

BYEONGSU YU

Texas A&M University - Department of Mathematics

✉ byeongsu.yu@tamu.edu

📍 BLOC 506B

🌐 byeongsuyu.github.io

🐦 @yoo99101

EDUCATION

Ph.D. in Mathematics

Advisor: Dr. Laura Felicia Matusevich

Texas A&M University

📅 May 2022(expected)

M.Sc. in Mathematics

Advisor: Dr. Woong Kook and Dr. Hyuk Kim (Co-advising)

Seoul National University

📅 Aug 2017

B.B.A. in Business Administration

B.Sc. in Mathematics

B.A. in Philosophy

Yonsei University

📅 Aug 2015

PUBLICATIONS

1. *Standard pairs of monomial ideals over non-normal affine semigroups in SageMath*

👤 Byeongsu Yu

Submitted



2. *Standard pairs for monomial ideals in semigroup rings*

👤 Laura Felicia Matusevich and Byeongsu Yu

Submitted.



3. *A study on establishing legal causation of collective hazardous substances cases in a statistical viewpoint*

👤 Dohyun Park and Byeongsu Yu

공익과 인권 (en: Public Interest and Human Rights), Vol. 15, pp. 209-261, 2015



SOFTWARE

1. *StdPairs: Library for symbolic computation over a monomial ideal of an affine (non-normal) semigroup with SageMath*

👤 Byeongsu Yu



2. *TDakit: Toolkit for Topological Data Analysis with R*

👤 Kisung You and Byeongsu Yu



AWARDS & HONORS

➤ *Best Prize in Undergraduate Research*

📍 Yonsei Univ. (Computational Science and Engineering)

📅 Sep 2014

➤ *Award of Excellence in Economics Dissertation Contest*

📍 Maeil Business Newspaper (Seoul, South Korea)

📅 Nov 2009

TALKS AND PRESENTATIONS

POSTERS

📄 *Standard pairs for monomial ideals in semigroup rings*

• Algebra, Geometry and Combinatorics Day - XVIII

📍 UIUC

📅 Mar 07, 2020



TALKS

➤ *When is the quotient of a semigroup ring by a monomial ideal Cohen–Macaulay?*

• KU Combinatorics Seminar

📍 The University of Kansas

📅 Apr 2021



➤ *When is the quotient of a semigroup ring by a monomial ideal Cohen–Macaulay?*

• Algebra and Combinatorics Seminar

📍 Texas A&M Univ.

📅 Apr 2021

<ul style="list-style-type: none"> ➤ <i>Monomial ideals in affine semigroup rings</i> <ul style="list-style-type: none"> • CombinaTexas 2021 	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Feb 2021 	<ul style="list-style-type: none"> 🔗
<ul style="list-style-type: none"> ➤ <i>Monomial ideals in affine semigroup rings</i> <ul style="list-style-type: none"> • Graduate Algebra Symposium 	<ul style="list-style-type: none"> 📍 (Online) 	<ul style="list-style-type: none"> 📅 Oct 2020 	<ul style="list-style-type: none"> 🔗
<ul style="list-style-type: none"> ➤ <i>Universal Property via Yoneda Lemma</i> <ul style="list-style-type: none"> • Graduate Student Seminar 	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Nov 2019 	
<ul style="list-style-type: none"> ➤ <i>Generalized Ishida Complex</i> <ul style="list-style-type: none"> • Algebra and Combinatorics Seminar 	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Nov 2019 	
<ul style="list-style-type: none"> ➤ <i>Integrate $xy(x+y)$ over \mathbb{Z}_p with Haar measure</i> <ul style="list-style-type: none"> • Gathering in Graduate Expository Mathematics (GIGEM) 	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Feb 2019 	<ul style="list-style-type: none"> 🔗
<ul style="list-style-type: none"> ➤ <i>Topological Data Analysis on Single-Nucleotide Polymorphism data</i> <ul style="list-style-type: none"> • Graduate Student Seminar 	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Nov 2018 	
<ul style="list-style-type: none"> ➤ <i>Effective Resistance Preserving Isomorphism</i> <ul style="list-style-type: none"> • Graduate Student Seminar 	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Oct 2017 	<ul style="list-style-type: none"> 🔗

TEACHING & MENTORING

<ul style="list-style-type: none"> ➤ <i>Explorations in Mathematics (MATH 167) – Instructor</i> <p>Gave lectures via face-to-face and online simultaneously, wrote lecture notes and 4 exams, wrote weekly quizzes, held weekly office hours.</p>	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Fall 2020 	
<ul style="list-style-type: none"> ➤ <i>Business Calculus (MATH 142) – Instructor</i> <p>Gave lectures via face-to-face and online, wrote/graded 3 midterm exams and a final exam, wrote weekly quizzes, held weekly office hours.</p>	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Summer(1st) 2020, Spring 2020 	
<ul style="list-style-type: none"> ➤ <i>AWM Peer Mentor</i> <p>Peer-mentor for the first-year mathematics graduate students to help them adapt to new environment and responsibilities.</p>	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Fall 2019 – present 	<ul style="list-style-type: none"> 🔗
<ul style="list-style-type: none"> ➤ <i>Directed Reading Program Mentor</i> <p>Discussed weekly with an undergraduate mentee to study mathematical topics outside of the undergraduate coursework.</p>	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Spring 2020, Fall 2019 	<ul style="list-style-type: none"> 🔗
<ul style="list-style-type: none"> ➤ <i>Engineering Calculus I/II (MATH 151/152)</i> <p>– Teaching Assistant</p> <p>Wrote/graded weekly Python lab assignments and solution sets, and weekly quizzes.</p>	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Summer(2nd) 2020, Fall 2019, Summer(2nd) 2018 	
<ul style="list-style-type: none"> ➤ <i>Functions, Trigonometry and Linear Systems (MATH 150)</i> <p>– Teaching Assistant</p> <p>Lead weekly recitation, wrote and graded biweekly quizzes.</p>	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Spring 2021, Spring 2019, Fall 2018 	
<ul style="list-style-type: none"> ➤ <i>Engineering Mathematics III (MATH 251) & Business Calculus (MATH 142) & Applied Algebra (MATH 433) – Grader</i> <p>Graded (bi)weekly assignments or quizzes.</p>	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Summer 2019, Summer(1st) 2018, Spring 2018 	
<ul style="list-style-type: none"> ➤ <i>Linear Algebra (MATH 304/311/323) – Help Session</i> <p>Tutoring undergraduate students about junior-level linear algebra courses.</p>	<ul style="list-style-type: none"> 📍 Texas A&M Univ. 	<ul style="list-style-type: none"> 📅 Fall 2017 	

SERVICES & OUTREACH

<ul style="list-style-type: none"> CombinaTexas 2021 <p>Session Chair</p>	<ul style="list-style-type: none"> 📅 Feb 20-21, 2021 	<ul style="list-style-type: none"> 🔗
<ul style="list-style-type: none"> Student Working Seminar for Algebra and Geometry <p>CO-Organizer (w. Pablo Ocal)</p>	<ul style="list-style-type: none"> 📅 Fall 2020 	
<ul style="list-style-type: none"> American Mathematical Society Graduate Student Chapter <p>Vice Preseident</p>	<ul style="list-style-type: none"> 📅 Fall 2019 - Spring 2020 	

Student Working Seminar for Category Theory

Organizer

CombinaTexas 2019

Session Moderator

Integral Bee

Volunteer

STEMFest

Volunteer

High School Math Contest

Volunteer

Math Circle

Volunteer

📅 Summer 2019 – Fall 2019 

📅 Mar 23, 2019







📅 Mar 26, 2018

📅 Feb 3, 2018

📅 Oct 21, 2017

📅 Fall 2017 – Spring 2018

BUSINESS EXPERIENCE

- *38 Securities – Intern*  Quincy, MA.  Jan 2015 – Feb 2015
Developing algorithmic option trading application using open C++ API from Interactive Brokers.
- *Ars Praxia (former: TREUM) – Research Intern*  Seoul, Korea.  Jan 2013 – Jul 2013
Implemented a time-series analysis of a semantic network generated from 492,754 mentions on Twitter related to two elections, the Seoul city mayoral election of 2011 and the South Korean presidential election of 2012.
- *17th Division, Republic of Korean Army – Sergeant*  Seoul, Korea.  Feb 2011 – Nov 2012
 - Squad leader for the human resource department of the headquarters of the 307 th independent artillery battalion.
 - Reported the quinquennial financial status of the battalion for the financial audit of the Korean Army Headquarters.

LANGUAGES

English, Korean



\LaTeX /TikZ

Python, C, Macaulay2

C++

