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EDUCATION

2018-2022	The Hong Kong Polytechnic University Engineering Physics (GPA 3.81) (top 5%)	Hong Kong
2019-2020	Exchange: Georgia institute of technology (GPA 3.62/4.00)	The United States
2022-	Georgia institute of technology Ph.D. in Physics	The United States

AWARD

2021-2022	• HKSAR Government Scholarship 2021/22 (80000 HKD)
2020-2021	• College of Undergraduate Researchers and Innovators (CURI) Scholar (10000 HKD)
2019-2020	• Dean's Honor's List 2019/20, 2020/21
2018-2019	• HKSAR Government Scholarship Fund 2019/20 - Reaching Out Award (10000 HKD)
2018-2019	• Department of Applied Physics Scholarship for Hall Residents 2018/19 (5000 HKD)

PUBLICATION

2021	• Diffusion coefficient power laws and defect-driven glassy dynamics in swap acceleration, Gautham Gopinath, Chun-Shing Lee, Xin-Yuan Gao, **Xiao-Dong An**, Chor-Hoi Chan, Cho-Tung Yip, Hai-Yao Deng, and Chi-Hang Lam (arXiv:2111.11697) (in submission)

WORK EXPERIENCE

July 2021- Nov 2021	**Research Assistant (Employer: Dr. Zhang Xuming and Dr. Zhu Ye)** *The Hong Kong Polytechnics University* ***Research Websites design (HTML coding)*** • See the websites here: http://xiaodongan.cn/Zhuye/About%20Us.html; http://ap.polyu.edu.hk/apzhang/
Aug 2022-	**Teaching Assistant (Employer: Physics department of Gatech)**

RESEARCH EXPERIENCE

Mar 2021- Oct 2021	**Research Experiences For Undergraduates (Mentor: Prof. Flavio H Fenton)** *Georgia Institute of Technology* ***Construction of a Visualized Heart-Blood Circulation Model based on FHN function and SPH-Liquid simulation with GPU acceleration (JS coding and GPU coding)*** **Step One:** **Simulate Liquid using Smoothed-Particle Hydrodynamics (SPH) Method** ■ **SPH-Liquid Model Construction** • Included Gravity Force, Pressure Force and Viscosity Force to get acceleration. • Used the direct search method (could be improved future) to search neighbors in Kernel Function. • Demonstration: http://xiaodongan.cn/SPH/2021-6-11.html (Open in Google Chrome) ■ **SPH-Liquid Model GPU-acceleration**

- **Improve** the visualization method, with inputting positions of all particles to GPU every time instead of single info of particle. The greatly improved model demonstration: http://xiaodongan.cn/SPH/SPH-9-3.html

Step Two:
Establish the Heart Electromagnetics and Mechanics Model with FitzHugh-Nagumo (FHN) function and Spring-Mass mesh, and then combine them with SPH-Liquid Model

■ **FHN function in GPU code**

- **Construct** the 2D FHN model in GPU code with help of Prof. Flavio. See the demo here: http://xiaodongan.cn/SPH/2021-7-9/FHN2D.html
- **Build** a 50*50 Mesh to represent the Mechanical Heart cells and connecting it with the Electro FHN model. See the demo here: http://xiaodongan.cn/SPH/MESH-9-3.html
- **Combine** the heart model and SPH model together. See the demo in both links: http://xiaodongan.cn/SPH/Model-9-26.mp4;http://xiaodongan.cn/SPH/Model-9-26.html
  (Mesh model is substituted by Regular Heart Beats due to its often discordance)

Jan- , 2021   **Research Experiences For Undergraduates (Mentor: Dr. Chi-Hang Lam)**
The Hong Kong Polytechnics University

Acceleration of particle dynamics by a particle-swap algorithm in a lattice model of glass (MATLAB coding)

Step One:
Compare relaxation times ($\tau\alpha$) between particle-swap algorithm and void-hopping algorithm

■ **Data Processing (by simulations with up to 1e11 Monte Carlo steps in low T)**

- Use the positions of data ranging from T=0.06 to T=1 to calculate theirs Self-intermediate scattering function (SIF) value, and with a 1/e value, we can get the relaxation times, representing most of the particles have moved. See the explanation of particle-swap algo here: http://xiaodongan.cn/DPLM/Global_Swap_Algo.pdf
- Compare $\tau\alpha$ with ones of the other MD method, where there is a clear speed-up at low temperatures See the result at here: http://xiaodongan.cn/DPLM/2021-6-30.pdf

Step Two:
Obtain relaxation times ($\tau\alpha$) in different methods other than SIF

- Besides the SIF value, overlap_q Function and Autocorrelation Function value are also used to reassure the validity of the results. See the definition of these two algos here: http://xiaodongan.cn/DPLM/overlap_q.pdf (IV);http://xiaodongan.cn/DPLM/ACF.pdf

EXTRA-CURRICULAR ACTIVITY

Aug 2018- Aug 2019   A member in the House of Intercultural Living and Learning (HILL) Program
- Worked on the mental health of the hall students and the held the meeting per week.

Oct 2020- Aug 2021   A mentee in the INSPIRE mentorship program
- Mentored by Mr. Jimmy Kwok Chun-Wah, SBS, MH, JP

Jun 2021- Aug 2021   Georgia Institute of Technology REU physics summer camp (online).