Rohan Yashraj Gupta, PhD, ASA, AIA

✉ rohanyashraj@gmail.com | 📱 +91 9593256368 | https://rohanyashraj.github.io/

SUMMARY

- PhD in Actuarial Science with close to 6 years of work/project experience in the area of Actuarial Data Science
- Expertise in predictive modelling, data interpreting, and visualization with 8 international journal papers and 1 book chapter
- Speaker in top Actuarial Data Science conferences such as 22nd Global Conference of Actuaries, 2021 Insurance Data Science, 2022 CAS Spring Meeting, 2022 CANW Spring Meet, 2022 ASTIN Actuarial Colloquia
- Invited as a speaker for 2023 CAS International Webinar Series and also by the African Actuarial community
- Developed over 5 web apps/dashboards for dynamic reporting and visualizations to aid in decision-making

SKILLS

Python and R	Machine Learning and Deep Learning	Excel
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Predictive modelling	Data visualization and interpretation	Statistical analysis
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WORK EXPERIENCE

Actuarial Team Lead   July 2023 – Present
Accenture Operations, India

- **Rater Delivery**
  - Working with a team of actuarial professionals and data science experts to transition the excel based raters into Python based Hyper Exponential cloud platform for the North America region.

Actuarial Data Science Consultant   December 2022 – June 2023
RSA Actuarial Services, India

- **Motor Insurance Fraud**
  - Developed and implemented a Machine Learning model to prioritize fraudulent cases, resulting in a 20% increase in the success rate of fraud applications.
  - Conducted a thorough Full-Time Equivalent (FTE) analysis to estimate the necessary resources to secure previously neglected benefits.
  - Created effective business rules based on SIRA reports that reduced the number of potentially fraudulent applications by 70%.

Actuarial Analyst   Jun 2021 – Nov 2022
SwissRe Bangalore, India

- **Pricing**
  - Successfully supported 30+ quotes on pricing and experience studies for various products comprising – whole/term life assurance, critical illness benefit, disability benefits and hospitalization benefits for the South-East Asia market
  - Conducted impact testing on terms of trade assumptions for whole/life assurance products
  - Responsible for monitoring critical illness capacity for over 70+ quotes in the South-East Asia market
- **Experience studies**
  - Conducted experience studies using R to derive A/E ratios, resulting in cost revisions that accurately reflected actual experience
- **R Modeling and dashboarding**
  - Created and utilized R and Excel models for experience studies, premium trends calculation, and data visualization for life and health products for South-East asia market
  - Utilized R model to generate profit commission for various quotes
- **Product design**
  - Collaborated with claims and underwriting teams for product discussions and design, resulting in the successful launch of three new products viz. critical illness products with very specialized product offering
- **Communication and Presentation**
  - Presented results to team lead and wrote executive summary detailing pricing strategy to deliver to clients
  - Delivered a presentation on "Intro to Machine Learning using Decision Tree"

Actuarial Consultant   Jun 2019 – Jun 2021
Tech Actuarial

As an actuarial data science consultant, some key projects that I worked on were:

- **Ayushman Bharat Claims Analytics (Oct 2020 – Jun 2021)**
  - Worked on claims analytics for the world's largest group health insurance scheme using Python and R to provide claims analytics to the broker and insurance company on 200,000+ records
  - Developed an RShiny dashboard to track the claims experience monthly, resulting in a 20% improvement in claims management efficiency
  - Analyzed claim patterns and fraud in 200,000+ claims and policy records during the COVID-19 period, resulting in a 5% reduction in fraudulent claims
- **Crop Insurance Pricing (Apr 2020 – Sep 2020)**
  - Utilized Python for web scraping of 3 million data points of daily yield data for various crops, resulting in almost 90% reduction in data processing time
  - Developed an ARIMA model to project crop yield data for the next three months resulting is improvement in accuracy of crop yield projections
  - Built a dashboard to track the value of futures under 12 different scenarios for six different crops, resulting in a 70% reduction in time spent on manual data tracking and analysis
- **Cancer Product Pricing (Sep 2019 – Mar 2019)**
  - Successfully priced cancer products for four different packages across 28 states in India
  - Created a dashboard for dynamic comparison and visualization of frequency, severity, and risk premiums by gender and state, totaling to 100+ scenarios, resulting in a improvement in visualization and comparison of pricing scenarios
- **Defined benefit pension scheme valuation (Jun 2019 – Aug 2019)**
  - Simplified valuation using Excel spreadsheet, resulting in a 10x reduction in run time and an improvement in efficiency in the defined benefit pension scheme valuation process
- **Prepared 30+ consulting pitch presentations for various clients over two years**

Research Associate   Jun 2017 – May 2019
Tech Actuarial

- Fraud Detection project for Group Health Insurance scheme

Student Central Summer Internship Program   Jun 2020 – Aug 2020
Casualty Actuarial Society, USA

- Completed a six-week program focused on Property & Casualty, gaining insights into data visualization, pricing, reserving, and predictive modeling
- Completed four projects using Cognalysis Multirate software, resulting in improved pricing and reserving strategies.
- Recognized as a "CAS Spotlight Candidate" by the CAS for being an active student member and demonstrating exceptional knowledge and skills in actuarial science

Framework for Fraud Detection in Motor Insurance   Jun 2017 – May 2021
Sri Sathya Sai Institute of Higher Learning

- Proposed a framework for fraud detection, which includes actuarial and data science techniques
- Generated 450+ business rules used for fraud detection and developed an innovative method to automate rule-generation using machine learning and data visualization
- Used Python and R to develop data-driven fraud detection models for automobile and health insurance businesses with more than 100,000 records and have achieved results with 95%+ accuracy

PROFESSIONAL HONOURS & ACHIEVEMENTS

- Speaker at 22nd Global Conference of Actuaries – Delhi, India, March 2023
- Speaker at 3rd Insurance Data Science Conference – City, University of London June 17, 2021
- Speaker at 2022 CAS Spring Meeting, Disney's Coronado Springs Resort, May 15 - May 18, 2022
- Speaker at 2022 Actuarial Colloquia, organized by Casualty Actuarial Society, with IAA and ASTIN

EDUCATION AND RESEARCH

Doctor of Philosophy (PhD) in Actuarial Science   Jun 2019 – May 2021
Sri Sathya Sai Institute of Higher Learning

- Research in the area of data-driven fraud detection and prevention in health and motor insurance business
- Published over eight research papers, one book chapter and presented in five international conference

Masters in Mathematics (MSc)   Jun 2017 – Apr 2019
Sri Sathya Sai Institute of Higher Learning
- Cumulative CGPA: 8.4/10
- Relevant coursework: Actuarial Risk Management, Loss Reserving, and Financial Engineering, Actuarial Models

Honors Bachelor of Science (Mathematics)   Jun 2014 – Apr 2017
Sri Sathya Sai Institute of Higher Learning
- Cumulative CGPA: 7.6/10
- Relevant coursework: Linear Algebra, Probability, Numerical Methods and Data Structures in C

TRAINING AND LEADERSHIP
- Provided training to post-graduate students on actuarial courses and guided actuarial data science projects
- Conducted a 40-hour workshop titled – "Hands-on predictive analytics using python" on various Machine Learning and Deep Learning models
- Volunteered the annual service project called "Grama-Seva" for five consecutive years, where food and clothes were distributed at the doorstep of families across 150 villages in Andhra Pradesh, India

RESEARCH PUBLICATIONS

Journal Papers
- "Implementation of Correlation and Regression Models for Health Insurance Fraud in Covid-19 Environment using Actuarial and Data Science Techniques," Int. J. Recent Technol. Eng. Sep. 2020
- "A Comparative Study of Using Various Machine Learning and Deep Learning-Based Fraud Detection Models For Universal Health Coverage Schemes," Int. J. Eng. Trends Technol., 2021
- "TGANs with Machine Learning Models in Automobile Insurance Fraud Detection and Comparative Study with Other Data Imbalance Techniques," Int. J. Recent Technol. Eng., Jan. 2021
- "Integrating actuarial models with neural networks for building a fraud detection model for automobile insurance," J. Emerg. Technol. Innov. Res., 2019
- "A Framework for Comprehensive Fraud Management using Actuarial Techniques," Int. J. Sci. Eng. Res. , 2019
- "A proposed method with a use case to facilitate the decision of implementing new technology in insurance organizations to improve operational efficiency Variable name," J. Emerg. Technol. Innov. Res., 2019
- "A Proposed Model for Measuring Protection of Policyholders' Interest at Industry Level," IRDAI Journal, 2019
- "Implementation of a Predictive Model for Fraud Detection in Motor Insurance using Gradient Boosting Method and Validation with Actuarial Models", INCCES, 2019

Book Chapter
- "Application of Cart-Based Modeling in Motor Insurance Fraud," in Intelligent System Algorithms and Applications in Science and Technology, CRC Press, Taylor and Francis Publications, 2021