

GWENDOLYN CHEE

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Gwen is passionate about nuclear power and developing innovative systems to improve nuclear energy and fuel cycle technologies. She wants to contribute to pressing global energy challenges and environmental sustainability.

EDUCATION

M.S.	University of Illinois at Urbana-Champaign Nuclear, Plasma and Radiological Engineering	2017 - Present
B.A.Sc.	Queen's University at Kingston Engineering Physics with a specialization in Materials Engineering	2013 - 2017

RESEARCH EXPERIENCE

University of Illinois at Urbana-Champaign <i>Research Assistant, Advanced Reactors and Fuel Cycles</i>	2017 - Present <i>Urbana, IL</i>
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- Conducting research in fuel cycle analysis: specifically using Python and C++ to develop Cyclus, a fuel cycle simulation software
- Processing large data outputted by Cyclus using SQL to analyze various aspects of the fuel cycle
- Development of numerical experiments to test and verify demand driven deployment algorithms in Cyclus

Queen's University at Kingston <i>Research Assistant, Nuclear Materials Research Group</i>	2016 - 2017 <i>Kingston, ON</i>
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- Designed a Sieverts Apparatus to gaseously charge hydrogen gas into zirconium alloys
- 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 <i>Research Assistant, Centre for Advanced 2D Materials</i>	Summer 2016 <i>Singapore</i>
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- 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 are used to assist graduate students in their design of nano-graphene devices

Nanyang Technological University <i>Research Assistant, Polymeric Biomaterials Group</i>	Summer 2015 <i>Singapore</i>
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- Involved in the biodegradable heart stent project where nanoparticles of varying sizes and composition were added to different kinds of polymers to increase their mechanical properties
- Conducted experiments using Instron tensile tester, ultrasonicator, microcompounder and thermogravimetric analysis to characterize the nanoparticle enhanced polymer materials

ENGINEERING EXPERIENCE

4th Year Engineering Physics Capstone Project <i>Self Sorting Recycling Bin</i>	2016 <i>Kingston, ON</i>
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- 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

Wirecard AG

Summer Technology Intern

Summer 2014

Singapore

- Redesigned Wirecard's payment processing webpage using HTML and CSS
- It is currently used for redirecting online payments to Wirecard's payment processing service

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

Professional Development Chair, UIUC Chapter

Urbana, IL

- Promoting awareness of the benefits of nuclear applications to the UIUC and Champaign-Urbana communities

UC Books to Prisoners

2017 - Present

Volunteer

Urbana, IL

- UC Books to Prisoners is a non-profit that provides books to Illinois inmates at no cost via mail
- As a volunteer, we read letters from inmates and select books that meets their interests

Queen's Chinese Student Association

2013 - 2017

Co-President

Kingston, ON

- Led a team of 20 to promote cultural awareness and organize social events within the Queen's community

Conference on Industry and Resources Queen's University (CIRQUE)

2015 - 2016

Executive Team Member - Events Coordinator

Kingston, ON

- Worked in a team of 14 to plan, organize and execute a 2-day conference that aims to expose engineering students to industry leaders who share their insights and experiences, and thus demonstrating the versatility of an engineering degree

Greenovations

2014 - 2015

Committee Member

Kingston, ON

- Promoted sustainability on campus by retrofitting student homes and organizing environmental awareness campaigns

TECHNICAL STRENGTHS AND OTHER RELEVANT SKILLS

Computer Languages

Python, MATLAB, C++, LabVIEW, Solid Edge, HTML
COMSOL Multiphysics

Protocols & APIs

XML

Tools

L^AT_EX, Mathematica, shell, vim, bash, atom, Jupyter

Databases

MySQL

Nuclear Software

Cyclus, PyNE

Languages

English, Mandarin