XIAODONG (WILL) AN

+1(424) 475-1233 ⋄ Atlanta, GA

xan37@gatech.edu ⋄ [linkedin](#) ⋄ [GitHub](#)

EDUCATION

Ph.D. in Physics, Georgia Institute of Technology — Expected Aug 2026
Relevant Coursework: Computational Physics, Nonlinear Dynamics

M.S. in Computational Science and Engineering, Georgia Institute of Technology — Expected Dec 2026
Relevant Coursework: Machine Learning, Algorithms, Computational Data Analysis

B.S. in Physics, The Hong Kong Polytechnic University — May 2022

PUBLICATIONS

Xiaodong An, et al. (2025). **Quantifying The Complex Spatiotemporal Chaos of Cardiac Fibrillation in Ionic Models Across Parameter Regimes**. *arXiv preprint*, arXiv:2508.14303

Gautham Gopinath, Xiaodong An, et al. (2022). **Diffusion-Coefficient Power Laws and Defect-Driven Glassy Dynamics in Swap Acceleration**. *Physical Review Letters.* DOI: 10.1103/PhysRevLett.129.168002

SKILLS

Technical Skills	WebGL, OpenGL, GLSL, HPC, FastAPI, Docker, Git, TensorFlow, AWS
Programming Languages	Python, MATLAB, JavaScript, TypeScript, SQL, HTML/CSS

EXPERIENCE

Machine Learning Engineer — May 2025 – Aug 2025
Scam AI — *Berkeley, CA*

- Led a team of 5 to design and automate large-scale adversarial data generation pipelines by orchestrating multiple machine learning image generative models with distributed **TensorFlow** training and automated dataset curation.
- Deployed production-grade **FastAPI** microservices with **Docker** on **AWS EC2**, optimized GPU inference latency/throughput and mixed-precision acceleration for real-time face-swapping and detection.

PROJECTS

Cardiac Time Series ML Prediction Benchmarking (Ongoing) — *Project Link*. Benchmarking **Chronos (LLM-based forecaster)**, **LSTM**, **Next-Gen Reservoir Computing**, and **PINN** on cardiac time series data. Evaluating restitution curves, attractor correlation dimension, RMSE, and valid prediction horizon, highlighting trade-offs between long-term dynamics restoring and short-term prediction accuracy.

Defibrillation Timing Prediction (Ongoing) — *Project Link*. Simulating a 4-variable cardiac tissue model under random initial conditions and applying **Low-Energy Anti-Fibrillation Pacing (LEAP)** pulses. Extracting multiple features including **Fraction of Tissue Excited (FTE)**, spiral wave count and spatial Shannon entropy of voltage. Building a machine learning classifier that predicts the optimal timing for defibrillation while analyzing the underlying cardiac mechanics.

Modeling and Quantifying the Complex Cardiac Systems — *arXiv:2508.14303*. Designed and modified the **cardiac simulation models** (Fenton-Karma and O'Hara Models) using **WebGL** to perform autonomous parameters tuning and capture of spatioemporal data. Quantified complexity using **Lyapunov Exponents** metrics, and linked model dynamics to physiological insights. Presented the result on **SIAM AN24** and **APS March 2025**.

IMC Prosperity World Trade Competition (2024) — Led a team of 5, ranking **top 3% globally** (out of 10,000+ participants) and top 0.05% in manual trading. Designed algorithmic trading strategies in Python and optimized execution under simulated real-market constraints.