

Hye Woong Jeon

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EDUCATION

University of Chicago

Bachelor of Science in Mathematics

Cumulative GPA: 3.92/4.0

Relevant Coursework: Analysis in \mathbb{R}^n , Statistical Theory and Methods I-II, Introduction to Computer Science I-II

Chicago, IL

Expected graduation: June 2023

Financial Markets Program (formerly, UCIB: FM)

- Accepted into a selective three-year program focused on building business acumen for quantitative roles in the financial markets through weekly workshops, and curriculum at the Booth School of Business

The Hotchkiss School

Cumulative GPA: 3.8/4.0

Lakeville, CT

August 2013 - May 2017

EXPERIENCE

University of Chicago Mathematics REU | Chicago, IL

Researcher

June 2021 - August 2021

- Studied fractal dimension and scaling behavior in random processes such as Fractional Brownian Motion
- Explored several definitions of fractal dimension such as Hausdorff dimension or Minkowski dimension
- Authored a self-contained exposition that explores Benoit B. Mandelbrot's Multifractal Model of Asset Returns
- Investigated and implemented methods of creating multifractal measures and processes using Python

Cochlear.ai | Seoul, South Korea

Research Science & Database Intern

June 2021 - August 2021

- Constructed editing tool for modifying sound ontology hierarchies with custom-made Python packages
- Designed highly interactive ontology GUI that connects directly to the database using Python, Flask, and Cytoscape JS
- Collaborated with database managers and cloud-workers to create frictionless experience for audio segmentation
- Developed database architecture and distribution methods for government's cloud-worker sound labeling project

University of Chicago Mathematics REU | Chicago, IL

Researcher

June 2020 - August 2020

- Aided mentors in distributing weekly problem sets and organizing solution presentations for apprentices
- Studied ergodic theory to develop base knowledge for investigating higher-level properties of dynamical systems
- Authored an exposition that illustrates the equivalence of two notions of entropy under ergodic conditions

United Nations Interim Force in Lebanon | Tyre, Lebanon

Sergeant, Squad Leader

April 2019 - December 2019

- Interpreted for the Republic of Korea Battalion in Joint Training Exercises with more than 15 participating contingents
- Received the UN Peacekeeping Medal from UNIFIL Headquarters and the Peacekeeping Badge from Joint Chiefs of Staff
- Created an automated system that streamlined Recreational Leave document creation, reducing effort by over 20 hours

SELECTED PROJECTS

Audio Fingerprinting (*Shazam reconstruction*)

November 2020 - January 2021

- Designed tools for preparing audio files for fingerprinting protocols, and methods for identifying by file or by microphone
- Developed a user-friendly command-line interface, capable of both fingerprinting and identifying songs
- Used binary morphology to sharpen spectrogram images and identify frequency peaks for constellation mapping
- Constructed an SQL database to manage audio files and audio fingerprint data to identify fingerprints quickly

Scheduling Algorithm

March 2020 - April 2020

- Utilized simulated annealing (SA) to automate the search for the fairest possible watch duty schedule
- Experimented with energy-state changing methods to determine suitability for optimal performance in SA algorithm
- Implemented a genetic algorithm that encodes schedules to compare against SA's speed and performance results

Cryptography Implementations

January 2019 - April 2019

- Created ElGamal and RSA encryption and decryption implementations using Mathematica and Python
- Programmed essential number theory algorithms such as the fast-powering algorithm and the Miller-Rabin primality test

SKILLS & INTERESTS

Languages & Skills: Python (Advanced); R, SQL, Javascript, Microsoft Office (Proficient); English, Korean (Native Fluency)

Interests: Close-up magic, cello, music visualization, philosophy, Olympic Weightlifting, Formula One Racing