GWENDOLYN J. CHEE

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EDUCATION

M.S. University of Illinois at Urbana-Champaign

2017 - Present

Nuclear, Plasma and Radiological Engineering

Research focus: Nuclear Fuel Cycle Simulation and Repository Modeling

B.A.Sc. Queen's University at Kingston, Canada

2013 - 2017

Engineering Physics

Specialization in Material Science

RESEARCH EXPERIENCE

Argonne National Laboratory

May 2019 - Present

Research Aide

Lemont, IL

• Advisor: Dr. Bo Feng

 Performing sensitivity analysis and optimization on Dymond for nuclear fuel cycle transition scenario simulations

University of Illinois at Urbana-Champaign

2017 - Present

Research Assistant, Advanced Reactors and Fuel Cycles

Urbana, IL

- Advisor: Professor Kathryn D. Huff
- Developing and applying CYCLUS, a nuclear fuel cycle simulator, to the back-end of the nuclear fuel cycle
- Running simulations to determine how varying fuel allocation strategies dynamically impacts the loading of a nuclear waste repository
- Development of demand-driven deployment algorithms for Cyclus

Queen's University at Kingston

2016 - 2017

Research Assistant, Nuclear Materials Research Group

Kingston, ON

- Designed a Sieverts Apparatus to gaseously charge hydrogen gas into zirconium alloys to mimic hydrogen embrittlement of zirconium alloys used in nuclear reactors
- The design is being implemented at Reactor Materials Testing Laboratory to test how hydrogen embrittled zirconium alloys respond in nuclear reactor conditions

National University of Singapore

Summer 2016

Research Assistant, Centre for Advanced 2D Materials

Singapore

- Developed MATLAB programs to study the effect of Berry Curvature on electrons in graphene and the effects of changing the geometry of graphene devices on their electric fields
- Both programs were used to assist graduate students in their design of nano-graphene devices

Nanyang Technological University

Summer 2015

Research Assistant, Polymeric Biomaterials Group

Singapore

• Conducted experiments to characterize nanoparticle enhanced polymer materials to determine what material combination best increases the mechanical properties of biodegradable heart stents

ENGINEERING EXPERIENCE

4th Year Engineering Physics Capstone Project

2016

Self Sorting Recycling Bin

Kingston, ON

- Developed a neural network to sort between recycling and garbage through image recognition and sound profiling
- Led the mechanical team to prototype the physical design which used feedback from the neural network to physically separate the items

TEACHING EXPERIENCE

Queen's University at Kingston

2015 - 2017

Teaching Assistant, Physics Department

Kingston, ON

 Conducted weekly help sessions for students who required extra guidance in the first year physics courses (PHYS 104/106)

SERVICE

U.S. Women in Nuclear

2018 - Present

President Urbana, IL

• Leads the UIUC WiN chapter to uplift the mission of professional development, educational outreach and a sense of community amongst our members.

CONFERENCE PRESENTATIONS

ANS Winter Meeting

Nov 2018

Presentation

Orlando, FL

• G.J. Chee, G. Park and K.D. Huff. "Validation of Spent Nuclear Fuel Output by Cyclus, a Fuel Cycle Simulator Code".

ANS Student Conference

Mar 2018

Presentation

Gainesville, FL

• G.J. Chee, J.W. Bae and K.D. Huff. "Numerical Experiments for testing Demand-Driven Deployment Algorithms".

TECHNICAL REPORTS

Advanced Reactors and Fuel Cycles Report Series

Apr 2018

Report UIUC-ARFC-2018-01

Urbana, IL

• G.J. Chee, J.W. Bae and K.D. Huff. "Numerical Experiments for testing Demand-Driven Deployment Algorithms".

SELECTED AWARDS AND RECOGNITION

Queens University Deans Scholar

2014 - 2017

TECHNICAL STRENGTHS AND OTHER RELEVANT SKILLS

Computer Languages Python, C++, MATLAB, LabVIEW, Solid Edge, HTML

Protocols & APIs XMI

Tools IATEX, Mathematica, shell, vim, bash, atom, Jupyter, MS Word, MS Excel

Databases MySQL

Nuclear Software Cyclus, PyNE Languages English, Mandarin