

Richard Liu

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UNCC PhD Candidate

Areas of Expertise

Operation Risk | Big data modernization | Quality, Process, & JIRA Management | Agile Management, AIOps | Tensorflow, PyTorch, GPU computation | NLP/LLM/Vector DB | BI Visualization

Selected Professional Highlights

- Pioneered LanChain (RAG) with LLM for commercial web and API platforms and production over vector DB with digital service award..
- Received the Wells Fargo Innovation Award for building an advanced model validation data platform and automation.
- Pending patent on adversarial LLM dynamic labeling and quality assurance process.
- Holder of U.S. Patent (#11,907,882): Model Validation of Credit Risk
- Holder of U.S. Patent (#10,699,223): Dynamic Modeling Process for Portfolio Forecast.
- Holder of U.S. Patent (#11,100,586): Callable Option Price via Deep Machine Learning System.
- Holder of International Patent (#WO2009029745 A3): Portfolio Risk and Reward Assessment Mechanism.
- Recognized as an advanced applied analytics thought leader; served on the Teradata PAC committee and as a speaker at NVidia GTC, IBM Spectrum, and various Fintech conferences.
- Delivered solutions enabling financial customer transactions and support services, resulting in a \$30M reduction in hard dollar costs.

PROFESSIONAL EXPERIENCE

UNCC – Charlotte, NC 2025 – Present

PhD Student – School of Data Science, UNCC Charlotte, NC

2025/08 – Now

- Statistics, AI research

Wells Fargo – Charlotte, NC 2014 – 2025

Wells Fargo – Charlotte, NC

SVP – CB/CIB digital transformation development director(2014 – 2025/02)

- Managing JIRA SLA, backlogs to ensure the productivity and efficiency of detailed analysis, coding, validation, implementation, and scaling of reports and dashboards.
- Improved modeling on payment integration for business cash flow and treasury, handling a \$1.3 trillion scale.
- Leveraged Lake House data management with PySpark, Kafka, and Splunk for near real-time transaction level customer journey analysis.
- Led and influenced with cross-functional teams in product, risk and IT to drive data, infrastructure, and system solutions on implementation of deep and wide AI learning to enhance in-app agent-assist and self-service channels.
- Ensured the cadence of analytics and data results/assets adoption and value realization process.
- Digitized and modernized payment and credit frontend with design, product, risk, and IT against OKR and KPI dynamics for executive reporting.
- Built framework and microservices for customers with test & learn, and key metrics over service, product, and triage strategies with metrics and LLM topic models against voice of customer.

Key Accomplishments:

- Converted business model from concept to a near real-time solution on the customer payment digital journey, reducing manual intervention costs by \$30M.
- Implemented and helped grow the fintech developers on open API usage by 23% in two years.
- Conducted and architected a data engineering with Spark MLflow process under urgent regulatory demand, reducing operation time from 16 hours to 2 minutes for agent decisions with no extra technology cost.
- Implemented a LLM modeling from labeling to fine tuning over data lake on emerging trends which increased the validity of AI and reduced missed wired payments by 25%, and second customer confirmation calls by 75%.

Quantitative Analytics Manager, Model Validation Engineering and platform (2014 - 2018)

- Introduced and implemented IBM Power 9 servers with Nvidia GPU farms. (Best among industry)
- Implemented the data science and modeling workbench and platform for second-line risk management, streamlining model validation.
- Designed, built and scaled the challenger and surrogate time series model for CCAR, deposit, credit approval, and operation risk with machine learning and computational parallelization over account level data.
- Supported explainable AI on XNN (eXplain Neural Network) for DL model validation.

Key Accomplishments:

- Won Wells Fargo's annual innovation award for an agile scoring model validation process and platform.
- Established the first real end-to-end big data operating platform across Hadoop, Spark, Teradata, SAS, Oracle data and scaled up statistical/ML modeling platform. Recognized as the #1 model validation in the financial industry.
- Led and built the Dynamic Modeling Process for Portfolio Forecast for CCAR as #1 in top 5 banks.
- Automated Python/R data science operations, reducing the core development cycle time from 18 weeks to 6 days.
- Led data-driven analytics investigation of sales practices to determine behavioral patterns over deposit and credit card products, decreasing process time from 90 days to 9 hours and increasing confidence levels by 3.6x.

B.B. &T – Winston Salem, NC 2010 – 2014

Managing Director / International Finance Institution Relationship

- Managed 270 overseas financial institution relationships with 80 core clients (\$3 B.N. assets in portfolio).
- Led cross border market intelligence, credit underwriting, pricing, and sales force allocation for revenue growth and portfolio diversification strategies for small to middle-sized U.S. businesses.

Key Accomplishments:

- Accomplish digitization of the trade operation/documentation from customer onboarding to service delivery and reduce the cost by 60%, rework by 85%.
- Won annual best FCI factoring for customer service and invoice management.

Bank of America – Charlotte, NC 2003 – 2010

Senior Vice President – Enterprise Credit Risk Manager (2008 – 2010)

- Centralized Oracle database for commercial credit under urgent requirement to assess capital adequacy stress-testing; led a team to reconcile balance sheet and treasury management and integrated with Moody's EDF credit system and asset-liability management system.

Key Accomplishments:

- Created a six sigma black belt project and technology strategy roadmap with top 300 executives to resolve lagged and conflicting information for portfolio risk and operation management.
- Build first credit behavior migration and surveillance model with the operating system under different stressed macroeconomic scenarios within the wholesale database.
- Won top 1% award for building SAS Linux cluster with load balancing and data hub pipeline and merging against Teradata, Oracle, and SAS flat-file: enhanced credit appetite, limit-setting, resource allocation, and customer/portfolio acquisition.

Previous Tenures: VP, Direct Marketing Analytics Manager at Bank of America, Residency System Business Analyst and Customer Relation Manager at Microsoft, and Strategy Analyst at Chinatrust Commercial Bank.

EDUCATION

Master's degree in quantitative marketing - Northwestern University, Evanston, IL

Bachelor of Arts degree in Industrial Engineering & Telecommunication Engineering - National Taiwan University, Taipei