Colin Xie

2840 Jackson Ave, NY 11101 | 979-739-3611 | colinjianingxie@gmail.com | LinkedIn | Website

EDUCATION

THE UNIVERSITY OF CHICAGO — **Chicago, IL**
Master of Science in Computer Science — **October 2019 – December 2020**

- Key Courses: NLP, Machine Learning, Time Series Analysis and Stochastic Processes, Applied Financial Technology, Big Data Architecture, Computer Architecture, Networks, Algorithms

UNIVERSITY OF TEXAS AT AUSTIN — **Austin, TX**
Bachelor of Science in Mathematics — **August 2015 – May 2019**

- Key Courses: Discrete Mathematics, Multivariable Calculus, Linear Algebra, Numerical Analysis, Real Analysis, Probability, Number Theory, Applied Statistics, Parallel Computing, Accounting, Finance, Microeconomics
- Minors: Computer Science, Business

EXPERIENCE

MILLENNIUM MANAGEMENT — **Miami, FL**
Software Engineer — **January 2024 - Present**

- Learning!

TEMPUS — **New York, NY**
Full Stack Software Engineer — **March 2021 – December 2023**

- Architect and implement a data delivery pipeline for patient cohorts by creating precomputed patient tables, reducing query times by 90% and providing customers access to the fastest microservices in LENS, a research tool for oncologists
- Create a global search microservice for locating molecular metadata in the LENS ecosystem using Trigram search and weighted priorities, capable of filtering through 1.6 million key concepts in less than 0.001s
- Enhance LENS performance by developing REST APIs utilizing Django ORM and leveraging BigQuery's nested repeatable fields, increasing LENS processing capabilities from 300,000 patient rows to 6 million patient rows
- Lead over 10+ production releases with cross-functional teams and develop a DORA metrics system using PythonGit, Concourse API, PostgreSQL, and Grafana to track release inefficiencies, resulting in 25% speed up of CI/CD pipeline

UNIVERSITY OF CHICAGO, HARRIS PUBLIC POLICY — **Chicago, IL**
Research Assistant — **October 2019 – December 2020**

- Built a web crawler that scrapes and tags over 1 million site paragraphs a day, storing inside an AWS Redshift database
- Developed an internal search engine in Python that utilizes Jaro similarity to filter scraped public policy job postings

NOKIA — **Austin, TX**
Software Engineer Intern — **October 2018 – August 2019**

- Prototyped AR applications for IoT/M2M device data processing, collection, and analysis in AWS Sumerian
- Monitored service traffic in Kubernetes clusters by parsing Ingress Controller logs using Prometheus and Grafana

SELECTED PROJECTS

Option Pricing — **February 2023 - May 2023**

- Developed a program using C++ and Boost libraries that computes the closed solutions and Greeks for European options and Perpetual American Options based on the Black-Scholes option pricing formula
- Conducted Monte Carlo simulations utilizing the Euler-Maruyama method to estimate the prices of European Options

Backtesting Webapp — **October 2022 - January 2023**

- Engineered a user friendly backtester incorporating an S&P 500 scraping pipeline, an intraday stock movement simulator, and an account portfolio system using Python, Django, PostgreSQL, HTML, and Javascript
- Experimented with various strategies including Moving Average Crossover, Lagged Forecasting, and Intraday OLS Mean Reverting to analyze total returns, Sharpe ratios, maximum drawdowns, and drawdown duration

Question and Answer BiDAF Model — **July 2020 - August 2020**

- Extended the BiDAF model trained on SQuAD v2.0 by introducing a weighted average word embedding layer and a self-attention layer, improving the baseline model's F1 and EM scores by 5%
- Experimented with LSTMs, RNNs, and loss functions decreasing training times by 15% and improving F1 scores by 2%

Color Tap - A Game of Finger Dexterity — **September 2017 - February 2018**

- Designed, programmed, and published a hyper casual Android game developed with Processing, generating over 4100+ installations and 300+ daily players

Generalized Interatomic Two-Body Potential-Energy Function — **January 2012 – May 2015**

- Invented a universal four-parameter potential-energy function that could model potentials within a 3% relative error

- Obtained optimal parameters for potential functions by comparing to Gaussian calculations and experimental data, utilizing a custom Fortran nonlinear least squares fitting program based on the Differential Evolution method

PUBLICATIONS

- J.C. Xie, S.K. Mishra, T. Kar, and R.H. Xie (2014): Generalized Interatomic Pair-Potential Function: Chemical Physics Letters, Vol. 605-606. pp.137-146.
- J.C. Xie, T. Kar, S.K. Mishra, and R.H. Xie (2014): Improved Pair-Potential Function for Diatomic Systems: Chemical Physics Letters, Vol. 593. pp.77-82.
- J.C. Xie, T. Kar, and R.H. Xie (2014): An Accurate Pair Potential Function for Diatomic Systems: Chemical Physics Letters, Vol. 591. pp.69-77.
- J.C. Xie, T. Kar, and R.H. Xie (2014): Pauli–Rydberg–London Potential: An Accurate Pair Potential Function for Diatomic Systems: Journal of Nanoscience and Nanotechnology, Vol. 14. pp.3993-4001.

ADDITIONAL INFORMATION

Languages: English (fluent), Mandarin (fluent), French (basic)
Programming: Python, C++, Java, Swift, HTML, CSS, Javascript, React.js, SQL, Numpy, Pandas, Django, Scrapy, Boost libraries
Technologies: PostgreSQL, Git, Kubernetes, Concourse, Jira, Visual Studio, Depcom, GCP, Firebase, Xcode
Certificates: Akuna Capital Options 101, Baruch C++ Programming for Financial Engineering with Distinction
Honors: Intel STS National Semifinalist (2015), Siemens Research Competition Regional Finalist (2014), Sigma Xi SRS National Chemistry Champion (2014), Member of Sigma Xi
Interests: Table Tennis, Rubik's Cubing (18s 3x3 average; top 2000 in world for 3x3 blindfolded average), Cardistry