

# SHANTANU CHADHA

## RESEARCH INTERESTS

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Micro-Economic Theory, Game Theory, Social Networks, Econometrics, Political Economy

## EDUCATION

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**University of Warwick**

*September 2021 - September 2022*

Masters of Science, Economics (*Distinction, Ranked 6th out of 170*)

**St. Xavier's College, Kolkata**

*July 2014 - June 2017*

Bachelor of Science, Economics (*First-Class Honours*)

## RESEARCH AND TEACHING EXPERIENCE

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**University of Warwick, UK**

*September 2022 - Present*

Associate Tutor

- Teaching seminars for second and third year undergraduate modules including Micro-economics and Industrial Economics and getting a rating of 4.8/5 (higher than module and department average).
- Taught the advanced Mathematics and Statistics pre-sessional course for new postgraduate students.
- Helping undergraduate students as part of the Research in Applied Economics help-desk on Micro-econometrics and Data Science.

**University of Warwick (WISE Internship) (Part-Time), UK**

*August 2022 - Present*

Research Assistant Intern

- Working on a theoretical paper with Dr. Christian Soegaard on generic Rock-Paper-Scissor type games with intransitive actions and their inherent Nash equilibrium properties.
- Working on formulating the proof for the main theorem and also conducting a thorough literature review on the topic.
- My extensive contribution has led me to me an official member of the project with Dr. Christian Soegaard and Dr. James Massey.

## INDUSTRY EXPERIENCE

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**McKinsey & Company, India**

*June 2017 - June 2021*

Senior Data Scientist

- Served clients around the globe by helping them increase revenue/save cost using econometric and machine learning modelling as well as linear and nonlinear optimization in R and Python for data backed decision making and business actions.
- Worked independently as an Expert Associate (as translator and data scientist) and led work-streams, interacting with senior client leadership on a daily basis.
- Ran data science academies and training sessions for junior colleagues as well as client data scientists and helped up-skill them in data science and how to apply it during projects.
- Worked on building state of the art time series forecasting and regression tools using open source material and new algorithms as part of the innovation hub.

- Assisted hiring of data scientist by taking technical interviews.
- **Achievement:** Multiple fast track promotions with distinctive rating (top 5-10% of employees).

## CERTIFICATIONS

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Cleared 4 actuaries examinations from Institute and Faculty of Actuaries, UK - CT1, CT2, CT3, CT7

## TECHNICAL SKILLS

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- **Machine Learning:** Regression, Classification, Prescriptive analytics, Time Series Modelling, Tree-based models, bagging, boosting, Neural Networks (limited knowledge), Evolutionary and meta-heuristic Optimization.
- **Statistical Tools:** ANOVA, Hypothesis Testing, ARIMA, ARIMAX, Linear regression, Regularization, Principal Component Analysis, Information theory, Networks.
- Created a decision (C4.5) tree algorithm from scratch in Python with regularization at each node.
- Built a multi-variate time series forecasting engine (ARIMAX based) with a new heuristic to find optimal AR, I and MA parameters to minimize chosen loss function.
- Built an evolutionary and meta-heuristic based optimization engine to optimize non-analytical and analytical objective functions along with non-linear constraints. Coded algorithms such as Simulated Annealing, Differential Evolution, Particle Swarm (and more) from scratch in Python.
- **Softwares:** R, Python, Tableau, Alteryx, Excel, STATA, Latex, SQL (limited knowledge), Azure DevOps.

## RESEARCH PROJECTS

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- Final Dissertation (MSc) with Professor Bhaskar Dutta: Competitive Contagion Under Local Co-ordination in Networks: Modelling the Optimal Seeding Decision of Competing Firms (2022)
- MSc Econometrics Group Project: Three Point Rule and Entertainment in the Spanish League: A multi-period DiD investigation (2022)
- Final Dissertation (BSc): Private investment in Research and Development: A Two Period Probabilistic Approach (2017)
- Econometric Analysis of the Role of Health and Education on Human Capital Development (Presented the paper at Confluence 2016)
- Authored an Article on Labour Migration and Outsourcing in India (Published in Echo Echoes 2015)

## OTHER ACHIEVEMENTS

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- Confluence (Economics Summit) - Participated and won at the annual economic summit of the Xavier's Economics Society (2014)
- Part of the editorial team of Eco Echoes, the Economic Journal of St. Xavier's Kolkata (2015)
- Inertia - Participated and came second in various events in the annual fest of the Xavier's Commerce Society (2015)