

Yawen Zhang

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EDUCATION

Elizabethtown College, Elizabethtown, PA

Jan.2017 - Anticipated Dec 2020

Mathematical Sciences

B.S. in Actuarial Science

- GPA: 3.62/4.0 (grade ranking #2)
- Minor: Data Analytics

University of Granada, Spain

Sep.2019 - Dec.2019

Modern Language

Exchange student

Related Courses: Mathematical Statistics, Statistical Methods in Research (SAS), Short Term Actuarial Mathematics, Theory of Probability, Database(SQL), Operations Research, Mathematical Proofs, Problem Solving in Financial Mathematics, Computer Science 1(Java), Financial Mathematics, multivariable Calculus, Linear Algebra, Principles of Macroeconomics, Accounting, Machine Learning(R), Long Term Actuarial Mathematics & Corporate Finance

PAPER

Yawen Zhang, *A purely 3-D geometrical solution to a complicated probability problem* (Submitted to *Solution to Problem 2065, Mathematics Magazine*, Under Review)

EXAMS

Actuarial Exams: Exam Probability, Exam Financial Mathematics

RESEARCH

Research Assistant | Elizabethtown College | Elizabethtown, PA

08/2020 – present

Project: **Game Theory - Equilibrium Problem in Multiple-Strategy Game**

Supervisor: Dr. Timothy McDevitt, Professor of Mathematical and Computer Sciences at Elizabethtown College

- Proved that Nash equilibrium makes the conservative players, who accept ties, in two strategies games more likely to win, compare to the aggressive plays who think winning is everything
- Illustrated that the phenomenon is transferable and robust in three strategies non-zero-sum games
- Used Karush–Kuhn–Tucker (KKT), matrix derivatives and linear programming to calculate the mixed strategies in multiple-strategy games
- Numerically demonstrated that the probability for conservative plays to win goes down and converges to $\frac{1}{2}$ while n gets bigger

Data Analysis Research Assistant | Elizabethtown College | Elizabethtown, PA

10/2017 – 04/2018

Supervisor: Dr. Dan Chen, Assistant Professor of Political Science at the University of Richmond

- Assisted in a research that published in the *Journal of Experimental Political Science*
- Cataloged hundreds of news pieces in Chinese and English
- Analyzed the research data in excel format for further analysis

TEACHING

Teaching Assistant | Elizabethtown College | Elizabethtown, PA

04/2018 – 05/2019

- Tutored students in Financial Mathematics and Introduction to Mathematical Proofs, as chosen by the faculty
- Provided individual mentorship to students with various academic backgrounds

EMPLOYMENT

Actuarial Pricing intern | AXA, P&C and specialty risk division | New York City, NY

06/2020 – 08/2020

- Researched the Predictive Analytics Models and Algorithms in insurance using R markdown
- Developed machine learning models (XGBoost, Random Forest) to predict the loss ratio for Property and Marine insurance, and improved the accuracy by 5%, compared with the previously used model (GLM)
- Extracted from internal database using SQL, and built a data visualization dashboard that offers data insights using R Shiny
- Guided the NA Property actuarial team to visualize the data using R shiny
- Prepared consolidation reports using R and provided the metrics for leadership team to review
- Created an excel template for premium allocation and surcharge calculations to support the underwriting team
- Interviewed 20+ colleagues across business functions to gain a comprehensive understanding of how the company works

Wealth Actuarial Intern | Mercer | Philadelphia, PA |

06/2019 – 08/2019

- Completed a mock valuation using a highly integrated software *Retirement Studio*
- Designed Retirement Plan Changes from pension to defined benefits plan for multiple big companies
- Numerically analyzed and manage the investment portfolio for client trust accounts
- Reviewed and completed benefit calculations and valuation reports in excel format
- Presented about the Future Transformation of Retirement Plans and 50+ colleagues attended

HONORS & AWARDS

- Outstanding Senior Student in Math Department (one student per year), 2020
- Interviewed by AdvisorSmith as the leader student in Insurance, 2020
- Honors-in-the-Discipline in Mathematics, 2020
- Elizabethtown College Math Department Excellent Tutor, 2019
- Pi Mu Epsilon, Pennsylvania Pi Chapter Award, 2019

ACTIVITIES & LEADERSHIP

- President, Campus Asian Culture & Food Club, 9/2017 – 10/2018
- SOA Candidate Conference Spring, 2019
- Diversity Team Ambassador, Office of Admissions Elizabethtown College, 04/2017-2/2019
- Inclusive Leadership Conference Spring, 2018

SKILLS

Computer Skills: Microsoft Office Suite, R, Python, SQL, VBA, SAS, Mathematica, Java, Markdown and Latex