



## JP Research, Inc.

1975 West El Camino Real, Suite 300 • Mountain View, CA 94040  
Phone: (650) 559-5999 • Fax: (650) 559-5980 • www.jpresearch.com

### **Hari Titan, PhD**

*Senior Data Scientist*

JP Research, Inc.

1975 W. El Camino Real, Suite 300

Mountain View, CA 94040

Tel. (650) 559-5999

Fax (650) 559-5980

Email: hari@jpresearch.com

Website: www.jpresearch.com

---

Dr. Hari Titan is a senior data scientist specializing in analytics and statistical decision-making. He is experienced in application of logistic regression, neural networks and decision tree methodologies to risk management, particularly for financial services and healthcare industries, and with performing outlier analysis on automotive warranty claim data. Dr. Titan holds a Masters in Mathematics and a PhD in Computer Science, which focused on image processing and pattern recognition algorithms. His special strengths include data mining (using SAS, R, and SQL) and data enrichment (using a wide variety of external Big Data vendors via API or DB).

Currently, Dr. Titan's projects include applying advanced statistical and analytical techniques such as Weibull regression and principal components analysis to risk modeling, automotive safety research and consumer product safety litigation cases. Before joining JP Research, his recent projects involved utilizing machine learning algorithms to handle poorly understood data, and designing and building a data warehouse to allow consistent and easy reporting. Dr. Titan is also a subject matter expert in fraud detection for e-commerce transactions.

For nearly two decades, through his self-owned company, Next Millennium Technology, Dr. Titan consulted on customer acquisition strategies, fraud detection, cross-sell recommendation systems, and customer level credit risk management for various institutions including Wells Fargo, GeoVera Holdings, the Gap Inc, and Bank of America. Prior to starting this venture, he was a risk management Director at Provident Financial (now Chase). Earlier, he was a product manager at HNC Software (since acquired by Fair Isaac), where he designed a neural-network-based automobile repair claim fraud detection system (a first for the automotive industry) for American Honda Motors. Dr. Titan also invented the explanation component (U.S. Patent #US5745654) of the Fair Isaac Falcon™ credit card fraud detection system.

---

### Education, Skills and Professional Honors

University of Waterloo, Ontario, Canada	Ph.D., Computer Science	1993
University of Waterloo, Ontario, Canada	Masters, Mathematics	1989

**Patents**

Hold US Patent US5745654 for explaining neural network and other non-linear model scores. Used in the Falcon™ credit card fraud detection system. 1998

**Technologies**

Mastery of SAS (8+ years)  
 Intermediate LAMP Stack (e.g., AWS), R-Server  
 Advanced MySQL and PostgreSQL and R  
 Basic DB Admin  
 Basic JS, PHP, CMS frontends

**Activities**

Independent Expert / Bond Analyst for Piedmont Unified School District,  
 Piedmont, California 2013-Present

**Professional Experience****JP Research, Inc.**, Mountain View, California

*Senior Data Scientist*, 2018-Present

Responsible for automation of data analysis and data discovery and for performing computational analyses of field data through use of advanced statistical methods such as ordered probit regression and factor analysis. Applies statistical analysis techniques in support of technical projects for the research and programming groups.

**Solar Mosaic**, Oakland, California

*Director of Data Science*, 2016-2017

Designed and built a data warehouse (using Redshift SQL) to allow consistent and easy reporting using Periscope and Tableau. Supported building custom credit risk scores using a risk management vendor, achieving performance up to 85% area under the curve (AUC). Managed SQL coders to support reporting needs for installers, investors, capital markets.

**YapStone**, Walnut Creek, California

*Senior Manager, Decision Science*, 2015-2016

Performed risk modeling for this international payment facilitator for rental marketplaces (HomeAway, VRBO and rentpayment.com) with over \$15 Billion in annual volume:

- Built an ecommerce transaction fraud score (Yap Score) for Home Away using machine learning with a performance of 89% AUC.
- Designed a merchant onboarding model that prevented \$250,000 in annualized losses.
- Helped research and design an end-to-end risk management system that covered Fraud, AML, KYC and Sanction lists.
- Managed analysts to help monitor fraud chargebacks and control merchant fraud.

**Next Millennium Technology Corp**, Piedmont, California

*Owner, Director*, 2001-2018

Founded consulting firm focused on machine learning and analytics. Contract highlights include:

Kaiser Permanente, Oakland (Health Insurance Division)

Statistical modeling. Built a patient risk stratification decision tree model published as “Risk of Complications after Thyroidectomy and Parathyroidectomy” by working with epidemiologists and surgeons; cost savings of \$12 million in overnight stays.

Wells Fargo Bank, San Francisco (Internet Services Group)

Risk management consultant. Audited fraud mitigation strategies for online deposit accounts. Identified Small Business Financial Exchange (SBFE) segments with a \$6 MM projected balance transfer opportunity.

GeoVera Holdings, Fairfield (Fire & Earthquake Insurance Provider)

Created a price elasticity analysis for insurance premiums that combined customer retention and profitability.

Gap Inc. Direct, San Francisco (Online Division)

Identified fraudulent use of reward certificates, which blocked up to \$1 million in annual losses.

Bank of America, San Francisco

Database marketing consultant. Designed line-increase and balance-build campaigns for 900,000 Home Equity Line of Credit (HELOC) customers. Built response models used for cross-sell campaigns. Simulated a \$180 million benefit from pre-qualifying HELOCs for mortgages.

Moodlogic, San Francisco (An early competitor to Pandora NYSE: P)

Built a neural network model to drive cross-sell by up to 30%.

**Providian Financial**, San Francisco, California

*Director*, 1999-2000

For this subprime credit card issuer (later acquired by WAMU & Chase), built a real-time, transaction-level credit card over-limit prototype authorization system (using machine learning) that saved \$500,000 in charge-offs annually.

**HNC Software**, San Diego, California

*Product Manager / Staff Scientist*, 1994-1998

For HNC (now a division of Fair Isaac), a pioneering company in deep learning in applications for credit card fraud detection and rules simulation, key achievements included:

- Built Falcon™ models for First USA, AT&T Universal, Wells Fargo, Household UK, Citibank ASIA, Canada Trust and First Data Resources. Helped Falcon grow from serving 10 out of the top 25 card issuers to serving 22 out of top 25.
- Built prototype models to predict long distance carrier credit risk for SPRINT's 16 million customer portfolio.
- Primary designer of a neural network based automobile repair fraud detection system, a first for the automotive industry. Won a competition held by American Honda Motors, which bought the full system (valued at \$3 million annually).

**Wilfrid Laurier University**, Canada

*Assistant Professor*, 1993-1994

---

**Selected Publications/Presentations**

“Data Science Needs Data Scientists, Data Engineers and Data Architects”, Global Big Data Conference, January 2018. (**Titan H**)

“Risk of Complications after Thyroidectomy and Parathyroidectomy”, *Otolaryngology–Head and Neck Surgery*, Volume: 155 issue: 3: 391-401, Sept 1, 2016. (Meltzer C, Klau M, Gurushanthaiah D, **Titan H**, Meng D, Radler, L, Sundang A)

“Rethinking Ideas for Ending ‘Too Big to Fail’ Institutions”, UnMoney Convergence Conference 2012, April 2012. (**Titan H**)