

Alexandra Hain, PhD, EIT

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Education

University of Connecticut, Storrs, CT

Doctor of Philosophy in Civil Engineering, August 2015-May 2019

Focus: Structural Engineering

GAANN (Graduate Assistance in Areas of National Need) **Fellow**, August 2015-May 2019

GPA: 4.13/4.00

Bachelor of Science in Engineering, August 2011-May 2015, Summa Cum Laude

Major: Civil Engineering

Minor: Environmental Engineering

GPA: 3.90/4.00; Dean's list, All Semesters

University of Nottingham, School of Engineering, Nottingham, England

Study Abroad, Spring 2013

Research Experience

University of Connecticut, *Graduate Researcher*, August 2015- May 2019

Repair of Steel Beam/Girder Ends with Ultra High-Strength Concrete: Implementation and Training, *Co-PI*, June 2018- Present

- Transition the technology and lessons learned from previous research projects on the repair from the lab to practice.
- Document the field implementation and validate the performance of the first implementation of the repair in CT.
- Oversee project activities and graduate students involved.

3D Scanning for Inspection and Assessment of Aging Bridges, *Co-PI*, May 2016- Present

- Develop a system to more accurately inspect bridges in a more cost effective and timely manner using preexisting scanning technology.
- Oversee project activities and graduate students involved.

A Hybrid Metal/Glass Composite System for Multihazard Resilient Bridge Columns, *Researcher*, August 2016-May 2019

- Design and run compression, tension, and bending tests on 6-in diameter columns. Use results to design and conduct large scale experimental tests on 16" diameter specimens under lateral loading.
- Create finite element model and validate with experimental data.
- Develop reliable structural design methodology and identify and address potential scalability and manufacturing difficulties.

Repair of Corrosion Damaged Steel Girders with Ultrahigh Performance Concrete, *Researcher*, August 2015-August 2016

- Created and validated finite element models in LS Dyna of rolled girder experimental specimens. Created preliminary models of plate girder experimental specimens. Modeled and analyzed full girder sections of bridges in CT.
- Presented work at Transportation Research Board Annual Meeting in January 2016.
- Draft and review quarterly progress reports.

Professional Experience

Arax Engineering LLC, *CEO*, April 2017-Present

- Start-up company founded with advisor to facilitate the transfer of research to commercial products
- Manage daily activities and communicate with customers.

Research Experience in Cyber and Civil Infrastructure Security for Students with ADHD, Program Manager,
April 2016-Present

- The program brings in 10 undergraduate engineering students into research labs at UCONN for a 10 week period over the summer.
- Perform all logistical coordination for participants and serve as the main contact throughout the program.
- Serve directly as a research mentor for 1-2 participants.

Parsons Brinckerhoff, Intern, May 2014-August 2015

- Program Management for the I-95 New Haven Harbor Crossing Corridor Improvement Program
- Enhanced technical writing and reviewing abilities by helping produce Program's Quarterly Report.

Activities and Professional Memberships

Earthquake Engineering Research Institute (EERI), UConn, President, August 2018- May 2019

Vice President, August 2016- August 2018

Graduate Advisor, August 2015- May 2019

Member, August 2014- May 2019

- Help undergraduate students design a high-rise building out of balsa wood that can resist exposure to three ground motions on a shake table.
- Invite experts in various earthquake disciplines to come speak at the University of Connecticut to promote the study of earthquake engineering among undergraduate and graduate students.

University of Connecticut Concrete Canoe, UConn, Graduate Advisor, August 2015- May 2019

President, May 2014-May 2015

Member, August 2013- May 2019

- Work with a team of ten students to design, build, and race a concrete canoe.

American Society of Civil Engineers (ASCE), UConn, Graduate Advisor, August 2015- May 2018

President, December 2014-May 2015

Event Coordinator, December 2013-December 2014

Member, August 2011- May 2019

- Organize events and speakers for students in Civil Engineering. Helped organize the New England Regional Conference hosted at the University of Connecticut in April 2017.

Chi Epsilon, UConn, Member, November 2013-Present

Vice President, November 2013-May 2015

Publications and Conference Proceedings

Hain, A., Zaghi, A. E., Saiidi, M. S. (20xx) "Flexural Behavior of Hybrid Concrete-Filled Fiber Reinforced Polymer Tube Columns" *Composite Structures*, (under review).

Hain, A., Motaref, S., Zaghi, A. E., (2019) "Influence of Fiber Orientation and Shell Thickness on the Axial Compressive Behavior of Concrete-Filled Fiber-Reinforced Polymer Tubes" *Construction and Building Materials*.
<https://doi.org/10.1016/j.conbuildmat.2019.05.194>

Hain, A., Zaghi, A. E., Kamali, A., Zaffetti, R. P., Overturf, B., & Pereira, F. E. (2019). Applicability of 3-D Scanning Technology for Section Loss Assessment in Corroded Steel Beams. *Transportation Research Record*.
<https://doi.org/10.1177/0361198119832887>

Hain, A., Zaghi, A. E., Lanning, A. "Moment-Curvature Analysis of Hybrid Concrete-Filled Fiber Reinforced Polymer Tube Columns" *ASCE/SEI Structures Congress*, April 2018, Fort Worth, TX.

Hain, A., Zaghi, A. E., Turek, S. "Structural Behavior of Hybrid Concrete-Filled FRP Tubes (HCFRT)" 2017 *National Accelerated Bridge Construction Conference*, April 2018, Miami, FL.

Hain, A., Zaghi, A. E., & Taylor, C. L. “Promoting Neurodiversity in Engineering through Undergraduate Research Opportunities for Students with ADHD”. *2018 ASEE Annual Conference & Exposition*, June 24-27, 2018, Salt Lake City, UT.

Hain, C. C., Turek, W. C., Zaghi, A. E., **Hain, A.**, “Experiences of Pre-College Teachers Working with Undergraduate Engineering Students with ADHD in Research Laboratories” *2017 ASEE Annual Conference & Exposition*, June 25-28, 2017, Columbus, OH.

Zmetra, K., **Hain, A.**, Zaghi, A. E., Wille, K. (2017) “Finite Element Analysis and Experimental Comparison for Repair of Corrosion Damaged Steel Girder Ends Using Ultra-High Performance Concrete Encasement” *Transportation Research Board (TRB) 96th Annual Meeting*, January 8-12, 2017, Washington, DC.