

# Tim Madden

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- <https://tim-madden.github.io>
- tim-madden-resume@protonmail.com

## Core Qualifications

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- Analytical Developer
- SQL, R and Python
- Financial Risk Management
- Simulation and Optimization
- Communicate Cross-Functionally
- “Excruciating” Documentation

## Experience

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### *Mortgage Servicing Rights Analyst*

Bank of Oklahoma                      Tulsa, OK                      02/2017 to Present

- Value and hedge a \$15 billion Mortgage Servicing Rights (MSR) portfolio. Technology includes Python, R, SQL, PowerBI, Excel, and VBA.
- **Reduce Profit and Loss (PL) volatility by 76% vs. unhedged.**
- Inform hedge strategy by building a simulator in R to compare the PL performance of different strategies under various interest rate scenarios.
- Optimize credit risk buckets to better predict delinquency using Decision Tree Regression (Machine Learning).

### *Stay-at-Home Dad*

Madden Family                      Tulsa, OK                      02/2012 to 02/2017

### *Revenue Scientist*

Dollar Thrifty Auto. Group                      Tulsa, OK                      09/2009 to 02/2012

- Prototyped and tested the expert system component of an automated one-way pricing system using C#.
- **Improved total revenue by 35% in the largest one-way market.**
- Collaborated with IT to put the prototype in production.

*Graduate Teaching Assistant*

Purdue University	West Lafayette, IN	08/2007 to 05/2009
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- Assisted teaching master level “Statistical Quality Control” and bachelor level “Computing in Industrial Engineering”.

## Operations Research Analyst

LinkAmerica	Tulsa, OK	01/2004 to 06/2007
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- Formulated pricing models for a transportation holding company's 1,000 truck fleet using SQL and Fortran.
- Teamed with a PhD consultant to build an optimization-based fleet simulator.  
**Reduced forecast error from 250 to 20 basis points** regarding the efficiency in merging two subsidiaries.

## Risk Management Intern

Bank of Oklahoma	Tulsa, OK	01/2002 to 12/2003
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- Managed commodity options risk with a notional value of \$1.5 billion by developing a trade tracking database in MS Access.

## Computer Proficiencies

- Advanced: Transact SQL, R, VBA, SSMS, Bloomberg, Excel
- Intermediate: Python, MS Access
- Beginner: PowerBI, SAS-Enterprise Miner, Shiny (Data Visualization), SSIS, C#, Fortran, GitHub, GitLab

## Education

*Master of Science in Industrial Engineering*

Purdue University	08/2007 to 05/2009
Operations Research	3.65 / 4.00

*Master of Science in Finance*

University of Tulsa	01/2002 to 12/2003
Statistics and Quantitative Risk Management	3.90 / 4.00

*Bachelor of Science in Mechanical Engineering*

Missouri University of Science and Technology	08/1997 to 12/2001
	3.44 / 4.00