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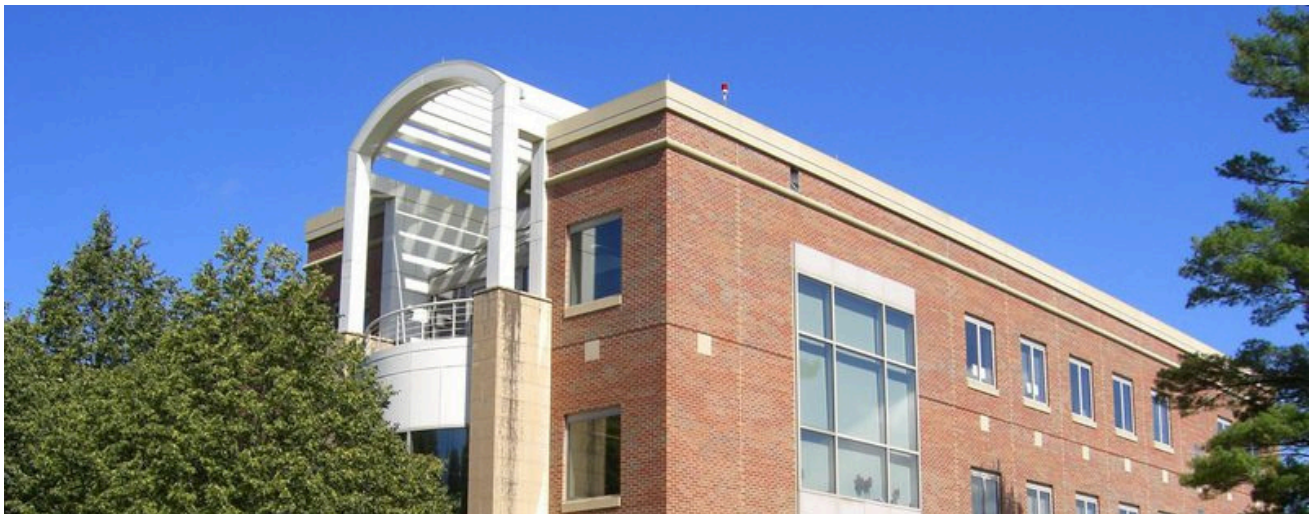
MAST MESSENGER



IN THIS ISSUE

Math/Stats Colloquium

Speaker: Josh Starmer (StatQuest)
Date: Tuesday, November 11, 2025
Time: 4:00 - 5:00 pm
Location: CMC 206

Title: Quantifying our confidence in neural networks and AI

Abstract: Although large language models and AI are known to generate false or misleading responses to prompts, relatively little effort has been made to understand how we can quantify the confidence we should have in their outputs. In this seminar, I will illustrate the problem using a simple neural network and then demonstrate two methods for quantifying confidence in model outputs. Finally, I will show how these methods can be applied to large language models and AI. This talk does not require prior knowledge of how neural networks or AI work.

Independent Comps

Independent comps will take place on Tuesday, November 4th in CMC 206. Take a look at what Nathaniel Cheng will be speaking about below, and then be sure to stop by and support Nathaniel while he demonstrates what he's learned. You're likely to learn something new as well!

Title: Binary Quadratic Forms and Beyond – From Gauss to Bhargava
Presenter: Nathaniel Cheng
Time: Tuesday, November 4, 4:00-4:30 pm

Abstract: The study of binary quadratic forms has a rich and storied history. One of the most important discoveries in this subject is Gauss' composition law on integral binary quadratic forms, which built a bridge between such forms and ideals in quadratic orders. Unfortunately, Gauss composition in its original form is hard to understand, and remains one of the most obscure parts of Gauss' Disquisitiones Arithmeticae (1801). The next breakthrough came only around two centuries later, when Manjul Bhargava discovered a striking reinterpretation using the symmetries of 2 x 2 x 2 integer cubes. This geometric perspective led to generalizations of Gauss composition, which have had wide reaching applications in arithmetic statistics. In this talk, we first introduce the classical work of Gauss and Dirichlet before turning to Bhargava's modern approach. We recover Gauss composition as a special case of this framework and conclude with an exposition of the resulting composition law on binary cubic forms.

Graduate Program

The Master of Arts in Statistics program at Columbia University

The Master of Arts in Statistics program at Columbia University is now accepting applications for Fall 2026. Register HERE to join the Fall 2026 MA in Statistics Information Session to learn about the five tracks being offered in the program. Each session is led by the Program Director and student support team, so you'll have a chance to ask any questions you may have.

Events

Franklin Templeton Investments Information Session
Friday, November 7, 2025 • 10:50 - 11:50 a.m. • Hasenstab Hall 105

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