Jubiao "Jack" Yang

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BIOGRAPHY

Financial strategist with experience and expertise in quantitative investment strategies and systematic trading strategies.

SKILLS

Finance

Quantitative Investment Strategies; Systematic Trading Strategies.

Programming

Extensive coding experience in Slang, C++, Fortran, Python, Matlab; object-oriented programming and dataflow programming; systems design. Academic experience in in-house finite element software development, projects on operations research/optimization, as well as industry experience in financial backtesting systems and framework design.

Presentation

Experience in creating documents and presentation slides with LaTeX and Microsoft Office suite. Experience in creating webpages in HTML.

LICENSES AND CERTIFICATIONS

General Securities Representative Examination	Series 7	FINRA
Uniform Securities Agent State Law Exam	Series 63	FINRA

EDUCATION

Aug 2016	Ph.D., Mechanical Engineering	Rensselaer Polytechnic Institute	GPA: 4.0/4.0
Dec 2015	M.Sc., Applied Mathematics	Rensselaer Polytechnic Institute	GPA: 4.0/4.0
Jun 2010	B.Sc., Mechanical Engineering	University of Science and Technology of China	GPA: 3.83/4.3

EXPERIENCE

Vice President - Strategist   Aug 2021 - present
Quantitative Investment Strategies, **Goldman Sachs**, New York, NY

Developing and backtesting systematic strategies, with assets allocation across equities, interest rates, currencies, commodities, and credit; using statistical, quantitative, and econometric techniques to improve portfolio performance.

Applying statistical analysis and modeling in order to design and test the performance of proposed new strategies, including testing of robustness of the performance, distribution of losses and gains, and risk analysis of such strategies.

Developing and enhancing automated systems and tools to allow for creating new systematic strategies, ensuring timely order generation and exception handling, and streamlining front-to-back workflow.

Collaborating with portfolio managers on signals research, new factors creation and testing, compliance with regulations and rules, and product development.

Vice President - Strategist   Jan 2020 - Aug 2021
Associate - Strategist   Oct 2016 - Dec 2019
Systematic Trading Strategies, **Goldman Sachs**, New York, NY

Developed and backtested new systematic strategies for investors in commodities, interest rates, and currencies, with primary focus in the commodities area, analyzing robustness of performance and distribution of losses and gains.

Developed automated systems for settlement and backtest of systematic trading strategies and indices across asset classes in equities and FICC.

Maintained front-office modeling and risk systems to capture market risks of trades that the firm has entered into with clients and other market participants.

Collaborated across different teams to create a web-interfaced backtesting and portfolio rebalancing environment, extended accessibility of internal backtesting and settlement systems to external clients, in order to increase client base from traditionally investors to corporations, and to grow potential business opportunities across different business units.

Implemented automated regression tests for systematic strategies to meet regulatory requirements for governance, control, and due diligence.

Developed automated tools to generate documentations for systematic strategies, improving efficiency of strategy setup process and documentation accuracies.

Created automated reporting for internal and external users in order to analyze performance of systematic strategies as well as market risks and exposure.

Collaborated with and supported sales and trading teams on developing new products, in order to grow overall revenue of the systematic trading strategies business unit.

Research Assistant (funded by National Institutes of Health)   Jan 2012 - Aug 2016
Scientific Computation Research Center, ***Rensselaer Polytechnic Institute***, Troy, NY

Maintaining and adding functionalities to in-house scientific computation software, and consolidated previously disorganized functionalities into a single version; as a result software maintenance and simulation process are more streamlined.

Implemented Perfectly Matched Layer technique to absorb incident waves at numerical fluid domain boundaries; as a result it is feasible to conduct flow and fluid-structure interaction simulations in partially and fully unbounded fields.

Implemented contact mechanics algorithm for structural contact simulations; as a result able to solve for Signorini-type contact problems encountered in simulation of vocal fold vibration.

Conducted simulations of interaction between laryngeal airflow and vocal fold vibration in finite-length and unbounded vocal tracts. Achieved sustained vocal fold vibration driven by airflow, and analyzed different vibration patterns caused by filter effect of finite-length vocal tract.

Derived a generalized Bernoulli equation and control volume equations on momentum and energy; analyzed the dynamics of laryngeal airflow and the driving mechanism of vocal fold vibrations; quantified energy utilization in the phonation process.

Implemented a preprocessing program that converts finite-element mesh data format in a streamlined fashion.

Collaborating with researchers at Pennsylvania State University on analyzing experimental and computational results for comprehensive study of aeroelastic and aeroacoustic aspects of the phonation process.

Teaching and Learning Assistant   Fall 2015, Spring 2016
Advising and Learning Assistance Center, ***Rensselaer Polytechnic Institute***, Troy, NY

Tutored undergraduate students on courses including *Strength of Materials*, *Introduction to Engineering Analysis*, and *Engineering Dynamics*; helped with other courses such as *Physics I and II*, *Thermal and Fluids Engineering I*, and *Electronic Instrumentation* upon request.

Held workshops on various topics including *introduction to finite element method*, *creating CAD models in SolidWorks*, *making document and résumé using LaTeX*, and *introduction to programming*; helped students with questions encountered in projects.

Held office hours for students in need of assistance outside of regular tutoring sessions.

Teaching Assistant   Fall 2010 - Spring 2012, Fall 2013, Fall 2014
Department of Mechanical, Aerospace, and Nuclear Engineering, ***Rensselaer Polytechnic Institute***, Troy, NY

> Independently taught and supervised the lab sessions for *Modeling and Control of Dynamic Systems*; introduced/revisited relevant theories, covered experimental procedures, and assisted with data processing and analysis.

> Redesigned outdated procedures in lab experiments.

> Held regular office hours to answer questions on pre-lab assignments and homework.

> Graded lab reports, as well as midterm and final exams; proctored exams upon request.

Contestant Team Member: 2015 MOPTA Optimization Modeling Competitions   2015
Department of Mathematical Sciences, ***Rensselaer Polytechnic Institute***, Troy, NY

> Formulated a project scheduling problem using mixed integer programming; under constraints of avoiding conflicts between certain projects and only commencing projects upon completion of their prerequisite projects, maximized the total profit out of the project portfolio.

> Implemented the optimization program in the custom modeling language in AIMMS optimization software.

> Designed interactive user interface and demonstrated the optimal schedule with Gantt chart.

> Team won Second-place Prize in the competition.

Contestant Team Member: 2014 MOPTA Optimization Modeling Competitions   2014
Department of Mathematical Sciences, ***Rensselaer Polytechnic Institute***, Troy, NY

> Formulated an energy pricing problem using linear and quadratic programming; under constraints of avoiding drastic change in energy consumption behavior, and keeping prices for residential and office customers under a certain level compared to those for industrial customers, by adjusting the prices for different customers at different hours, maximized the total revenue generated from providing energy.

> Implemented the optimization program in the custom modeling language in AIMMS optimization software.

> Designed interactive user interface, provided options to tune parameters, and demonstrated the optimal pricing scheme with tabular data and graphs.

> Team won Honorable Mention in the competition.

AWARDS AND HONORS

2015	Professional Meeting Travel Award	*Rensselaer Polytechnic Institute*
2015	Second-place Team	*MOPTA Optimization Modeling Competition*
2015	"Math Matters, Apply It!" Contribution	*Society for Industrial and Applied Mathematics*
2014	APS Travel Grant	*American Physical Society*
2014	Professional Meeting Travel Award	*Rensselaer Polytechnic Institute*
2014	Honorable Mention Team	*MOPTA Optimization Modeling Competition*
2013	Professional Meeting Travel Award	*Rensselaer Polytechnic Institute*
2010	Graduation with Great Honor	*University of Science and Technology of China*
2009	Outstanding Undergraduate Research	*University of Science and Technology of China*
2009	Excellent Student Scholarship	*University of Science and Technology of China*
2008	Excellent Student Scholarship	*University of Science and Technology of China*
2007	National Scholarship	*Ministry of Education of China*

PUBLICATIONS AND CONFERENCES

J. Yang, F. Yu, M. H. Krane, and L. T. Zhang, "The Perfectly Matched Layer absorbing boundary for fluid-structure interactions using the Immersed Finite Element Method," *J. Fluid. Struct.*, 2018.

J. Yang, X. Wang, M. H. Krane, and L. T. Zhang, "Fully-coupled aeroelastic simulation with fluid compressibility – For application to vocal fold vibration," *Comput. Meth. Appl. Mech. Engr.*, 2017.

L. T. Zhang and J. Yang, "Evaluation of aerodynamic characteristics of a coupled fluid-structure system using generalized Bernoulli's principle: An application to vocal folds vibration," *J. Coupled Syst. Multiscale Dyn.*, 2016.

L. T. Zhang, J. Yang, and M. H. Krane, "A budget of energy transfer in a sustained vocal folds vibration in glottis," presented at the 69th Annu. Meeting of the Amer. Phys. Soc. Div. of Fluid Dyn., Portland, OR, 2016.

J. Yang, M. H. Krane, and L. T. Zhang, "Numerical Simulation of Phonation: a study of dynamic relevance of glottal jet asymmetry," in *Proc. 12th World Congr. on Comput. Mech. and 6th Asia–Pacific Congr. on Comput. Mech.*, Seoul, South Korea, 2016.

J. Yang, N. Zhen, and L. T. Zhang, "The Effectiveness of the Perfectly Matched Layer in Fluid-Structure Interaction Problems," in *Proc. 12th World Congr. on Comput. Mech. and 6th Asia–Pacific Congr. on Comput. Mech.*, Seoul, Korea, 2016.

J. Yang, M. H. Krane, and L. T. Zhang, "Dynamic and energetic relevance of glottal jet asymmetry," in *Proc. 10th Int. Conf. on Voice Physiology and Biomechanics*, Viña del Mar, Chile, 2016.

L. T. Zhang and J. Yang, "The Effectiveness of the Perfectly Matched Layer in Fluid-Structure Interaction Problems," presented at the 68th Annu. Meeting of the Amer. Phys. Soc. Div. of Fluid Dyn., Boston, MA, 2015.

J. Yang, M. H. Krane, and L. T. Zhang, "Dynamic and energetic relevance of glottal jet asymmetry," presented at the 68th Annu. Meeting of the Amer. Phys. Soc. Div. of Fluid Dyn., Boston, MA, 2015.

J. Yang, M. H. Krane, and L. T. Zhang, "Simulations of acoustic waves in channels and phonation in glottal ducts," presented at the 67th Annu. Meeting of the Amer. Phys. Soc. Div. of Fluid Dyn., San Francisco, CA, 2014.

J. Yang, M. H. Krane, and L. T. Zhang, "Control volume analyses of glottal flow using a fully-coupled numerical fluid-structure interaction model," presented at the 66th Annu. Meeting of the Amer. Phys. Soc. Div. of Fluid Dyn., Pittsburgh, PA, 2013.

J. Yang and L. T. Zhang, "Vocal Folds Simulations with Contact Algorithm," presented at the 65th Annu. Meeting of the Amer. Phys. Soc. Div. of Fluid Dyn., San Diego, CA, 2012.