

# Vu Yen Nhi Truong (Nhi)

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## EDUCATION

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**Stanford University**, Stanford, CA

*Sep 2017 - present*

- Ph.D. in Mathematics, GPA: 4.11/4.00, Advisor: George Papanicolaou (Expected: 2022)
- Research in applications of random matrix theory

**Amherst College**, Amherst, MA

*Aug 2013 - May 2017*

- B.A. in Mathematics, Summa Cum Laude with Distinction, GPA: 4.0/4.0, Valedictorian

## PROJECTS

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**Two Machine Learning Approaches for Statistical Arbitrage Pairs Selection**

*Spring 2019*

- Optimized stock choices for pairs trading using 2 approaches: (1) linear factor model with PCA and k-means clustering, (2) representing stock time series as images using Gramian Angular Field and applying a Convolutional AutoEncoder to identify clusters.
- Outperformed pair picking based on industry with a p-value of 0.001.

**Instrumented Principal Component Analysis (IPCA)**

*Spring 2019*

- Programmed the IPCA method by Kelly et al (2017), which allows for dynamic loadings of latent factors.
- Applied IPCA to a 52-year data set with monthly observations of 36 characteristics of 10,000 stocks

## RELEVANT COURSEWORK

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CS238 Decision Making under Uncertainty, CS236 Deep Generative Models (Projects TBD)

*Fall 2019*

CS229 Machine Learning, Stats 315B Modern Applied Statistics: Data Mining

*Spring 2019*

## TEACHING EXPERIENCE

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**Instructor, Stanford Math Circle**

*April 2018 - present*

- Designed, planned and taught mathematical enrichment courses to 1st-4th graders. Advanced materials include: tower of Hanoi and connection to Sierpinski triangle, Catalan number and André's reflection method, etc.

**Teaching Assistant, Stanford University and Amherst College**

*May 2014 - present*

- Held office hours and taught sessions for various courses: applied matrix theory, linear algebra, introduction to analysis, abstract algebra, ordinary differential equations.

## SELECTED PUBLICATION

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- K. Cordwell, A. Epstein, A. Hemmady, S.J. Miller, E. Palsson, A. Sharma, S. Steinerberger, Y.N. Truong Vu, *On algorithms to calculate integer complexity*, **Integers** 19 (2019).
- P. Burkhardt, P. Cohen, J. Dewitt, M. Hlavacek, S.J. Miller, C. Sprunger, Y.N. Truong Vu, R. Van Peski, K. Yang, *Random matrix ensembles with split limiting behavior*, **Random Matrices Theory Appl.** 7 (2018).
- A. Folsom, C. Ki, Y.N. Truong Vu, B. Yang, "Strange" combinatorial quantum modular forms, **Journal of Number Theory** 170 (2017).

## SKILLS

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- **Languages:** English (fluent), Vietnamese (native), French (upper-intermediate), Chinese (elementary)
- **Programming Skills:** Python, Scikit-learn, TensorFlow, R, Mathematica, MATLAB, Java