Statement Purpose

My academic and professional journey has been dedicated to advancing knowledge in machine learning, mathematical modeling, and their applications in real-world decision-making. With a background in economics and mathematics, I have focused on developing and implementing statistical and AI-driven models for risk analysis, financial decision-making, and disaster prediction.

During my master’s degree, I studied quantum computing, exploring quantum algorithms, quantum information theory, and their applications in optimization. This experience gave me a solid foundation in leveraging quantum-inspired methods for computationally complex problems, particularly in financial modeling and machine learning. I have since investigated the potential of quantum annealing in portfolio optimization and the role of quantum mechanics in understanding non-classical correlations in economic systems.

My research involves earthquake-strong motion prediction, where I have explored various machine learning techniques, including Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), and a novel Multi Echo-State Extreme Learning Machine (Multi ES-ELM). My experiments demonstrated the Multi ES-ELM approach provided competitive performance with lower computational costs. These findings have practical implications for real-time early warning systems.

Beyond disaster prediction, I have explored financial modeling, particularly in risk management and portfolio optimization. My work incorporates techniques such as Extreme Value Theory (EVT), simulation, and copula-based dependence modeling. Additionally, I have studied tail risk management strategies.

My motivation for participating in this event stems from my goal of refining and applying these models to new challenges. I aim to contribute to discussions on AI-driven decision-making, and quantum-enhanced optimization, and further explore the intersection of complex systems, financial risk, and real-time predictive modeling.

I hope that my experience in machine learning, quantum computing, risk analysis, and AI-based modeling aligns with the objectives of this event. I am enthusiastic to collaborate which will shape the next step of my research and professional work.

Phiphat Chomchit

05/03/2025