

SULTAN AITZHAN

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EDUCATION

Yale-NUS College

July 2016 - May 2020 (expected)

B.S. in Mathematical, Computational, & Statistical Sciences.

Kazakh Turkish High School

September 2011 - May 2016

Received five distinctions for National Testing Exam.

RESEARCH EXPERIENCE

Unified Transform Method for Linear Evolution Equations

February 2019 - Present

Supervisor: Prof. David Andrew Smith

Yale-NUS College

- Conducted a study of Unified Transform Method (UTM) used to solve linear evolution equations on a finite interval for two-point boundary problems, and wrote up detailed notes explaining the use of the method. Analysed the implementation of UTM in programming language Julia by Linfan Xiao.
- Constructed an algorithmic procedure to find an adjoint of an ordinary differential operator with multipoint homogeneous conditions. Provided the necessary theoretical framework in the form of definitions, theorems, and proofs, and successfully implemented the procedure as an algorithm in programming language Julia. Presented my results at Yale-NUS Summer Research Symposium 2019.
- Received over SGD \$3000 to support the project from Yale-NUS College through the J Y Pillay Global-Asia Programme.

Sturm-Liouville Theory and Its History

August 2018 - December 2018

Supervisor: Prof. Chua Seng Kee

National University of Singapore

- Conducted a basic study of Sturm-Liouville theory and its history as a part of Undergraduate Research Opportunity Programme in Science (UROPS) at NUS.
- Learned about regular Sturm-Liouville problems, a qualitative theory of differential equations, and the history behind the emergence of the Sturm-Liouville Theory, and its progress in 19th and 20th centuries.
- Presented results to the Department of Mathematics at NUS, and drafted a report documenting my findings.

Independent Reading Project in Number Theory

May 2018 - August 2018

Supervisor: Prof. Francesca Spagnuolo

Yale-NUS College

- Read more than 20 mathematical papers related to four problems in number theory: gaps between prime numbers, linear equations in primes, the modularity theorem, and the Catalan's conjecture.
- Analysed the theory and implementation of the Hardy-Littlewood Circle Method in various problems of number theory.
- Documented my findings in the form of weekly reports, and drafted an exposition for every work read.

WORK EXPERIENCE

Yale-NUS Admissions & Financial Aid

August 2017 - Present

Student Associate, Tours & Outreach

- Gave campus tours and spoke to prospective students, their families, and high school counsellors at various admission events such as college visits by junior colleges, weekly campus tours, and Open Days.
- Regularly covered the office's reception desk at lunch hours.

- Engaged in conceptualisation and execution of Admissions events such as organising of Experience Yale-NUS Weekend and NUS Open Day, and representing Yale-NUS College at various school fairs.

Yale-NUS Centre for Teaching and Learning

August 2018 - Present

Peer Tutor

- A peer tutor for YSC2209: Proof, YSC2230: Linear Algebra, YSC3206: Real Analysis, and YSC3227: Modern Algebra. Tutor around 3-4 students from all years per week, both individually and in groups.

ADDITIONAL INFORMATION

Programming Languages

Python, R, Julia

Languages

English (fluent), Kazakh (native), Russian (native), Turkish (fluent)