

Education

- **PhD Built Environment** **2023 - present**
College of Design and Engineering
National University of Singapore (NUS)
Advised by Asst Prof Ali Ghahramani (PYP)
- **MSc Built Environment: Environmental Design and Engineering** **2021 - 2023**
The Bartlett Faculty of the Built Environment
University College London (UCL)
Advised by Prof Jian Kang & Dr Simone Torresin
- **BS Sustainability and the Built Environment** **2017 - 2021**
College of Design, Construction and Planning
University of Florida (UF)
Advised by Asst Prof Hal S. Knowles, III
 - Minors: Economics; Agricultural and Natural Resource Ethics & Policy
 - Graduated with *summa cum laude* honours

Relevant PhD Coursework (Course Credits) [decreasing course number order]

1. LA5303: Urban Greening: Technologies and Techniques (4)
2. IE5301: Human Factors in Engineering and Design (4)
3. BPS5226: Smart Buildings and Facilities (4)
4. BPS5225: Building Energy Audit and Performance Measurement and Verification (4)
5. PM5112: Research Methods (4)

Relevant MSc Coursework (Course Credits) [decreasing course number order]

1. BENV0047: Systems Thinking and System Dynamics (15)
2. BENV0035: Advanced Building Simulation (15)
3. BENV0032: Methods of Environmental Analysis (15)
4. BENV0031: Efficient Building Services Systems (15)
5. BENV0029: Natural and Mechanical Ventilation in Buildings (15)
6. BENV0028: Building Solar Design (15)
7. BENV0027: Health, Comfort, and Wellbeing in the Built Environment (15)
8. BENV0002: Dissertation: Environmental Design and Engineering (60)
9. BENV0001: The Built Environment: The Energy Context (15)

Relevant BS Coursework (Course Credits) [decreasing course number order]

1. BCN4594: Building Energy Modelling (3)
2. DCP4290: Capstone Project in Sustainability and the Built Environment (6)
3. AEB4283: International Development Policy (3)
4. DCP4214: Green Building Strategies (LEED Lab) (6)
5. GEO3372: Conservation of Resources (3)
6. ECP3302: Environmental Economics & Policy (4)
7. DCP3220: Social & Cultural Sustainability of the Built Environment (3)
8. DCP3210: Sustainable Solutions of the Built Environment (3)
9. DCP3200: Methods of Inquiry for Sustainability and the Built Environment (3)
10. MAS3114: Computational Linear Algebra (3)
11. ECO3101: Intermediate Microeconomics (4)

12. AEB2451: Economics of Resource Use (3)

13. MAC2312: Analytical Geometry & Calculus II (4)

Professional Experience (4)

○ **PhD Research Assistant**

NUS College of Design and Engineering, Singapore. 01/2023 – present.

- Advised in the Building Robotics Laboratory under the 'Improving Building Energy Efficiency and Occupant Comfort Via Intelligent and Human-Centred Systems' grant.
- Conducting an in-depth examination of occupant behaviour modelling within building-occupant network dynamics, emphasising the mathematical aspects linked to energy consequences, which are pivotal for optimising grid resiliency and decarbonisation.
- Delving into the realm of advanced algorithms and employing machine learning methods for energy forecasting to empower household residents to seamlessly engage in the wholesale electricity market without the need for manual intervention, creating a pathway towards democratising virtual power plants (VPP) for grid flexibility.
- Exploring the complex ways in which occupants impact VPP performance, coupled with the development of models and predictive tools for behaviour uncertainties.
- Investigating the formation of behaviours and strategies to influence them, with a focus on financial incentives facilitated by VPPs, enabling the monetisation of user actions.

○ **Masters Intern – Building Energy Efficiency**

Pacific Northwest National Laboratory, Richland, WA, USA. 11/2022 – 12/2022.

- Mentor: Theresa Gilbride of the Building America Solution Center.
- Hosting Manager: Cheryn Metzger of the Technology Integration Group within the Energy and Environment Directorate.
- Collaborated between the Pacific Northwest National Laboratory (PNNL) and the U.S. Environmental Protection Agency (EPA) to edit and update the Building America Solution Center (BASC) with WaterSense v2.0 information from v1.0. Included 4 required guides, 18 best-practice guides, 6 images for implementation, and 6 references for further information.

○ **Department of Energy (DOE) SULI Intern**

Pacific Northwest National Laboratory, Richland, WA, USA. 06/2021 – 09/2021.

- Mentor: Theresa Gilbride of the Building America Solution Center.
- Hosting Manager: Cheryn Metzger of the Energy Efficiency Applications Team within the Energy Economics & Policy Group within the Energy and Environment Directorate.
- Collected and sorted information on DOE Zero Energy Ready Home (ZERH) certified home projects, conducted costs and energy savings calculations, and organized the data in a database along with data collected going back through past years to the program's beginning in 2013.
- Conducted analyses on this collective pool of 8 years-worth of high-performance home data to determine trends, identified innovations and successes, and sought to further understand barriers to implementation of high-performance home measures.
- Continued work from the SULI program to complete a conference paper and conference presentation in preparation for the annual DOE's Zero Energy Ready Home (ZERH) Housing Innovation Awards (HIA) at the Energy & Environmental Building Alliance's (EEBA) High-Performance Home Summit.

○ Sustainable Construction Intern

The Garrett Companies, Greenwood, IN, USA. 06/2020 – 08/2020.

- Hosting Manager: Matt Anderson of the Construction Department.
- Assisted the project engineers with implementing renewable energy methods, including a 1024-panel solar car port project at two class A multi-use developments.
- Co-initiated the implementation of LEED and WELL building standards within the development process alongside the Director of Construction Administration.
- Became proficient in Procore and assisted with specification books, daily observation reports, documentation, drawing sets, punch lists, bid analysis, plan take-offs, scopes of works, and submittals.

Peer-Reviewed Journal Articles (1)

1. Lee, K.S., Lee, J.J., **Aucremanne, C.**, Shah, I., & Ghahramani, A. (2023). Towards democratization of digital twins: Design principles for transformation into a human-building interface'. *Building and Environment*, 244, 110771. <https://doi.org/10.1016/j.buildenv.2023.110771>.

Peer-Reviewed Conference Papers (1)

1. Gilbride, T.L., Louie, E., & **Aucremanne, C.** (2023). Getting from Net Zero to Zero Carbon One Step at a Time. In L.L. Wang, H. Ge, Z.J. Zhai, D. Qi, M. Ouf, C. Sun, & D. Wang (Eds.), *Proceedings of the 5th International Conference on Building Energy and Environment (COBEE 2022)* (1405-1414). Springer Nature Singapore. https://doi.org/10.1007/978-981-19-9822-5_145.

Non-Peer-Reviewed Lectures, Speeches, or Poster Presentations (31)

1. Gilbride, T.L., Brozyna, K., Mosley, T., **Aucremanne, C.**, & Benitez, L. (09/14/2021-09/16/2021). Zero Energy Ready on a Production Scale. Presented by Gilbride, T.L., Brozyna, K., & Mosley, T. at EEBA High Performance Home Summit. Denver, CO, USA. PNNL-SA-166513.
2. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: BPC Green Builders, Hillside Passive House. Denver, CO, USA. PNNL-SA-166172.
3. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Bundle Design Center, Midcentury Deep Energy Makeover. Denver, CO, USA. PNNL-SA-166173.
4. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Bundle Design Center, Felicity. Denver, CO, USA. PNNL-SA-166174.
5. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: C & B Custom Homes, Cabernet Model 2021. Denver, CO, USA. PNNL-SA-166175.
6. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Charis Homes, The Royal Magnolia. Denver, CO, USA. PNNL-SA-166176.

7. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Clifton View Homes, Above-Garage Accessory Dwelling Unit. Denver, CO, USA. PNNL-SA-166177.
8. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Deltec & Old School Remodeling, Custom Ridgeline F. Denver, CO, USA. PNNL-SA-166178.
9. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Dwell Development, Wallingford Single-Family Positive Energy Home. Denver, CO, USA. PNNL-SA-166179.
10. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Energy Vision Homes, Wilton Net Positive Home. Denver, CO, USA. PNNL-SA-166180.
11. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Garbett Construction, Aurora Heights. Denver, CO, USA. PNNL-SA-166181.
12. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Garbett Construction, Skyscape at Silver Creek Village. Denver, CO, USA. PNNL-SA-166182.
13. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Habitat for Humanity South Sarasota County, The Venetian at Eldron. Denver, CO, USA. PNNL-SA-166183.
14. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Haynes Construction, Crown Street. Denver, CO, USA. PNNL-SA-166184.
15. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Healthy Communities, Pathway to Decarbonization. Denver, CO, USA. PNNL-SA-166185.
16. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Insight Homes, The Brenner. Denver, CO, USA. PNNL-SA-166186.
17. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Lopez Community Land Trust, Salish Way Cottages. Denver, CO, USA. PNNL-SA-166187.
18. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Mandalay Homes, Foothills Lot 8. Denver, CO, USA. PNNL-SA-166188.
19. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Martha Rose Construction, Abbott's Alley Net Zero. Denver, CO, USA. PNNL-SA-166189.
20. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: McStain Neighborhoods, McStain Neighborhoods. Denver, CO, USA. PNNL-SA-166190.
21. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Module, Show Home on Black Street. Denver, CO, USA. PNNL-SA-166191.

22. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Philgreen Construction, L'Avenir Townhomes. Denver, CO, USA. PNNL-SA-166192.
23. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Red Tree Builders, Robinhood. Denver, CO, USA. PNNL-SA-166193.
24. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: S. D. Jessup Construction, DeepWell Property. Denver, CO, USA. PNNL-SA-166194.
25. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Targa Homes, Crown Hill Detached Accessory Dwelling Unit. Denver, CO, USA. PNNL-SA-166195.
26. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: TC Legend Homes, Neohouse. Denver, CO, USA. PNNL-SA-166196.
27. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Thrive Home Builders, The Vitality Collection. Denver, CO, USA. PNNL-SA-166197.
28. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Tim O'Brien Homes, The Galway. Denver, CO, USA. PNNL-SA-166198.
29. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: United Way of Long Island, Housing for Heroes. Denver, CO, USA. PNNL-SA-166199.
30. Gilbride, T.L. and **Aucremanne, C.** (09/14/2021-09/16/2021). DOE Zero Energy Ready Home Housing Innovation Award Winner Poster 2021: Zero Net Now, Zero Energy at Albany Post. Denver, CO, USA. PNNL-SA-166200.
31. **Aucremanne, C.** (08/19/2021). DOE's Zero Energy Ready Home Program: A Path to Net-Zero. Richland, WA, USA. PNNL-SA-165897.

Creative Works or Activities: Web-Based Communication and Teaching (2)

1. [Barometer Florida](#)

- **Aucremanne, C.** (Mentor): Quantitative and qualitative research of North Central Florida.
- Purpose: a continuation of the Barometer Florida visualization project related to public health issues and health indicators, such as the opioid epidemic, COVID-19 pandemic response, sexual health, and more.
- Duration: December 2020 – May 2021

2. [Barometer Florida](#)

- **Aucremanne, C.** (Scholar): Quantitative and qualitative research of Okeechobee County.
- Purpose: an i-civics tool aimed at creating local, regional, and state-wide benchmarks on vital climate issues facing Florida, allowing users to track progress on key indicators over time.
- Duration: December 2019 – May 2020

Technical Skills (15)*Energy Modelling (3)*

1. Beginning to intermediate user of ModelIT, SunCast, ApacheSIM, MacroFlo, and VistaPro within Integrated Environmental Solutions Virtual Environment (IES VE).
2. Beginning to intermediate user of EnergyPlus v9.6.0 building energy simulation program.
3. Beginning to intermediate user of eQuest v3.65 building energy modelling software.

Programming (6)

1. Intermediate to proficient user of Java with BlueJ and IntelliJ IDEA environments.
2. Intermediate to proficient user of C++ with the Microsoft Visual Studio Code environment.
3. Beginning to intermediate user of HTML, CSS, and Javascript with the Microsoft Visual Studio Code environment.
4. Beginning to intermediate user of Python.
5. Beginning to intermediate user of R with the RStudio environment v.4.2.2.
6. Beginning to intermediate user of SPSS Statistics v29.0.0.0 (241).

Design (2)

1. Beginning to intermediate user of Rhino 7.
2. Beginning to intermediate user of Grasshopper.

Geospatial (1)

1. Beginning to intermediate user of ArcGIS Pro v3.0.3.

Project Management (1)

1. Proficient user of Procore Construction Management Software with Bluebeam Software.

Office Productivity (2)

1. Proficient user of citation management and literature archiving with Zotero 6.
2. Proficient user of Word, Excel, and PowerPoint within Microsoft Office 2013.

Scholarships, Honours, and Awards (6)*Scholarships (3)*

1. NUS Research Scholarship (Ring Fence Award) (PhD four-year award from 2023 through 2027).
 - a. Award: 100% tuition, plus monthly living stipend.
2. University of Florida Center for Undergraduate Research (CUR): University Scholars Program Scholarship (undergraduate research scholarship for 2020/2021).
 - a. Award: \$1,750.00
3. Bright Futures Academic Scholar Scholarship (undergraduate four-year award from 2017/2018 through 2020/2021).
 - a. Award: 100% tuition, plus semesterly textbook stipend.

Honours and Awards (3)

1. University of Florida College of Design, Construction and Planning: Dean's List (2021).
2. University of Florida College of Design, Construction and Planning: Dean's List (2020).
3. University of Florida College of Design, Construction and Planning: President's Honour Roll (2019).

Volunteer Experience (3)○ **Vice President**

U.S. Green Building Council UF Chapter, Gainesville, FL, USA. 08/2018 – 05/2021.

- Acted as a member for one year and Treasurer for one year until being elected as Vice President in August 2020.
- Continued day-to-day operations, as well as coordinated community involvement events and promoted green building initiatives within the chapter.
- Kept track of the chapter's finances of \$3,000, became the liaison for funding from Student Government, and assisted with organising extracurricular events.
- Continued collaborations with Habitat for Humanity and Community Weatherization Coalition.
- **Volunteer**
Sierra Club, FL, USA. 08/2018 – 05/2021.
 - Promoted pro-environmental action by activating climate voters for endorsed candidates to collecting comments on key local issues.
 - Conversated with 1000's of voters per week to build our grassroots collective against anti-environmental acts.
- **Energy Coach**
Community Weatherization Coalition, Gainesville, FL, USA. 08/2018 – 06/2020.
 - Helped perform home energy audits for lower-income residents of Alachua County.
 - Provided residents with the tools and information needed in order to help them successfully reduce their utility bill and energy consumption.

Licenses & Certifications (9)

Green Building (4)

1. Building Green: What It Takes and Why It's Worth It (Procore Technologies)
 - a. Credential ID: b6ost9fy5jgk
2. Navigating LEED Practices for Achieving Green Certification (Procore Technologies)
 - a. Credential ID: x564igoive62
3. Planning for Sustainable Infrastructure (Procore Technologies)
 - a. Credential ID: yyxfdk4bzcs
4. Win More Business with Green Building (Procore Technologies)
 - a. Credential ID: v7jw3w9q2ewx

Construction Software (5)

1. Procore Certified: Project Manager (Core Tools) (Procore Technologies)
 - a. Credential ID: jrchktx3zsn
2. Procore Certified: Project Manager (Resource Management) (Procore Technologies)
 - a. Credential ID: er5ac6tb3h5i
3. Procore Certified: Project Manager (Financial Management) (Procore Technologies)
 - a. Credential ID: i8fk4fty3v9e
4. Procore Certified: Project Manager (Project Management) (Procore Technologies)
 - a. Credential ID: dt5tz7kt8c8s
5. Procore Certified: Project Manager (Quality & Safety) (Procore Technologies)
 - a. Credential ID: gchbijus9r7g

Languages (1)

1. English: native in reading, writing, and speaking.