SSMFFE 03

3rd Summer School In Mathematical Finance and Financial Engineering "SSMFFE 03"

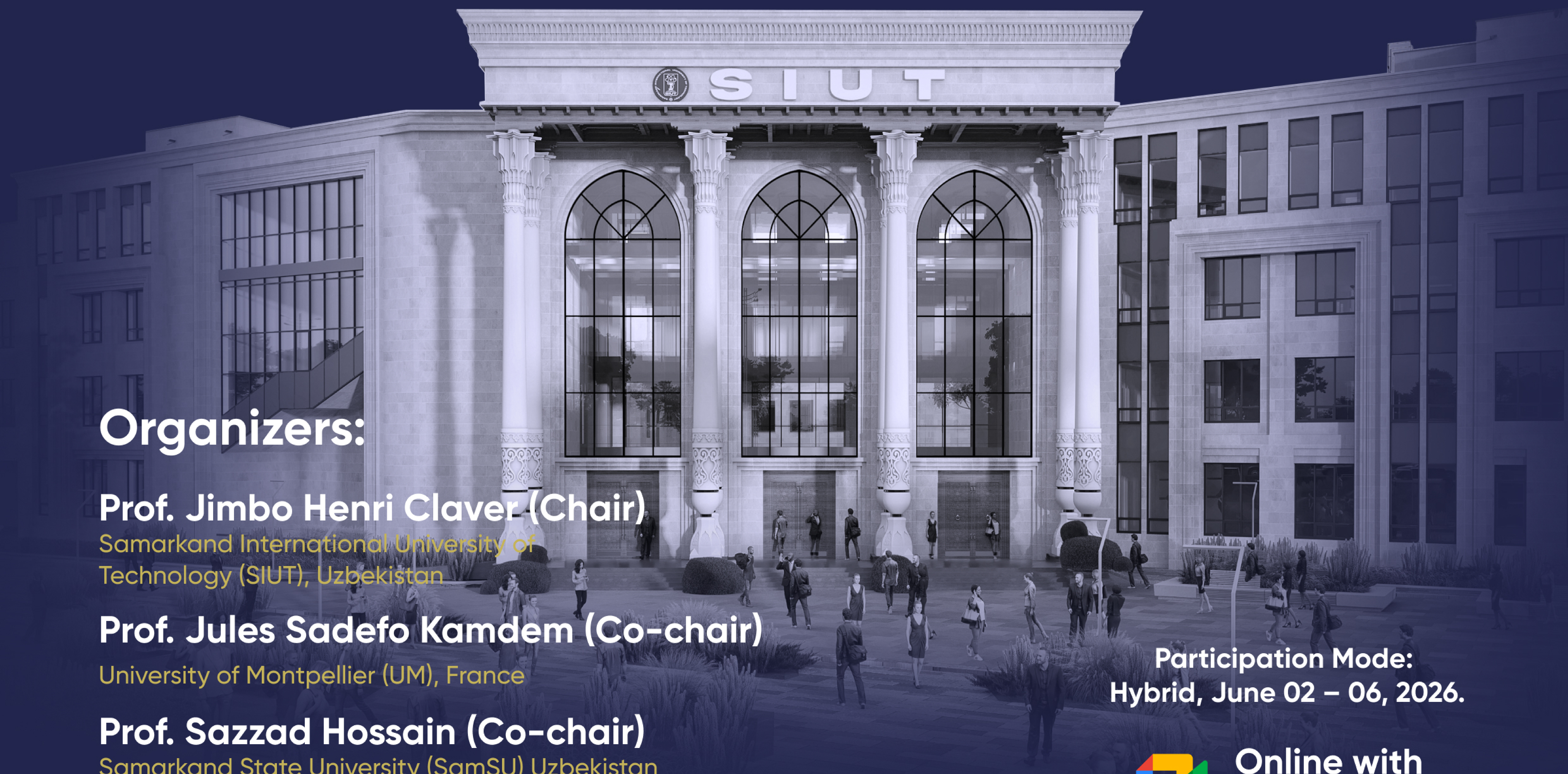
Jomo Kenyatta University of Agriculture and Technology (JKUAT)

June 02 – 06, 2026, Nairobi, KENYA

Conference Theme

Fostering AI, Cybersecurity, and Quantum Finance in Africa's Digital Transformation

"Africa's Scientific Silk Road 2050"



Organizers:

Prof. Jimbo Henri Claver (Chair)
Samarkand International University of Technology (SIUT), Uzbekistan

Prof. Jules Sadefo Kamdem (Co-chair)
University of Montpellier (UM), France

Prof. Sazzad Hossain (Co-chair)
Samarkand State University (SamSU) Uzbekistan

Assoc. Prof. Tesfahun Berhane (Co-chair)
Bahir Dar University, Ethiopia (BDU), Ethiopia

Assoc. Prof. Longla Martial (Co-chair)
University of Mississippi (UMi), USA

Dr. Prof. Offen Elias
University of Botswana (UB), Botswana

Dr. Jane Duda
Jomo Kenyatta University of Agriculture & Technology (JKUAT), Kenya

Participation Mode:
Hybrid, June 02 – 06, 2026.

Online with Google Meet

Supervisions:

Sakura Research International & AI Cybersecurity and Quantum Computing Group

In Honor of Prof. Takeru Suzuki, Emeritus Professor, Waseda University, Tokyo, Japan

Contact: jimbo.maths@gmail.com

Venue: PAUSTI and STACS (Statistics and Actuarial Sciences -JKUAT)

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Summer School Agenda

The third Summer School on Mathematical Finance and Financial Engineering (SSMFFE 03) is a key scientific event aimed at fostering studies and discussions on recent breakthroughs, emerging trends, and new directions in Mathematical Finance and Financial Engineering. As the second such school to be held in Central and East Africa, SSMFFE 03 will focus on a broad range of topics, including:

- Mathematical Finance
- Linear and Nonlinear Financial Dynamics
- Financial Modelling and Simulation
- Computational Finance
- Portfolio Optimization
- Fractional Financial Markets
- Multiobjective Optimization
- Risk Metrics and Quantitative Risk Analysis
- Applied AI and AI in Finance
- Financial Engineering
- Asset Pricing and Green Finance
- Digital Transformation
- Fintech, RegTech, and Cybersecurity
- Quantum Computing
- Blockchain Technology
- Cryptocurrencies and Bitcoins

DAY 1

Tuesday, June 02, 2026

8:45 – 9:00

Summer School Opening
Welcome Message of the Chair of Organizing Committee

9:00 – 10:30

Plenary Session 1
Prof. Jimbo Claver: Leveraging Quantum Finance for Digital Transformation
Prof. Sazzad Hossain: AI, Cybersecurity, and Quantum Computing in Finance

10:30 – 11:30 Coffee Break

11:30 – 13:00

Plenary Session 2
Prof. Kamdem Sadeffo: Non-Linear Portfolio Optimization with Risk Specification
Dr. Jane Duda: Mathematical Modelling and Predictive Analysis

12:30 – 13:00 Coffee Break

13:00 – 15:00

Plenary Session 3
Prof. Tesfahun Berhane: AI Credit Risk Default and Fraud Detection in Finance
Prof. Longla Martial: Dependence & Mixing for Perturbations of Copula-Based Markov Chains
Dr. Offen Elias: Option Pricing under Stochastic Volatility and Exogenous Factors

15:00 – 17:00

Afternoon Session
Poster Presentation and Simulation Practical Sessions
Excursion: The Nairobi CBD

DAY 2

Wednesday, June 03, 2026

9:00 – 14:00

Special Session I: Financial Asset Pricing and GARCH Modelling

Chair: Prof. Tesfahun/Prof. Tchoua Paul

Speaker 1: Prof. Valentin Kotov
Modelling and Predicting Investment Attractivity of Export industry in Uzbekistan

Speaker 2: Prof. Tchoua Paul
Comparing Analytical and Numerical Solutions of SPDEs

Speaker 3: Dr. Amadou Diallo
Pricing Commodities with Mixed Brownian Motions on Data from Senegal

Speaker 4: Dr. Djeutcha Eric
Mixed Modified Fractional Stochastic Volatility Model with Application to DSX

Speaker 5: : Mr. Mikhail Sokolov
Digital Cross – Border Payments in International Logistics

Speaker6: Mr. Cyrille Nzotem
Leveraging Dynamic Correlations in Factor Models for Financial Options Pricing

Speaker 7: Mr. Dinga Bruno
Predicting Exchange Rates Volatility Using Hybrid ARIMA-GARCH Model

Speaker 8: Mr. Ndjopnang Yves
Developing a Novel Unified Option Pricing Model Tailored for African Markets

Speaker 9: Mr. Michael Kanouo
GAMM Modelling for Predictive Assessment

Speaker 10: Mr. Dennis Ogot Odhiambo
A Meta-Learning Model Selection Framework for Forecasting Agricultural Commodity Prices based on Time Series features and Market Indicators

Speaker 11: Mr. Martin Kegnenlezom
Parameter Estimation in Jump Diffusion Process of Electricity Prices under Price-Cap

12:30 – 13:00 Break Time

15:00 – 17:00

Poster Presentation and Simulation Session
Excursion: Silicon Savannah, Nairobi

DAY 3

Thursday, June 04, 2026

9:00 – 14:00

Special Session III: Financial Risk Metrics and Computation

Chair: Prof. Kamdem Sadefo /Prof. Valentin Kotov

Speaker 1: Dr. Abdoulaye Compare
Optimality Conditions for Nonlinear, Nonconvex, Fuzzy Optimization with Granular Differentiability: Application to Portfolio Optimization

Speaker 2: Prof. Zuma Kasozi
Numerical Methods and Optimizations Techniques in Risk Theory

Speaker 3: Mr. Ltanwa Jean
Financial Modelling and Prediction for Digital Transformation

Speaker 4: Mr. Zourmba Boris
Dynamic Mixture Copulas Model for Anti-Fragile Portfolio VaR and ES Forecasting.

Speaker 5: Mr. Tebor Harry
Reinforcement Learning for Portfolio Selection: An Artificial Intelligence Approach

Speaker 6: Mr. Nzotem Cyrille
Multi-Factor Model Calibration for Illiquid Markets: Challenges and Solutions for African Stock Exchanges

Speaker 7: Mr. Mikhail Sokolov
Digital Transformation in Logistics for Emerging Market

Speaker 8: Mr. Matthew James Turay
Export-Driven GDP Growth Models using Second-Order Cone Programming Under Tail Risk Constraints

Speaker 9: Mr. Solomon Onuche JOSEPH
Advancing Market Risk Assessment in Emerging Financial Markets: A Hybrid Econometric-Deep Learning Approach.

Speaker 10: Ms. Maschal Yeshitila
A Lagrangean-Guided Adaptive Heuristic for the Capacitated Warehouse Location Problem

14:00 – 15:00 **Break Time**

15:00 – 17:00

Speaker 1: Prof. Tsegaye Ayele
Specifying Solutions of Differential Equations and Applications

Speaker 2: Prof. Samuel Assefa
Adaptation of Deep Sequencing Data

Speaker 3: Dr. Haileab Araya
A hybrid MGARCH-LSTM model for forecasting exchange rate volatility

Speaker 4: Dr. Tamiru Melese
Enhancing Portfolio Optimization through Stock Market Prediction Using Advanced Deep Learning Algorithms

Speaker 5: Nurilign Shibabaw
Forecasting Extreme Daily Rainfall Using An Advanced Hidden-Markov Chain Analogue Year Model

Speaker 6: Mr. Emmanuel ASMAH
Spatiotemporal Hawkes Processes with Mean-reverting Non-negative Stochastic Excitations.

Speaker 7: Mr. Elias Dessie
Prediction of Time Varying Volatility and Correlation in Stock Markets and Some Agricultural Commodities: A Hybrid Asymmetric DCC-GARCH with LSTM Model

Speaker 8: Mr. Arega Denekew
LLM Enhanced Portfolio Optimization: Integrating Gemini AI with LSTM-ARIMA-GARCH Hybrid Models for Superior Risk Adjusted Returns

Speaker 9 Mr. Hailemariam Eshetie
Market Entry Barriers in Non-Issuer Green Bond Markets: An Integrated Feasibility Pricing Model with Cross Country Evidence from Developing Economies

17:00 – 18:00

Poster Presentation

Excursion: Konza City (Visit OUK and KIST)

DAY 4

Friday, June 05, 2026

17:00 – 18:00

Special Session IV: AI In Finance, Cybersecurity and Quantum Computing

Chair: Prof. Sazzad Hossain /Prof. Jimbo Claver

Speaker 1: Prof Kanad Ray
Quantum AI and Consciousness

Speaker 2: Prof Aswani Kumar Cherukuri
Encrypted Network Traffic Analysis

Speaker 3: Prof. Touhid Bhuiyan
Shaping Africa's Digital Future: AI, Cybersecurity, and Quantum Finance at the Frontier

Speaker 4: Dr. Avanish Bondu
Decoding Financial Markets with Artificial Intelligence and Big Data Analytics

Speaker 5: Mr. Md. Mushfiqur Rahman
Deep Learning for Intelligent and Adaptive Payment Fraud Detection

Speaker 6: Mr. Md Manirul Islam
Quantum-Safe Finance: Preparing Digital Banking and FinTech Systems for the Post-Quantum Era

Speaker 7: Mr. Faisal Reza
RegTech for AML, KYC, and Fraud Detection: Emerging Technologies and Best Practices

Speaker 8: Mr. Mr. Mohammad Shafiquil Islom
AI-Driven Legal Systems: From Rule-Based Law to Predictive Justice

Speaker 9: Mr. Nzotem Cyrille
Stochastic Volatility and Inflation Risk Premiums: A Four-Factor Decomposition for Emerging Market Derivatives

Speaker 10: Mr. Armel Chawoua
Advancing Operational Risk Management in Financial Industry

14:00 – 15:00 **Break Time**

16:00 – 17:00

Poster Presentation

Excursion: The Masai Mara

DAY 5

Saturday, June 06, 2026

17:00 – 18:00

Special Session V: Financial Market Dynamics and Predictive Modelling

Chair: Prof. Offen Elias/Prof. Sazzad Hossain

Speaker 1: Dr. Zamira Ashurova
Digital Transformation in the Medical Tourism

Speaker 2: Mrs. Lubasi Simataa
Modelling Insurance Solvency Risk: Finite-Time Ruin Probabilities under Log-Normal Claims and Stochastic Returns

Speaker 3: Mr. Nicholas Mwarweya
Uncertain Random Optimal Control with Poisson Jumps and Its Application to Portfolio Selection

Speaker 4: Mr. Omer Mohamed Egeh
Bayesian and Frequentist Inference for the Secant–Weibull ACD Model with Calendar Effects.

Speaker 5: Mr. Nagueu Lionel
A Hybrid AI Approach to Portfolio Optimization

Speaker 6: Mr. Boris Zourmba
Fostering Quantum Portfolio Optimization

Speaker 7: Mr. Cyrille Nzotem
Tailoring Quantum Option Pricing Problems

Speaker 8: Mr. Isidore Hien
Tailoring Quantum Risk Analysis in Finance

Speaker 9: Ms. Ngwa Linda
Leveraging Time Series Models and LSTM Optimization Framework for Prediction

Speaker 10: Mr. Durel Bogba
Optimal Client Securities Operations Management in Banking Systems

14:00 – 15:00 **Break Time**

15:00 – 18:00 **Excursion in Nairo City**

Discussion/Summer School Closing

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NB: All accepted papers will be published in Springer in 2027