Trung Vu

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Citizenship: Vietnam

Research interests

Algebraic combinatorics, cluster algebra, combinatorial aspects of vertex models, exactly solved models and integrable systems, quantum computing

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

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.*

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 – Sping 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 experience

At University of Illinois at Urbana - Champaign

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

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

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 *IRT Seminar, University of Illinois at Urbana-Champaign*
October 2021	T-system with Slanted Initial Data and Pinecone *IRT Seminar, University of Illinois at Urbana-Champaign*
October 2021	Arctic Curve Phenomenon of T-system via Multivariate Generating Function *IRT Seminar, University of Illinois at Urbana-Champaign*

May-June 2021	T-system, Dimers and Networks (A series of 5 talks) *IRT Seminar, University of Illinois at Urbana-Champaign*
February 2021	Introduction to the Pentagram Map, Part 1 - Part 3 *IRT Seminar, University of Illinois at Urbana-Champaign*
December 2020	Cluster Algebra and Y-patterns *IRT Seminar, University of Illinois at Urbana-Champaign*
October 2019	Matrix Square Roots of Polynomial *Northfield Undergraduate Mathematics Symposium, St. Olaf College, Northfield, MN.*
September 2019	Application of Algebraic Geometry and Geometric Invariant Theory on Functional Neuroimaging *Steen's Fellowship Event, St. Olaf College, Northfield, MN.*

Professional Memberships

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