Je-ok Choi

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EDUCATION

Stanford University, Stanford, CA — September 2012 to Present
Ph.D. in Computational and Mathematical Engineering

- On a leave to fulfill the military duty at KAIST.
- SOAL (Social Algorithms Lab)
- Advisor: Ramesh Johari
- Samsung Fellow

University of Chicago, Chicago, IL — September 2008 to March 2012
B.S. with Honor in Mathematics & B.A. in Economics

Illinois Math and Science Academy, Aurora, IL — August 2005 to June 2008

ACADEMIC POSITIONS

KAIST, Daejeon, Korea — September 2014 to Present
Research Scientist

- Military service fulfillment for the Republic of Korea
- Industrial Engineering & Management Research Institute
- Financial Engineering Laboratory
- Mentor: Woo Chang Kim

RESEARCH EXPERIENCE

Management Science & Engineering, Stanford University, Stanford, CA
Ph.D. Student — January 2014 to Present

- Professor Ramesh Johari
- Develop a model to characterize two-sided platforms with search frictions.
- Determine the optimal pricing and matching strategies for online marketplaces.

Department of Economics, University of Chicago, Chicago, IL
Research Assistant — June 2011 to December 2011

- Professor Ali Hortaçsu
- Developed and optimized an algorithm for finding stable networks in supply chains.
- Parameterized the United States supply chain market and predicted the firms' reaction to a shock according to the Commodity Flow Survey using `C++`.

Department of Mathematics, University of Chicago, Chicago, IL
Summer Research Experience for Undergraduates — June 2011 to August 2011

- Project Title: The Method of Stationary Phase
- Mentor: Andrew Lawrie

- Demonstrated the application of the stationary method application in estimating Fourier transform of the surface measure on S^{n-1}, proving the Tomas-Stein Restriction Theorem, and approximating the solution for homogeneous wave equation.

Department of Mathematics, University of Chicago, Chicago, IL
Summer Research Experience for Undergraduates June 2010 to August 2010

- Project Title: The Representation of the Symmetric Group
- Mentor: Saravanan Thiyagarajan
- Determined the representation of the symmetric group via combinatorial objects called Young tableaux.

Department of Mathematics, University of Chicago, Chicago, IL
Summer Research Experience for Undergraduates June 2009 to August 2009

- Project Title: Hilbert's Nullstellensatz and its Application to Graph Theory
- Mentor: Matthew Thibault
- Investigated the results of Combinatorial Nullstellensatz, a localization of Hilbert's Nullstellensatz, on the existence of regular subgraphs, the choosability of directed graphs, and the cube covering by hyperplanes.

Department of Mathematics, University of Chicago, Chicago, IL
Student Inquiry and Research September 2007 to May 2008

- Project Title: On An Approach for Van der Waerden Numbers
- Mentor: Professor Yon-Seo Kim
- Analyzed and programed in `C` the algorithms of computing van der Waerden numbers.
- Improved them by confirming the validity of a coloring more efficiently.

Collider Detector, Fermi National Accelerator Laboratory, Batavia, IL
Student Inquiry and Research September 2006 to May 2007

- Project Title: Analyzing Higgs to Diphoton Decay Physical Benchmark Process for the International Linear Collider
- Mentor: Professor John Yoh and Prefessor Young-Kee Kim
- Evaluated the benchmark process of $e^+e^- \to ZH \to Z + \gamma\gamma$ for the detector design via full simulation reconstructed-level analysis through GEANT4 as well as Fast Monte Carlo and generator-level studies.
- Developed efficient selection criteria on data to improve the Signal over Background ratio using mass, energy, transverse energy, polar angle, and momentum.

TEACHING EXPERIENCE

Management Science & Engineering, Stanford University, Stanford, CA
Head Course Assistant

- MS&E 233. Networked Markets. Spring 2014

Course Assistant

- CS 103. Mathematical Foundations of Computing. Fall 2013

Department of Mathematics, University of Chicago, Chicago, IL
Junior Tutor

- MATH 11200. Studies in Mathematics I. Fall 2009, Spring 2010, Fall 2010
- MATH 11300. Studies in Mathematics II. Winter 2010

Reader

- MATH 25400. Basic Algebra I. Winter 2011
- MATH 25500. Basic Algebra II. Spring 2011
- MATH 27300. Basic Theory of Ordinary Differential Equations. Winter 2012

Collegiate Scholars Program, University of Chicago, Chicago, IL
Teaching Assistant

- Summer program for outstanding students from Chicago Public Schools.
- Mathematics Core I. Summer 2009
- ACT Mathematics Preparation. Summer 2010
- Mathematic Core II. Summer 2011

Chicago Academic Achievement Program, University of Chicago
Teaching Assistant & Tutor

- Year-long program which is designed to help incoming first-year students to become acquainted with the university's curriculum.
- Mathematics and Statistics. Summer 2009
- Mathematics Tutor. Fall 2009, Winter 2010

PROFESSIONAL EXPERIENCE

iMATCHATIVE, Inc., San Francisco, CA
Research Intern June 2014 to September 2014

- Fintech startup with a two-sided platform matching investors and hedge funds.
- Designed an efficient and robust algorithm that recommends behaviorally compatible funds for individual investors.
- Developed a reliable technique to display small data without the possibility of confidentiality being breached.

Oracle Labs, Oracle Corporation, Belmont, CA
Research Intern June 2013 to September 2013

- Improved and revised the combinatorial optimization algorithm developed in the research group.
- Surveyed the literature on benchmark functions of optimization solvers.
- Implemented the algorithm on various test functions.
- Developed the schematics for solving the traveling salesman problem with the algorithm

McKinsey Global Institute, McKinsey & Company, Seoul, Korea
Research Intern April 2012 to August 2012

- Developed the framework to quantify the global effect of improving infrastructure productivity.
- Implemented infrastructure balance sheet to estimate infrastructure stocks and maintenance costs.
- Analyzed best-practice examples to identify quantifiable key levers for productivity improvements.
- Full Report can be found at `http://www.mckinsey.com/insights/mgi/research/urbanization/infrastructure_productivity`

Derivatives Trading, Daishin Securities, Seoul, Korea
Quantitative Analyst Intern August 2009 to September 2009

- FICC (Fixed Income, Currency & Commodities) Team.
- Analyzed and assessed the risk and the profitability of financial derivatives whose underlying assets include credit, interest rates, foreign exchange, commodities, and real estate.

Korea Trade-Investment Promotion Agency, Chicago, IL
Mergers and Acquisitions Analyst November 2008 to March 2009

- Examined and analyzed the United States M&A market tendency for a non-profit Korean government agency committed to promoting international commerce and investment between Korea and its trading partners.

OTHER EXPERIENCE

The Blue Chips, University of Chicago, Chicago, IL
Analyst January 2009 to June 2009

- Evaluated the profitability of stocks for the $100,000 portfolio of the college's premier investment club.

Consulate General of the Republic of Korea, Chicago, IL
Web Designer September 2005 to May 2008

- Korean Education Center in Chicago
- Designed the website for a non-profit Korean government organization dedicated to helping Korean Americans establish their pride and identity through a variety of programs on Korean language, culture and history.

Keystone Center Youth Policy Summit, Keystone, CO
Representative June 2006

- Project Title: Child and Adolescent Nutrition in America's K-12 Schools
- Collaborated with 40 students from 10 different science schools across the nation in order to work in stakeholder groups, discuss, argue, develop, and finally reach resolutions.
- Presented the issue with final resolutions to important figures in private, public, civil, society and education sectors of the United States, including the former President George W. Bush and E. Neville Isdell, the former CEO of the Coca-Cola Company.

HONORS AND AWARDS

Samsung Scholarship for Graduate Studies
Fellowship Recipient Fall 2012 to Present

- Postponed due to the military service.
- Receive up to $50,000 per year for five years that can be used toward pursuing graduate studies.

Dean's List, University of Chicago 2008-2009, 2009-2010, 2010-2011

United States Physics Contest, American Association of Physics Teachers
International Physics Olympiad U.S. Physics Team Semi-Finalist 2007, 2008

High School Mathematical Contest in Modeling
Honorable Mention November 2006

- Project Title: Analyzing the Effect of Water Projected at a Conical Formation of Sand

SKILLS

Computer: `C/C++`, `Java`, `Scheme`, LaTeX, `Bloomberg Terminal`, `Mathematica`, `Matlab`, `STATA`, `Adobe Photoshop`, `Adobe Premiere`, `Microsoft Word/Excel/Powerpoint`

Language: Fluent in Korean and English