DAJUN XU

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EDUCATION

Expected 12/23	**NEW YORK UNIVERSITY** **The Courant Institute of Mathematical Sciences** **M.S. in Mathematics in Finance**	New York, NY

- ***Expected Coursework:*** stochastic calculus, Black-Scholes equation, fixed-income securities, portfolio optimization, statistical inference, machine learning, object-oriented programming

09/17 - 03/22	**UNIVERSITY OF CALIFORNIA, IRVINE** **B.S. in Mathematics (Honors Program), B.S. in Neurobiology**	Irvine, CA

- ***Coursework:*** real analysis, linear algebra, numerical analysis, stochastic process, partial differential equations, numerical differential equations, optimization, modeling in biology

EXPERIENCE

06/20 - 08/20	**UNIVERSITY OF CALIFORNIA, IRVINE** **MathBioU Research Assistant**	Irvine, CA

- Calculated and mapped electrostatic impacts of remdesivir nucleotide analogue on SARS-CoV-2 RNA-dependent polymerase with Poisson-Boltzmann equation
- Visualized and rendered calculated data and identified potentially interesting protein regions for further molecular dynamics simulation
- Mentored 2 high school students on partial differential equations and academic writing
- Contributed to research, resulting in publication of Probing remdesivir nucleotide analogue insertion to SARS-CoV-2 RNA dependent RNA polymerase in viral replication

03/19 - 03/22   **Math Department Grader**

- Graded homework for more than 300 students in upper-division courses including real analysis, linear algebra, abstract algebra, and probability
- Provided feedback to instructors and students, and wrote solutions for abstract algebra notes
- Held Q&A sessions with students on real analysis problems and exam reviews

ACADEMIC PROJECTS

08/21 - 09/21	**UNIVERSITY OF CALIFORNIA, IRVINE** **Image Steganography**	Irvine, CA

- Used least significant bits method to conceal secret image within original one
- Combined discrete cosine transform with neural network to reduce size of secret images
- Trained encoder and decoder neural networks to encode secret images and scatter their information in original images

03/20 - 06/20   **Epidemic Modeling**

- Implemented delayed SIR model with MATLAB to fit and predict number of COVID-19 cases
- Added delayed differential equation and equation solver to Bayesian interference and Markov chain Monte Carlo model to account for oscillation in daily COVID-19 case trend

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, MATLAB, Java, Mathematica, R
Languages: English (fluent), Mandarin (native)