

# Sarvar Abdullaev | PhD

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## Education

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### King's College London

UK

*PhD in Computer Science*

2011–2016

**Thesis:** Pricing Options via Double Auctions

**Covered Topics:**

- Auction Theory
- Automated Trading
- Optimisation
- Algorithmic Game Theory
- Option Pricing
- Monte-Carlo Simulations

### Dongguk University

South Korea

*MSc in Computer Science, GPA – 4.38/4.5*

2007–2009

**Thesis:** THIEF: THE Intelligent Events Fetcher

**Taught Modules:**

- Software Engineering
- Advanced Topics in Algorithms
- Wireless Sensor Networks
- Multi-agent Systems Development
- Web Services and Service-Oriented Architecture
- Image Processing

### University of Westminster

UK

*BSc (Hons) in Business Computing, 2:1*

2003–2006

**Taught Modules:**

- Decision Support and Data Mining Systems
- Rapid Applications Development
- Mathematics for Economists
- Fixed Interest Securities and Related Derivatives
- Database Theory and Practice
- Systems Analysis
- Financial Accounting
- Financial Management

## Experience

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Vocational.....

### King's College London

UK

*Graduate Teaching Assistant*

2014–2015

**Duties:**

- Preparation of teaching materials for modules: Intro to AI, Data Structures, Practical Programming
- Conducting seminars and tutorials on above modules
- Administrative tasks such as checking the attendance in seminars and invigilating the exams

**Westminster International University in Tashkent**

**Uzbekistan**

*Lecturer*

*2009–2011*

**Duties:**

- o Development, validation and deployment of syllabuses for modules Software Design Patterns, Web Applications Development
- o Preparation of teaching materials for modules Software Design Patterns, Web Applications Development, Intro to Web Publishing, Business Information Systems, E-Commerce
- o Delivering lectures, seminars, laboratory-based tutorials on above mentioned modules.
- o Preparing examination materials, conducting the assessments and checking the answer sheets.
- o Supervising the course projects of undergraduate students.
- o Administrative tasks such as checking the attendance, invigilating the exams, representing the faculty on course committee meetings with SU
- o Facilitating extra-curricular activities related to programming and competitive coding, mentoring students on their private projects.

**cBizSoft, Inc**

**USA**

*Full-stack Software Developer (remote)*

*2008–2011*

**Duties:**

- Development and support of software products for recruiters: cBizOne, Exelare (Silverlight, WPF)
- Integration with job boards and resume banks: Monster.com, CareerBuilder.com, Indeed.com, Dice.com, SimplyHired.com, TechFetch.com, Seek.com.au
- Integration with vendor management systems: Fieldglass.net, Beeline.com, SupplierLink
- Integration with social networks: LinkedIn, Facebook, Twitter
- Integration with external services: SendGrid, Salesforce, Amazon Web Service, Google Maps
- Development and support of web sites, widgets and web browser extensions per client's needs
- Development and support of backend APIs for external clients
- Maintenance of the server infrastructure, databases and legacy systems

**Advanced Institute of Convergence of Information Technologies**

**South Korea**

*Research Associate*

*2007–2009*

**Duties:**

- Assisting the progress of research and development projects of the centre
- Publishing the outcomes of the research and experiments
- Managing, screening and reviewing the papers submitted to the conferences and journals organized by the centre
- Maintenance of system infrastructure, ticketing and fixing web applications of the centre

**Sarkor Solutions**

**Uzbekistan**

*Web Developer*

*2006–2006*

**Duties:**

- Developing bespoke web applications for clients
- Managing the web resources of the company such as online blogs, servers and databases
- Ticketing and providing technical support

Temporary Works.....

**VD17 Web Scraping Project (2015):** Scraping and indexing records in VD17 database. Wrote Python-based scraper with Selenium and PhantomJS which collected more than 400K publication records within 2 weeks.

**'DareTo' mobile app (2014):** Mobile application that assists sending different challenges across multiple

social networks. The project was shortlisted to top 10 among other 300 in Facebook's 'Big App 2014' contest.

Volunteering.....

**Korean Agency for Digital Opportunities and Promotions (2008):** Conducted trainings on basic computer and web publishing skills in less developed regions of Uzbekistan and Bulgaria.

**UN Assignment (2005):** Completed various IT related projects in welfare sector of Uzbekistan

Pet Projects.....

**Uztelegram.com Project (2016):** Web site for finding, monitoring the performance and reading the latest posts of popular Telegram channels. It uses Telegram's bots and native TL protocol to collect real-time information about the users and the content of the channels. Latifa.uz channel has reached 36K subscribers and it is supported by an automated Afandi bot which posts interesting content on a scheduled basis.

**Continuous Double Auctions in Python (2015):** Part of my PhD project which allows the simulation of automated trading agents and collecting important performance parameters. It also enables the simulation of exogenous asset prices, setting rules for accepting orders, impose transaction costs, and other matching and market clearing rules.

## Trainings

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### John Hopkins University via Coursera

USA

#### *Data Science*

2015–2016

Online specialisation programme certified by John Hopkins University. Successful candidates have to collect more than 80 scores from all assignments in 9 courses and submit a final capstone project. Courses taken:

- o The Data Scientist's Toolbox
- o Getting and Cleaning Data
- o Reproducible Research
- o Regression Models
- o Developing Data Products
- o R Programming
- o Exploratory Data Analysis
- o Statistical Inference
- o Practical Machine Learning

### Institute for International Accounting Standards

Uzbekistan

#### *Certified Accounting Practitioner*

2005–2006

Training course for accounting professionals based on international accounting standards. Successful candidates have to pass 3 exams which involves producing financial reports from real-life company operations, resolving tax and law cases, and making managerial decisions based on provided reports. Courses taken:

- o Financial Accounting
- o Tax and Law
- o Managerial Accounting

### TATA Consultancy Group

India

#### *Web Applications Development using Java*

08.2006–09.2006

## Programming Languages

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**Advanced:** C#/VB.NET, WPF (Telerik, C1), Prism, WCF, ASP.NET MVC, Web API, Python (NumPy, Pandas, SciPy, Scikit-learn, Theano, Seaborn, Bokeh, Plotly), jQuery, Bootstrap

**Intermediate:** R (dplyr, caret, ggplot2, yuima), MATLAB, Flask, D3, KendoJS, KnockoutJS, ExtJS, AngularJS

**Basic:** Java, C++, Prolog

## Theoretical Knowledge

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Mathematics.....

**Advanced:** Statistics, Probability Theory, Calculus, Linear Algebra, Linear Programming, Financial Mathematics, Game Theory and Mechanism Design

**Intermediate:** Differential Equations, Stochastic Calculus, Combinatorial Analysis

**Basic:** Geometry, Discrete Mathematics

Computer Science.....

**Advanced:** Algorithms and Data Structures, Simulation and Experiments Design, Multi-agent systems, Design Patterns

**Intermediate:** Machine Learning, Numerical Methods

**Basic:** Operating Systems, Networking, Logic

## Awards

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**2014:** Winner of TechCrunch Disrupt Hackathon 2014 for modeling and implementing the 'Infected Flight' simulator which forecasts the spread of diseases using SIR model and the network of airports throughout the world.

**2011:** IDB's IT Merit Scholarship for PhDs which fully covered my PhD programme fees and living expenses in the UK.

**2007:** Korean Government IT Scholarship which fully covered my Master's programme fees and living expenses in South Korea.

**2005:** Finalist in Imagine Cup. International IT contest sponsored by Microsoft

**2005:** Third Place in ACM Programmers Contest in Uzbekistan.

**2003:** WIUT Full Scholarship which full covered my Bachelor's programme fees.

## Languages

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o English - Fluent

o Russian - Native

o Uzbek - Native

o Korean - Good

## Research Interests

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- Auction Theory

- Mechanism Design

- Financial Engineering

- Algorithmic Trading

- Monte-Carlo Simulations

- Software Engineering

## Publications

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- Pricing Options with Portfolio-holding Trading Agents in Direct Double Auction, In Proc. of 22nd European Conference on Artificial Intelligence, Hague, Netherlands, September 2016 - Accepted

- Direct Exchange Mechanisms for Option Pricings, In Proc. of 12th European Conference on Multi-Agent Systems, Springer LNAI, Prague, Czech Republic, December 2014

- Market-based Mechanism for Option Pricing, In Proc. of 16th International Workshop on AgentMediated Electronic Commerce and Trading Agents Design and Analysis, Paris, France, May 2014

- E-commerce Applications of the Hybrid Reasoning Method, In Proc. of NISS2009, Gyungju, South Korea, June 2009, pp. 797-801
- A Colored Petri Net Simulation Model for Caching with Related Content, Journal of Society for e-Business Studies, Vol. 13, No. 3, 2008, pp. 67-83
- An Optimization of CDN using Efficient Load Distribution and RADS Caching Algorithm, Journal of Universal Computer Science, Vol. 14, No. 14, 2008, pp. 2329-2342
- An Object-oriented Design of a Simulator for Caching with Related Content, Journal of Universal Computer Science, 2008
- Design Steps of Intelligent Events Fetcher (IEF), In Proc of UCWIT2008, Gyongju, S. Korea, November 2008, pp. 151-157
- A Study on Visualization Methods of Phyllotaxis Pattern, In Proc of MITA2008, Chiang mai, Thailand, July 2008
- Analysis and Implementation of M-commerce in Education for Developing Countries (Uzbekistan case), Journal of Convergence Information Technology Vol.2 Num.3, AICIT, S. Korea, September 2007, pp. 77-88
- A Study on Successful Business Intelligence Systems in Practice, Journal of Convergence IT, Vol.2 No.2, June 2007. pp. 89-97
- An Object-oriented Design of a Simulator for Caching with Related Content using LRU, Advances in Information Sciences and Services, Vol 2, AICIT, S. Korea, November 2007, pp. 96-103
- RADS: Web Caching Algorithm with Size Heterogeneity of Web Objects, Advances in Information Sciences and Services, Vol 2, AICIT, S. Korea, November 2007, pp. 212-218
- A Study on the Aspects of Successful Business Intelligence Systems Development, ICCS 7th International Conference in Beijing, Springer-Verlag, LNCS 4490, pp. 729-732, 2007

## Talks and Poster Presentations

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- Pricing Options using Auction Mechanisms, Agent Information System Seminar Group, London, November 2014
- Market-based Mechanisms for Option Pricing, 16th International Workshop on Agent-Mediated Electronic Commerce and Trading Agents Design and Analysis, Paris, France, May 2014
- Auction theory and option pricing, 6th BCS Doctoral Consortium, London, May, 2014
- Mechanisms for pricing options, IDB Symposium, Cambridge, May 2014
- Simulation of Option Market using Combinatorial Exchange, Doctoral Poster Presentation, King's College London, October 2013

## Doctoral Thesis Summary

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**Title:** *Pricing Options via Double Auctions*

**Supervisors:** Professor Peter McBurney & Dr Katarzyna Musial

**Description:** The research describes the design and the simulation of different auction environments such as direct double auction, continuous double auction and combinatorial double auction with automated option pricing and trading agents run inside competitive, incentive compatible, individual rational and computationally tractable mechanisms. It provides consistent framework for mixing different option pricing methodologies such as risk-neutral pricing based on various stochastic asset pricing or volatility models, indifference pricing based on agent's risk-averseness, portfolio or other utility functions in a truthful market environment where agents are better of revealing their true valuations. It proposes generalised concept of a financial market in the form of a combinatorial

exchange for pricing compound financial instruments such as option portfolios.

**Covered Topics:**

- Auction Theory
- Automated Trading
- Optimisation
- Algorithmic Game Theory
- Option Pricing
- Monte-Carlo Simulation

## Master Thesis Summary

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**Title:** *THIEF: The Intelligent Events Fetcher*

**Supervisors:** Professor Byun Jeongyong & Dr Ko Ilseok

**Description:** The thesis describes the design and the development of a web crawler which is specialised in detecting conference events throughout the web and indexing them in its database. It uses event detection and key extraction algorithms to identify scientific conferences by counting the occurrence of reserved keywords, and their distances from each other. Then it parses the '*Call for Papers*' using predefined rules.

**Covered Topics:**

- Web Crawling
- Design Patterns
- Natural Language Processing
- Software as a Service

## References

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Provided upon request