

# DINGJUN BIAN

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## EDUCATION

**University of Minnesota, Twin Cities, Minneapolis, USA** **September 2016 - Present (Expected June 2021)**

*Bachelor of Arts in Mathematics; Bachelor of Science in Economics; Minor in Statistics, Korean*

- GPA: 3.966 / 4.000 (Mathematics: 3.933 / 4.000, Economics: 3.951 / 4.000, Statistics: 4.000 / 4.000, Korean: 4.000 / 4.000)
- Awards: University Honors Student, Dean's List (All Semesters)

## RESEARCH EXPERIENCE

**University Honors Thesis** **August 2020 - Present**

*University of Minnesota-Twin Cities, Minneapolis, MN, USA*

- Study the higher-order Laplacian learning method on graph-based semi-supervised machine learning.
- Formulate underlying theories to prove the existence and uniqueness of solutions to the graph problems and some properties of the higher-order Laplacian operator.
- Program and implement the higher-order Laplacian learning algorithm under the Poisson learning constraint to test the accuracy of image classification with MNIST, FashionMNIST, and Cifar-10 datasets.
- Investigate and compare the efficiencies of different semi-supervised learning methods under noise.

**Research Assistant (Ellen McGrattan, Heller-Hurwicz Economics Institute)** **August 2020 - Present**

*University of Minnesota-Twin Cities, Minneapolis, MN, USA*

- Conduct research on how the market concentration of "superstar firms" has changed over the years using different measures for capturing firm size.
- Investigate and determine if changing the variables used for measuring the size of superstar firms would challenge the past well-studied conclusion about the negative correlation between market labor shares and market concentrations.
- Program machine learning algorithms to classify and parse desirable data sets from scanned PDFs of historical documents.

## WORK EXPERIENCE

**SMART Learning Commons Peer Tutor (CRLA Level 3 Certificate)** **January 2018 - Present**

*University of Minnesota Library, Minneapolis, MN, USA*

- Assist students in mathematics and economics through the peer tutoring process by:
  1. establishing a rapport conducive to positive personal and professional interactions.
  2. respecting differences in background, identity, opinion, ability, motivation, and desires.
  3. supporting the student in establishing challenging, yet attainable goals within and beyond the consultation.
  4. maintaining confidentiality of records, student grades, and other protected information.
- Attend and actively participate in scheduled training sessions and staff meetings.
- Represent the SMART Learning Commons effectively and positively through attentive and efficient communication with tutees.

## LEADERSHIP EXPERIENCE/ACTIVITIES

**Mathematics and Economics Study Group, Organizer and Instructor** **September 2016 - Present**

*University of Minnesota, Twin Cities, Minneapolis, MN, USA*

- Organize groups of five students, including myself, to achieve academic success in the study of mathematics and economics for various courses.
- Practice mathematical and logical thinking through teaching and guiding the students in the group.
- Plan out and arrange effective study periods for other students based on their schedules.
- Practice communication skills with other students through study group discussions.

**Data Analysis Competition, Competitor** **March 2020**

*Midwest Undergraduate Data Analytics Competition (MUDAC), Minneapolis, MN, USA*

- Created and selected machine-learning models to provide predictions based on given data sets.
- Communicated with teammates efficiently and organized the team in an orderly fashion.
- Offered professional advice by interpreting the predictions given by the technical models.
- Communicated efficiently through presentations with judges from a variety of disciplines from both academia and industry.

## ADDITIONAL INFORMATION

- **Software:** Microsoft Word, Excel, and PowerPoint
- **Certificate:** Master Level Tutor with CRLA Level 3 Certificate, Certificate of Participation in Midwest Undergraduate Data Analytics Competition (MUDAC)

## SKILLS

- **Languages:** Mandarin (Native), English (Native), Korean (Proficient), Hmong (Beginner)
- **Programming:** LaTeX, Python/NumPy, R, STATA
- **Technical Skills:** Variants of Linear Regression, Basic Machine Learning Models, Basic Time Series Analysis Models, Modern Portfolio Theory Models, International Trade Theoretical Models