CURRICULUM VITAE

TIANXIANG SHI Ph.D., FSA

CONTACT INFORMATION

The Fox School of Business
Temple University
612 Alter Hall
Philadelphia, PA 19122 USA

Office: +1 (215) 204-6192
Department: +1(215) 204-8456
Fax: +1 (215) 204-4712
Email: tianxiang.shi@temple.edu

EDUCATION

Ph.D. in Actuarial Science, University of Waterloo	2013
M.S. in Applied Mathematics, University of Illinois at Urbana-Champaign	2009
B.S. in Mathematics, Zhejiang University	2007

PROFESSIONAL CREDENTIALS

Fellow of the Society of Actuaries (FSA)	2017

EMPLOYMENT

Assistant Professor, Temple University	2016 – Present
Co-Director, M.S. Program in Actuarial Science, Temple University	2017 – Present
Assistant Professor, University of Nebraska-Lincoln	2013 – 2016

AWARDS & SCHOLARSHIPS

Temple University	
Faculty of the Year, MS Actuarial Science	2019
Crystal Apple Award	2019
The Society of Actuaries	
James C. Hickman Scholarship	2011 – 2013
University of Waterloo	
Statistics & Actuarial Science Ph.D. Comprehensive Exam Award	2010
Statistics & Actuarial Science Chair's Award	2010 – 2012
Dominion of Canada General Insurance Co. Graduate Scholarship in Actuarial Science	2009 – 2012
University of Waterloo Graduate Scholarship	2009 – 2013
International Doctoral Student Award	2009 – 2013
MATH Senate Graduate Scholarship	2012 – 2013

Grants

2020 SOA Individual Grant Competition, PI, $15,000 2020

“Auto Insurance Pricing Using Telematics Data: Application of a Hidden Markov Model" (co-PI: Qiao Jiang). Sponsor: CAS and CKER of the Society of Actuaries.

Society of Actuaries FSA Institutional Grant, PI, $7,500 2017

Awarded for achieving the Fellow of the Society of Actuaries.

2014 SOA Individual Grant Competition, PI, $15,000 2014

“Economical Capital and Its Optimal Allocations in the Joint-Insolvency Risk Model" (co-PI’s: David Landriault and Wei Wei). Sponsor: CKER of the Society of Actuaries.

CAS & CSAF Educational Grant, PI, $5,000 2013

“Introduction to Property&Casualty Actuarial Science", University of Nebraska-Lincoln. Sponsor: Casualty Actuarial Society and the Central States Actuarial Forum.

Refereed Publications

Lee, Y.T. and T. Shi (2021). Valuation of reverse mortgages with surrender: A utility approach. ***Journal of Real Estate Finance and Economics***, forthcoming.

Shi, T. and Y.T. Lee (2021). Prepayment risk in reverse mortgages: An intensity-governed surrender model. ***Insurance: Mathematics and Economics*** 98: 68-82.

Landriault, D., B. Li, T. Shi and D. Xu (2019). On the distribution of classic and some exotic ruin times. ***Insurance: Mathematics and Economics*** 89: 38-45.

Cox, S.H., Y. Lin, and T. Shi (2018). Pension risk management with funding and buyout options, ***Insurance: Mathematics and Economics***, 78: 183-200.
-nominated for the 2019 SOA Redington Prize.

Cai, J., D. Landriault, T. Shi and W. Wei (2017). Joint insolvency analysis of a shared MAP risk process: a capital allocation application, ***North American Actuarial Journal***, 21(2): 178-192.

Lin, Y., T. Shi and A. Arik (2017). Pricing buy-ins and buy-outs. ***Journal of Risk and Insurance***, 84: 367-392.
-nominated for the 2019 SOA Redington Prize.

Huynh, M., D. Landriault, T. Shi and G.E. Willmot (2015). On a risk model with claim investigation. ***Insurance: Mathematics and Economics***, 65: 37-45.

Landriault, D. and T. Shi (2015). Occupation times in the MAP risk model. ***Insurance: Mathematics and Economics***, 60: 75-82.

Landriault, D. and T. Shi (2014). First passage time for compound Poisson processes with diffusion: ruin theoretical and financial applications. ***Scandinavian Actuarial Journal***, 2014(4): 368-382.

Shi, T. and D. Landriault (2013). Distribution of the time to ruin in some Sparre Andersen risk models. ***ASTIN Bulletin***, 43(1): 39-59.

Landriault, D., T. Shi and G.E. Willmot (2011). Joint densities involving the time to ruin in the Sparre Andersen risk model with exponential claim sizes. ***Insurance: Mathematics and Economics***, 49: 371-379.

PAPERS UNDER REVIEW AND WORKING PAPERS

Lin, Y., R. MacMinn and T. Shi. The Value of a Pension Buyout: An Employee (Retiree) Perspective. *Resubmitted to the* ***Journal of Risk and Insurance***.

Shi, T. and X. You. Multiemployer Pension Plans: Employer Withdrawals and Financial Vulnerability. ***North American Actuarial Journal****, under revision*.

Shi, T. and X. You. Insolvency Analysis of Multiemployer Pension Plans with Employer Withdrawals.

Shi, T. Fair Valuation of PBGC Insurance Premiums for Multiemployer Pension Plans.

Lin, B. and T. Shi. Pension Investment Controlling the Downside Risk: A Machine Learning Approach.

Lee, Y.T. and T. Shi. Usage of Reverse Mortgage Line of Credit.

Jiang, Q. and T. Shi. Auto Insurance Pricing Using Telematics Data: Application of a Hidden Markov Model.

INVITED SEMINARS

"The Value of a Pension Buyout: An Employee (Retiree) Perspective"
Department of Mathematics, Towson University, October 2021 (Scheduled)

"DB Pension: To Buyout or Not to Buyout?"
The School of Mathematics and Statistics, Ningbo University, November 2019

"Pension Risk Management with Funding and Buyout Options"
Department of Mathematical Science, Middle Tennessee State University, October 2017
The School of Management, University of Science and Technology of China, May 2017

"Pension De-Risking: Buy-ins and Buy-outs"
Department of Mathematics, Chongqing University, June 2016
Smeal College of Business, Penn State University, January 2016
Department of Mathematics, University of Connecticut, November 2015

"Pricing Pension Buy-ins and Buy-outs"
School of Public Affairs, Zhejiang University, July 2014

CONFERENCE PRESENTATIONS

"Multiemployer Pension Plans: Employer Withdrawals and Financial Vulnerability" (joint work with Xuesong You)
The American Risk and Insurance Association Annual Meeting, Virtual, August 2021 (presented by coauthor)
24th International Congress on Insurance: Mathematics and Economics, Virtual, July 2021 (presented by coauthor)

"Reverse Mortgages with Surrender Options: Application of an Intensity-Governed Model" (joint work with Yung-Tsung Lee)

Fifteenth International Longevity Risk and Capital Markets Solutions Conference, Washington DC, September 2019 (presented by coauthor)

"To Buyout or Not to Buyout?" (joint work with Yijia Lin and Richard MacMinn)

2019 NBU International Conference on Actuarial and Financial Mathematics, Ningbo, China, November 2019 (Invited)

The American Risk and Insurance Association Annual Meeting, Chicago, IL, August 2018 (presented by coauthor)

22nd International Congress on Insurance: Mathematics and Economics, Sydney, Australia, July 2018

"On the Distribution of Classic and Some Exotic Ruin Times" (joint work with David Landriault, Bin Li and Di Xu)

23rd International Congress on Insurance: Mathematics and Economics, Munich, Germany, July 2019

7th International Gerber-Shiu Workshop, Melbourne, Australia, July 2018

"On the Valuation of Reverse Mortgages with Surrender Options" (joint work with Yung-Tsung Lee)

China International Conference on Insurance and Risk Management, Chengdu, China, July 2019

Thirteenth International Longevity Risk and Capital Markets Solutions Conference, Taipei, China, September 2017

21st International Congress on Insurance: Mathematics and Economics, Vienna, Austria, July 2017 (presented by coauthor)

"Joint Insolvency Analysis of a Shared MAP Risk Process: A Capital Allocation Application" (joint work with Jun Cai, David Landriault and Wei Wei)

20th International Congress on Insurance: Mathematics and Economics, Atlanta, GA, July 2016

"Pension Risk Management with Funding and Buyout Options" (joint work with Samuel H. Cox and Yijia Lin)

The American Risk and Insurance Association Annual Meeting, Cambridge, MA, August 2016 (presented by coauthor)

Eleventh International Longevity Risk and Capital Markets Solutions Conference, Lyon, France, September 2015

50th Actuarial Research Conference, Toronto, Canada, August 2015

China International Conference on Insurance and Risk Management, Hangzhou, China, July 2015

19th International Congress on Insurance: Mathematics and Economics, Liverpool, UK, June 2015

"Experience of Developing the New Casualty Actuarial Science Course at UNL"

Central State Actuarial Forum Annual Meeting, Kansas City, MO, September 2014

"Pricing Buy-ins and Buy-outs" (joint work with Yijia Lin and Ayşe Arik)

Tenth International Longevity Risk and Capital Markets Solutions Conference, Santiago, Chile, September 2014

18th International Congress on Insurance: Mathematics and Economics, Shanghai, China, July 2014

"Joint Distribution Involving the Time to Ruin in Sparre Andersen Risk Models" (joint work with David Landriault)

15th International Congress on Insurance: Mathematics and Economics, Trieste, Italy, June 2011

International Conference on Actuarial Science and Related Fields, Hainan, China, March 2011

"Finite-Time Ruin Problems in Sparre Andersen Models with Arbitrary Interclaim Times" (joint work with David Landriault and Gordon E. Willmot)

45th Actuarial Research Conference, Vancouver, Canada, July 2010

Teaching

Temple University 2016 – *Present*

AS2101 Actuarial Probability & Statistics II, Fall 2016 – 2018, 2020 – 2021; Spring 2018
AS2502/5101 Theory of Interest, Fall 2016; Spring 2019
AS3501/5102 Actuarial Modelling I, Spring 2018, 2020 – 2021; Fall 2018
AS3502 Actuarial Modelling II, Spring 2017
AS3503/5104 Actuarial Modelling III, Spring 2019 – 2021

University of Nebraska-Lincoln 2013 – 2016

ActS 470 Life Contingencies I, Spring 2014 – 2016
ActS 471 Life Contingencies II, Fall 2013 – 2015
ActS 474/874 Intro to Property/Casualty Actuarial Science, Spring 2014 – 2016

University of Waterloo 2011 – 2012

ACTSC 232 Introduction to Actuarial Mathematics, Winter 2012
ACTSC 221 Mathematics of Investment, Fall 2011

Service

Society of Actuaries Service

Faculty advisor, University-Earned Credit (UEC) Oversight Committee 2021 – Present
Chair, Hickman Scholar Awards Committee 2020 – 2021
Committee member, Hickman Scholar Awards Committee 2018 – 2021
SOA Fellowship Exam Item Writer, QFI-PM Exam 2019 – 2020
Pretestor, LTAM Exam for Spring and Fall 2020 2020
Team Leader/Grader, LTAM Exam 2018 – Present

Ad-hoc Referee Service

Acta Mathematicae Applicatae Sinica
Annals of Actuarial Science
Applied Mathematics and Computation
Asia-Pacific Journal of Risk and Insurance
ASTIN Bulletin
ESAIM: Probability and Statistics
European Actuarial Journal
Insurance: Mathematics and Economics
Journal of Insurance Issues
Journal of Risk and Insurance
Methodology and Computing in Applied Probability
North American Actuarial Journal
Risks
Scandinavian Actuarial Journal
Sustainability

Doctoral Dissertation Committee

Committee Chair for Jiang Qiao, Ph.D. in RMI at Temple University, in progress
Committee member for Xuesong You, Ph.D. in RMI at Temple University, completed in 2021
Committee member for Rui Ju, Ph.D. in RMI at Temple University, completed in 2019

Committee member for Myeonghun Choi, Ph.D. in RMI at Temple University, completed in 2019

Discussant/Session Chair

The American Risk and Insurance Association Annual Meeting, 2021
Drake Risk and Insurance Workshop on Catastrophe Risk, 2021
China International Conference on Insurance and Risk Management, 2019
The American Risk and Insurance Association Annual Meeting, 2018
22nd International Congress on Insurance: Mathematics and Economics, 2018
50th Actuarial Research Conference, 2015
China International Conference on Insurance and Risk Management, 2015

College/Department Service

Temple University

Co-Director, MS Program in Actuarial Science	2017 – Present
Committee member, Department Research Committee	2018 – Present
Committee member, Department PhD Students Committee	2018 – Present
Committee member, Department Students Award Committee	2019 – Present

University of Nebraska-Lincoln

Actuarial Science Undergraduate Student Advisor	2013 – 2016
Committee member, Actuarial Science Advisory Board, Research Committee	2014 – 2016
Committee member, CBA Scholarship, Honors and Awards Committee	2015 – 2016
Committee member, Actuarial Science Search Committee	2015
Committee member, Finance (PoP) Search Committee	2014 – 2015
Committee member, Actuarial Science (PoP) Search Committee	2014

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