Anna Wang

anna.wang4@mail.mcgill.ca | +1 (678) 523-8074 | anna-h-wang.github.io | linkedin.com/in/anna-h-wang

EDUCATION

McGill University Aug 2023 - Present
Ph.D. Civil Engineering
Advisor: Dr. Daniele Malomo

- *Research Areas:* masonry structures, structural assessment & retrofit, advanced numerical modeling techniques for earthquake engineering, makerspace learning in engineering education, design-build-test project implementation in first year engineering courses
- *Relevant Coursework:* Structural Assessment and Retrofit of Existing Structures

University of California San Diego Sep 2021 - Dec 2022
M.S. Structural Engineering 3.62/4.0 GPA

- *Relevant Coursework:* Linear & Nonlinear Structural Analysis, Structural Dynamics, Mechanics of Composite Laminates, Seismic Isolation & Energy Dissipation, Finite Element in Solid Mechanics, Computational Techniques in Finite Element, Aerospace Composite Repair, Advanced Steel Design

Georgia Institute of Technology Aug 2016 - Aug 2020
B.S. Mechanical Engineering, Minor in Physics, Honors Program 3.75/4.0 GPA

- *Relevant Coursework:* Statics, Deformable Bodies, Dynamics of Rigid Bodies, Thermodynamics, Circuits, Engineering Materials, System Dynamics, Fluid Mechanics, Heat Transfer, Machine Design, Experimental Methods, Intro to Structural Engineering, Structural Analysis, Structural Steel Design

University College London Sep 2018 - Dec 2018
Exchange Program

PROJECTS

Time History Matching to Response Spectra for a Nuclear Structure May 2023 – Jul 2023
Simpson Gumpertz & Heger, Associate Project Consultant

- Matched an acceleration time history to a target ground response spectra using seeds from the PEER database using a spectral matching algorithm (RSPMatch)
- Evaluated matched time history and spectra against ASCE 43-19 criteria

Soil-Structure Interaction Analysis of a Nuclear Facility Jun 2022 – Sep 2022
Simpson Gumpertz & Heger, Intern

- Created a finite element model of a nuclear facility in Femap according to ASCE 4-16 criteria
- Performed 3D, linear soil structure interaction analyses considering multiple soil cases and time histories using the subtraction method formulation in SASSI

San Diego County Water Authority PCCP Risk Analysis Jun 2022 – Sep 2022
Simpson Gumpertz & Heger, Intern

- Performed a failure margin analysis of over 200 classes of prestressed concrete cylinder pipes (PCCP) to evaluate the effects of broken prestressing wire breakage at working and transient pressures following AWWA C304-14 criteria
- Developed multiple subroutines using MATLAB and MathCAD to automate risk curve plotting and extracting data from original engineering drawings

Dent Depth Profiling of Impacted Composite Laminates Apr 2022 – Jun 2022

Independent Study

Advisor: Dr. Hyonny Kim

- Created a MATLAB function to post-process A-Scans of impacted composite laminates to construct a 3D dent depth profile
- Compared post-processed data with hand measurements (traditional methodology) to evaluate the effectiveness of using A-Scans to measure dent depth

Composite Laminate Wind Turbine Optimization (SE 253A) Sep 2021 – Dec 2021

Project Manager

Advisor: Dr. Hyonny Kim

- Manufactured and designed a E-Glass/Epoxy 7781/5245C wind turbine blade set using blade element momentum theory software, CAD, and wet-layup composite methods
- Achieved a top performance index when evaluated under steady state and transient testing conditions

Steel Building Linear Structural Analysis Final Project (SE 201A) Nov 2021 – Dec 2021

Advisor: Dr. Georgios Tsampras

- Performed a linear structural analysis of a complex steel frame using matrix analysis methods and Bernoulli-Euler beam theory
- Developed a MATLAB program to calculate story drifts and internal forces accounting for varying element properties, rigid end zones, and axial & flexural deformations due to external loads

Creative Decisions & Design Course Revitalization May 2020 – Jul 2020

Mechanical Engineering Senior Capstone Project

Advisors: Dr. Amit Jariwala, Dr. Roger Jiao

- Collaborated in a team of 5 mechanical engineering seniors to re-focus a sophomore-level design course around the iterative engineering design process instead of the final design competition
- Analyzed instructor and student interviews and surveys to create updated course guidelines, engineering design notebook requirements, and a repository of competition prompts
- Designed a modular track base and fabrication package for the ME 2110 competition that adapts to various competition styles and facilitates innovative solutions from students

Modeling Flower Dynamics in Unsteady Conditions Aug 2019 – Jun 2020

Agile Systems Lab, Research Assistant

Advisor: Dr. Simon Sponberg

- Investigated the dynamics of plants in unsteady wind to develop a mechanical model of a flower
- Utilized MATLAB and a Direct Linear Transformation software to determine the frequency of oscillation for three different flowers in a wind tunnel
- Received the President's Undergraduate Research Award (research stipend)

Steel Structural Design Final Project (CEE 4510) Jan 2020 – Apr 2020

Advisor: Dr. Abdul-Hamid Zureick

- Collaborated in a team of 4 students to design members according to AISC specifications for a light industrial building consisting of a frame of fink trusses
- Determined the design parameters for each member (including the compressive design strength, tensile design strength, and connection design)

Evaluating Performance and Centralization of the Minitaur Robot Jan 2018 – May 2019

Agile Systems Lab, Research Assistant

Advisor: Dr. Simon Sponberg

- Collaborated with an interdisciplinary team of undergraduate students on a multi-semester research project focusing on testing formulations of centralization and how they affect locomotion performance in a robotic test platform
- Formulated and implemented a system using Optitrack cameras, Motive software, and MATLAB to capture and analyze robot locomotion, and created a tutorial on how to use the platform for future use

CONFERENCE PROCEEDINGS

Wang, A., & Van Den Einde, L., & Delson, N. (2023, June), *Gotta Catch 'Em All: Learning Graphical Communications through an Introductory Hands-on Design-Build-Test Project in a Hybrid Learning Environment*. Paper presented at 2023 ASEE Annual Conference & Exposition, Baltimore, Maryland. https://peer.asee.org/43811

TEACHING EXPERIENCE

UC San Diego Department of Structural Engineering Sep 2021 – Present
Teaching Assistant
Professor: Dr. Lelli Van Den Einde
Courses: Intro to Structures & Design, Statics, Conceptual Structures & Design, Graphical Communications

- Create a comfortable learning environment where students can develop their problem-solving skills and engineering intuition using Socratic teaching and active learning strategies
- Lead multiple labs and office hours of up to 50 students and guide them through weekly homeworks and lab assignments
- Collaborate with co-instructors to develop new problem sets, a cumulative term project, and course expectations for over 200 students

Georgia Tech School of Physics Aug 2017 – May 2020
Teaching Assistant, Peer-Led Undergraduate Study Leader
Professors: Dr. Martin Jarrio, Dr. Eric Murray, Dr. Tamara Bogdanović
Courses: Intro to Mechanics, Intro to Electricity & Magnetism

- Led multiple recitations of 24 students and promoted an environment where students can improve their problem-solving skills and guided students through weekly problem sets and difficult topics through Socratic teaching
- Created and led semi-weekly study sessions in collaboration with the professor for 198 students to review course content, address challenging concepts, develop learning and study strategies, and prepare for exams
- Rated 4.4/5.0 for Overall Effectiveness by students on anonymous, semesterly instructor evaluation

INDUSTRY EXPERIENCE

Simpson Gumpertz & Heger Jun 2022 – Sep 2022, Feb 2023 – Aug 2023
Engineering Mechanics and Infrastructure Associate Project Consultant

- Collaborated in teams of 4-6 consulting engineers to perform complex analyses for specialty structures such as nuclear facilities and buried infrastructure
- Implemented techniques to automate and streamline computational tasks using MATLAB, MathCAD, and Python

Solvay Specialty Polymers Feb 2021 – Aug 2021
Physical Mechanical Lab Research Analyst

- Conduct mechanical tests (including impact, water absorption, hardness, flammability, heat deflection temperature, and specific gravity) on a variety of polymers in development
- Edit methods of material testing according to ASTM and ISO specifications, troubleshoot equipment, and effectively communicate data to customers
- Certified in "Introduction to ISO/IEC 17025:2017 Training for Technicians" and capable of performing lab operations compliant with A2LA accreditation

Secretariat International May 2019 – Aug 2019
Construction Delay Analysis Intern

- Assessed international arbitration, litigation, and global large-scale construction disputes by analyzing client progress reports, Primavera P6 and Microsoft Project schedules, meeting minutes, spreadsheets, and contracts
- Designed progress curves, As-Built vs. As-Planned schedules, working chronologies, and other graphics to include in expert reports

SKILLS

Software:	CAD (Solidworks, AutoCAD, CATIA), MATLAB, MathCAD, Abaqus, Femap, Python, OpenSees, SAP2000, SASSI, RSPMatch, SPECEQ, Excel, Mastan, OptiTrack
Instrumentation:	3D Printing, Laser Cutting, Izod/Charpy Impact Tester, Heat Deflection Temperature Tester, Function Generator, Oscilloscope, UL94 Vertical Flammability Tester, Powered and Handheld Woodworking Tooling
Communication:	Technical and Interpersonal Writing, Presentations, Public-Speaking, Project Management, Time Management

AWARDS & CERTIFICATIONS

- Best Poster Award at the ISAM, 2022
- President's Undergraduate Research Award
- Zell B. Miller Scholar
- Pratibha Scholarship Recipient

LEADERSHIP & SERVICE

Jacobs Graduate Student Council Oct 2021 – Jun 2022
Vice President of Internal Affairs

- Lead and organize quarterly general body meetings for all graduate engineering students and foster interdisciplinary community

Jacobs Undergraduate Mentorship Program Oct 2021 – Jun 2022
Structural Engineering Mentor

- Support a group of 4 engineering undergraduates through mentorship in career development and navigating the college experience

Georgia Tech Chamber Choir Aug 2016 – May 2020
Directors: Dr. Jerry Ulrich, Dr. Timothy Hsu, Dr. Nathan Frank
President, Alto Section Leader

- Led an auditioned choir of 60 singers and an officer team of 5 students in producing concerts, tours, gigs, internal activities, and performances at events including figures such as the Eagles, Atlanta Symphony Orchestra, and President Jimmy Carter

- Introduced a new procedure for efficiently rehearsing gig repertoire, and established methods to improve transparency among the choir, officer team, and directors
- Coordinated with the U.S. Embassy in Cyprus in planning and executing the choir's first 7-day international trip, which included 22 events in Cyprus to promote STEM and music education at U.S. universities

Pi Epsilon Phi (Service Fraternity) Aug 2017 – May 2020

Vice President of Internal Affairs

- Operated chapter events and service opportunities within the Greater Atlanta community in collaboration with 4 executive officers and recorded minutes at weekly chapter and officer meetings

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References available upon request