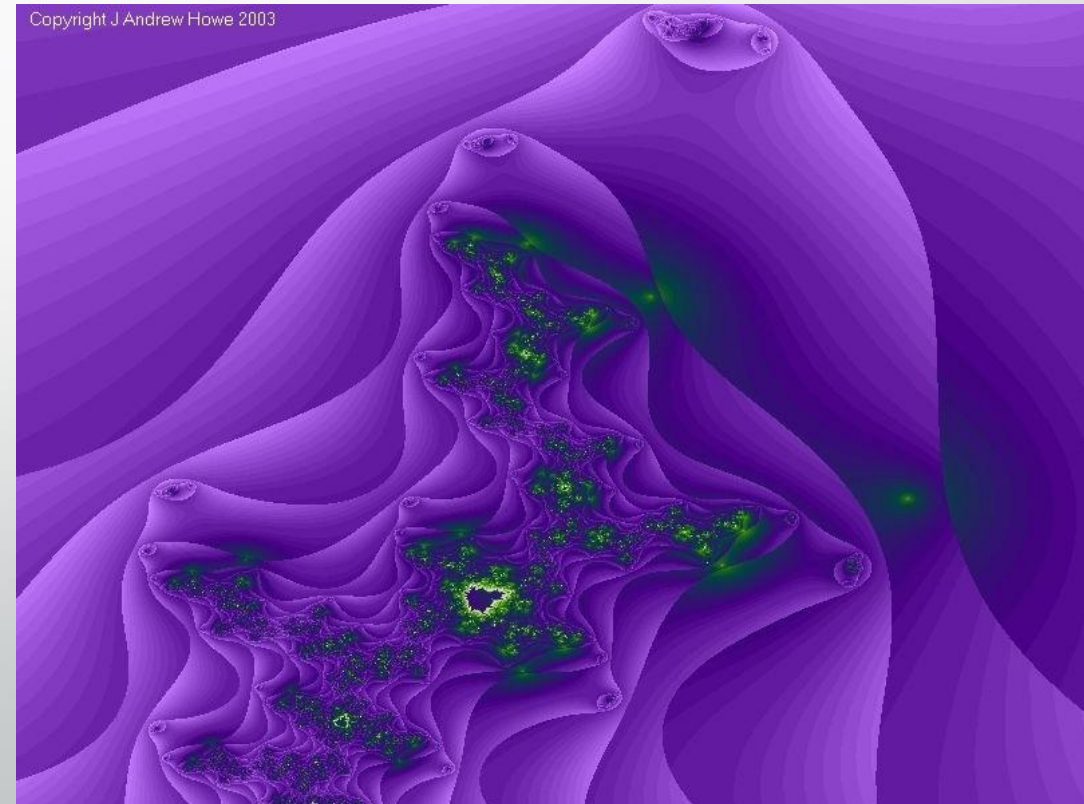
- As a Masters student, I collaborated with a reinsurance company to develop a Markov Chain capital adequacy model to simulate large portfolios of CDOs. The model was built on industry-standard credit ratings transition modeling techniques, with a complex set of stress tests and scenario analyses. This was the single-most important tool for the business, as it was needed to demonstrate that the firm would maintain sufficient liquidity to meet future obligations. As a result of the model, major ratings agencies granted the firm high ratings.
- I independently developed a robust ensemble-based allocation system comprised of 20 trading models diversified by instrument, technology, source, and frequency. The system assessed a weight for each model based on a sliding window of recent performance, resulting in overall market neutrality with increased profitability and reduced volatility.

Interesting Machine Learning Modeling Projects - Research:

- I collaboratively invented Symbolic Pattern Recognition – a new machine learning framework for unsupervised prediction, simulation, clustering, and classification of sequential data. My colleague and I successfully used the modeling technique to model genetic sequences and electrocardiogram recordings.
- As decision science researcher, I led an innovative research project to develop a deep-learning neural network which uses a custom hidden layer based on established political decision-making theory to identify latent decision factors underlying household choices. The model is expected to extend existing decision-making capabilities to encompass modeling population-scale behavioral dynamics.

As a Person:

- Passionate about *learning*, science, *learning*, energy, finance, *learning*, the human brain, classical music, research, **and did I say learning?**
- A musician, voracious reader, scientist, and artist.
- Innately curious and highly creative.
- *A statistician is a device that **probably** turns coffee into confidence intervals. - me*



On the Web:

- LinkedIn Profile: <http://www.linkedin.com/in/ahowe42>
- Research Gate Profile: http://www.researchgate.net/profile/John_Howe12/
- Github Profile: <http://github.com/ahowe42>
- ORCID: <http://orcid.org/0000-0002-3553-1990>
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