

## Contact

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[www.ixicorp.com](http://www.ixicorp.com) (Company)  
[www.equifax.com](http://www.equifax.com) (Company)  
[www.yicai.com](http://www.yicai.com) (Blog)

## Top Skills

Data Mining  
Economics  
Public Speaking

## Publications

Automating Preliminary Data Cleaning in SAS  
Variable Reduction in SAS by Using Information Value and Weight of Evidence  
Entropy-based Measures of Weight of Evidence and Information Value for Variable Reduction and Segmentation for Continuous Dependent Variables  
Integrating PROC REG and PROC LOGISTIC for Collinearity Examination, Sample Scoring and Model Evaluation  
Trash to Treasures: Salvaging Variables of Extremely Low Coverage for Modeling

# Alec Zhixiao Lin

data scientist  
Orange County, California Area

## Summary

Personal Motto on Being a Data Scientist:

- Machine is an extension of the human brain, not vice versa.
- Data are expressions of human behaviors. Every project is a quest for understanding human psychology.

Key Qualifications:

- 20 years of experience in developing highest-quality predictive models for in consumer lending (credit card, personal loan and mortgage). Deep knowledge in data mining techniques applied to credit risk management (marketing, underwriting, origination, pricing, cash flow and collection).
- An inquisitive, seasoned and highly efficient econometrician/statistician and data science enthusiast, willing to take challenges and flexible in being a team leader, a key player or an independent contributor. I can be constantly inspired by new data, new projects and new approaches.
- Strong ability to work with big data, to develop innovative approaches in predictive modeling, to perform in-depth analyses, to communicate findings and insights to business peers and for high-level reviews.
- Has assembled a personal toolbox with a multitude of secret weapons for efficient modeling in SAS. Some – not all - of these tools have been published in SAS papers, and I am the only one who knows how to integrate them for building superb predictive models efficiently.

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## Experience

Loan Depot  
VP of Modeling, Risk Analytics  
June 2015 - Present (4 years 10 months)  
Lake Forest, CA

- Created a major enhancement for the net lift model which can be used for modeling pricing sensitivity for loans, marketing effectiveness and effects of interest rate movements on mortgage prepayment.
- Developed a framework for modeling prepayment and default by using survival analysis.
- Developed a SAS process for designing business rules, which can be used with predictive models to improve marketing effectiveness, risk control and revenue augmentation. The process has been tested on multiple products (personal loans, jumbo loans, Home Equity Loans and HELOC) and has proved to work very effectively, e.g., risk reduced by 30% by excluding only 8% of loans.
- Developed a begin-to-end framework for evaluating credit risk:
  - 1) Modeling month-to-month transitional probabilities by using Markov Chain method and various logistic and multi-logit regressions. Segmentation is needed for building multiple sub-models for estimating delinquency/charge-off and prepayment.
  - 2) Calculating CDR and CPR based on the transitional probabilities.
  - 3) Testing the model on existing performance data. Various methods have been developed to work with incomplete performance data, i.e., loans with a short history.
  - 4) Simulating account-level cash flow for the entire duration of a loan life.
  - 5) Calculating net yield for suggesting interest rate.
- Developed a SAS process for generating monthly cash flow streams that incorporate PD, LGD and EAD.
- Researched jumbo loans and analyzed the cash flows and yields based on CDR, CPR, etc.
- Built zip-code-level national index for HPI (Home Price Index) on national data from 1970 to 2016.
- Developed a process in SAS for extract and transforming unstructured data (XML files).
- Built and supervised various modeling tasks such as fraud models, underwriting model and pricing models related to personal loans, home equity loans and HELOC.
- Trained statisticians and analysts on modeling and analytics.

## PayPal Credit

### Credit Modeling Manager

August 2012 - June 2015 (2 years 11 months)

Baltimore, Maryland

Model Validation and Governance (2015/02 - present)

- Translating legal and compliance rules/requirements stipulated by FRAC, CRA and ECOA into statistical tests and analysis by using company data.
- Oversee the development, implementation and validation of marketing-, revenue- and risk-related models.
- Trained analysts for proper use of credit bureau data in modeling and analytics.

Credit Modeling (2012/08 - 2015/01)

- Mentor new analysts for modeling skills and data knowledge.
- Stepped in for the role of financial analyst for developing a more logically sound and more accurate algorithm for forecasting roll rates of delinquent accounts by balancing the use of recent data and historical data. The new algorithm improves the predictive accuracy by at least 50%.
- Developed an approval score for UK PayPal customers. The score helps prioritize email marketing and has improved the approval rate from 20% to 40%.
- Developed usage scores for US customers on such aspects as risk, usage and balance change. The scores will be used for decisioning related to changes in customers' credit line.
- Stepped in for the role of business analyst for developing a new strategy for credit line assignment for the UK market by using income, credit score, etc. As a perfect combination of science and art, the strategy has been praised for its novelty and logic soundness.
- Used transaction data to develop a risk score to predict credit default without directly linking customers to their personal credit information.
- Built and oversaw the implementation of two sets of collection models (20 in total): the likelihood of making a payment in the next statement cycle and the likelihood of change in delinquency status.
- Built a call-in model that effectively predicts the likelihood of inbound calls from customers. It is being used for prioritization in marketing.

IXI Corporation, an Equifax company

Director, Advanced Decision Analytics and R&D

June 2007 - August 2012 (5 years 3 months)

McLean, VA

- Developed Credit Response Score by using self-designed Progressive Deductive Method (PDM), which explores how to make use of limited data in earlier periods to validate the usage of more data in later period but in the absence of an out-of-time holdout sample;
- Developed Ability to Pay (ATP), a composite index that combines income, spending, credit and demographic information for predicting risk of credit card,

mortgage and collection, in charge of the entire process of product conception, score modeling, execution to final automation. Link to Wall Street Journal for mentioning ATP:

[http://online.wsj.com/article/](http://online.wsj.com/article/SB10001424052970203687504576655182086300912.html?KEYWORDS=ability+to+pay)

[SB10001424052970203687504576655182086300912.html?](http://online.wsj.com/article/SB10001424052970203687504576655182086300912.html?KEYWORDS=ability+to+pay)

KEYWORDS=ability+to+pay

- Developed CreditStyles, a US national directory at zip+4 level for credit-related information including account age, balances, delinquency, charge off, foreclosure, etc.. This product has been subscribed to by Discover Card, Capital One, Home Depot, etc..
- Developed zip4-level directory combining demographic and income data for digital media in the use of market segmentation for credit card, mortgage, auto loans, etc.;
- Tested and validated IXI products such as Discretionary Spending Index (DSI), Income360, ATP, etc. across various industries such as mortgage, credit card and student loans by making joint use of Equifax, IXI and client-specific data;
- Developed customized solutions for retail clients such as HGVC of Hilton International, Nationwide, Norwegian Cruise Line, etc..

## E\*TRADE Financial

Statistician/Financial Modeler

January 2002 - June 2007 (5 years 6 months)

Arlington, VA

- Analyzed trading activities for active E\*Trade brokerage accounts;
- Computed spread of E\*Trade rates above market swap rates for all deposit products;
- Forecast monthly balance changes for deposits accounts.

## Capital One

Statistician/SAS Programmer/Data Analyst

April 1998 - August 2002 (4 years 5 months)

McLean, VA

Developed marketing response models for the Canadian card market.

## Allegheny General Hospital

Senior research assistant

November 1997 - April 1998 (6 months)

Pittsburgh, PA

started writing a column for China Business News on cultural aspects.

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## Education

Carnegie Mellon University

MPh, Public Policy and Management · (1994 - 1997)

Northern Illinois University

M.A., Economics · (1991 - 1994)

Institute of International Relations (Beijing)

B.A., International Political Economy · (1986 - 1990)