Sirikarn (Siri) Phuangthong

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Overview

Computational polymer physicist with strong interest for materials design and computational modeling. Experimental inorganic chemist and chemical engineer by training, and knowledge in machine learning and quantum computing through online trainings. I am looking for a **research position in material sciences, chemistry, and physics**.

Education

University of Illinois Urbana-Champaign — Urbana, IL
Ph.D. in Chemical and Biomolecular Engineering — *Expected Graduation: May 2026*

University of Illinois Urbana-Champaign — Urbana, IL
M.S in Chemical and Biomolecular Engineering — *August 2024*

Illinois College — Jacksonville, IL
B.S. in Chemistry and Physics, GPA: 3.91/4.00, Summa Cum Laude — *May 2021*

Professional Experience

University of Illinois Urbana-Champaign — Urbana, IL
Graduate Research Assistant, Sing Lab — *Jun. 2022 - Present*

- Research Project: **Role of Surface Electrostatics on Particle-Polyelectrolyte Coacervation**
- Pursue advancement in computational polymer physics, utilizing **molecular dynamics, Monte Carlo simulations, and polymer field theory**
- Design **restrictive primitive models of physical systems**, with emphasis on interactions between electrostatic surfaces and charged polymers, through the use of **C programming language**
- Create, compile, and execute C simulation code using **Visual Studio Code** and **shell terminals**, and analyze simulation data using **Pandas** and **NumPy** through **Python**, as well as **Microsoft Excel**
- Visualize simulation data efficiently using **Matplotlib** and **Seaborn** through **Python**
- Collaborate and discuss research regularly with over 30+ scientists from backgrounds in chemical engineering, biophysics, chemistry, and material sciences
- Present research to audiences at local, regional, and national conferences including **Midwest Thermodynamics and Statistical Mechanics Conference and American Physical Society**

University of Illinois at Urbana-Champaign — Urbana, IL
Graduate Teaching Assistant — *Aug. 2023 - Dec. 2024*

- Classes: **Statistical Mechanics and Thermodynamics(2023), Process Control and Dynamics(2024)**
- Held weekly office hours to assist with homework and elaborate concepts learned in class
- Taught 25+ students to create their own **Monte Carlo/stochastic simulations** in Python for final class projects
- Assisted in assigning and grading the students' homework, exams, and computational project
- Provided prompt and clear responses to students for better understanding of the course material

Illinois College — Jacksonville, IL
Undergraduate Research Assistant, Lanorio Lab — *May 2018 - Jun. 2019*

- Synthesized **air-stable organometallic complexes** and **imidazolium ionic liquids** for **Suzuki-Miyaura cross-coupling reactions** using **Schlenk techniques** for air-sensitive compounds, solvent extraction, and distillation through rotary evaporation
- Characterized complexes using **nuclear magnetic resonance (1H NMR and 13C NMR), UV-Vis spectroscopy (UV-Vis), Fourier Transform Infrared Spectroscopy(FTIR), Mass Spectroscopy**, and **Magnetic Susceptibility**
- Purified cross-coupling products using **thin-layer and column chromatography**
- Presented research to audiences at local, regional, and national conferences such as **American Chemical Society**

Project

Quantum+AI for Climate Project — WOMANIUM Quantum+AI Bootcamp
Finalist out of 128 Groups — *Jun. - Aug. 2024*

- Developed a **classical neural network** using **TensorFlow and Keras** to investigate its prediction accuracy
- Implemented quantum layer into the developed neural network to investigate possible quantum advantages
- Utilized **GitHub** for version control, code sharing, and collaboration with project group members
- Presented project to 100+ audience virtually as one of the 29 **finalists** out of 128 groups and 4300+ participants