

Trung Vu

hvu@illinois.edu • htrungvu.com • 507-581-2213
Citizenship: Vietnam

Research interests

Algebraic combinatorics, cluster algebra, exactly solved models, integrable lattice systems, representation theory

Technical skills

Programming and markdown languages

Proficient in: Python, MATLAB, R, HTML, CSS, \LaTeX , Mathematica
Familiar with: C++, Julia

Softwares and packages

Proficient in: Sage, Macaulay2, Qiskit (for quantum computing)
Familiar with: Tensor Flow, Arduino package from MATLAB, Pupil Labs (eye-tracking devices software)

Languages

English (fluent), Vietnamese (fluent)

Education

- 2020 – Present **University of Illinois at Urbana-Champaign** – Urbana, Illinois
PhD in Mathematics
Advisors: Professor Philippe Di Francesco and Professor Rinat Kedem
- 2016 – 2020 **St. Olaf College** – Northfield, Minnesota
BA in Mathematics with Concentration (minor) in Neuroscience

Honors and scholarships

- 2022 R. Ranga and Shantha Rao Scholarships (University of Illinois at Urbana-Champaign)
- 2019 [Steen Fellowship](#) (St. Olaf College)
\$4,170 to fund independent summer research project

Publications

- 2018 **Matrix Square Roots of Polynomials**
Kosmas Diveris, Trung Vu
Pi Mu Epsilon Journal.

Undergraduate Research Experience

Joint work at St. Olaf College and University of Illinois at Urbana - Champaign via Steen Fellowship

- Summer 2019 **Application of Algebraic Geometry and Geometric Invariant Theory on Functional Neuroimaging**
Mentor: Graduate Student Megan Finnegan

At. St. Olaf College

- Summer 2018 **Geographic Variation in Temporal Pattern Recognition in The Acoustic Parasitoid Fly *Ormia ochracea***
Mentor: Professor Norman Lee
- Fall 2017 –
Spring 2020 **Free Field Sound Localization Using the Sound Localization Arc**
Mentor: Professor Jeremy Loebach
- Fall 2017 –
Spring 2019 **Pupillometry and Auditory Cognition in Normal Hearing Listeners, Hearing Impaired Individuals and Cochlear Implant Users**
Mentor: Professor Jeremy Loebach
- Summer 2017 **Matrix Square Roots of Polynomial Project**
Mentor: Professor Kosmas Diveris.

Teaching

At University of Illinois at Urbana - Champaign

- Spring 2022 Teaching Assistant for Calculus 2
- Fall 2021 Teaching Assistant for Calculus 1, Ranked as Excellent by Students
- Spring 2021 Teaching Assistant for Calculus 2, Ranked as Excellent by Students

At. St. Olaf College

- Spring 2020 Teaching assistant for Real Analysis 1 and Combinatorics
- Fall 2019 Supplemental Instructor for Linear Algebra
- Spring 2019 Supplemental Instructor for Linear Algebra
- Spring 2018 Supplemental Instructor for Principles of Statistics
- Fall 2017 Academic Tutor for Calculus 1, Calculus 2 and Linear Algebra
- Fall 2017 Teaching Assistant for General Chemistry

Workshops and Conferences

- April 2022 Analytic Combinatorics in Several Variables Workshop
American Institute of Mathematics, San Jose, CA

Talks and Poster Presentations

Poster Presentations

- January 2019 Matrix Square Roots of Polynomial
Joint Mathematics Meetings, Undergraduate Poster Session, Baltimore, MD.
- May 2018 Pupillometry as A Measure of Auditory Cognitive Processes and Listening Effort.
175th Annual Meeting of the Acoustical Society of America, Minneapolis, MN
- May 2018 A Comparison of Free-field and Headphone Based Sound Localization Tasks.
175th Annual Meeting of the Acoustical Society of America, Minneapolis, MN

Talks

- March 2022 XXZ Model and Trigonometric R-matrix
IRT Seminar, University of Illinois at Urbana-Champaign
- February 2022 Introduction to Bethe Ansatz's Equation and the Algebraic Bethe Ansatz
IRT Seminar, University of Illinois at Urbana-Champaign

February 2022	Introduction to Yang-Baxter Equation and Quantum Integrable System <i>IRT Seminar, University of Illinois at Urbana-Champaign</i>
October 2021	T-system with Slanted Initial Data and Pinecone <i>IRT Seminar, University of Illinois at Urbana-Champaign</i>
October 2021	Arctic Curve Phenomenon of T-system via Multivariate Generating Function <i>IRT Seminar, University of Illinois at Urbana-Champaign</i>
May-June 2021	T-system, Dimers and Networks (A series of 5 talks) <i>IRT Seminar, University of Illinois at Urbana-Champaign</i>
February 2021	Introduction to the Pentagon Map, Part 1 - Part 3 <i>IRT Seminar, University of Illinois at Urbana-Champaign</i>
December 2020	Cluster Algebra and Y-patterns <i>IRT Seminar, University of Illinois at Urbana-Champaign</i>
October 2019	Matrix Square Roots of Polynomial <i>Northfield Undergraduate Mathematics Symposium, St. Olaf College, Northfield, MN.</i>
September 2019	Application of Algebraic Geometry and Geometric Invariant Theory on Functional Neuroimaging <i>Steen's Fellowship Event, St. Olaf College, Northfield, MN.</i>

Professional Memberships

2018 – Present	Pi Mu Epsilon Mathematical Honor Society
2018 – Present	Mathematical Association of America