Baowen Zhang

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EDUCATION

SUNY College of Environmental Science and Forestry **Aug 2020 – Dec 2025**
Ph.D. in Sustainable Construction Management & Wood Science, GPA: 3.60/4.00 *Syracuse, NY*
- Courses: BIM, Machine Learning, Building Energy Simulation, Computational Fluid Dynamic, Atmospheric Environment, GIS.
- TA Experience: Lectured and guided students in Revit, Engineering Economy, Structural Analysis, Construction Scheduling.

Stevens Institute of Technology **Aug 2018 – Dec 2019**
M.Eng. in Engineering Management, GPA: 3.78/4.00 *Hoboken, NJ*
- Courses: Project Management, Engineering Economics, Risk Analysis, Lean Six Sigma.

Tianjin University of Technology **Sep 2014 – Jun 2018**
B.Eng. in Construction Engineering, GPA: 3.10/4.00 *Tianjin, China*
- Courses: Construction Estimating, Structural Analysis and Design, Geotechnical Engineering (Soil Mechanics, Foundation Design), Transportation Engineering, Cost Engineering, Risk Assessment, Construction Project Management, Hydraulics and Hydrology.

PROJECT EXPERIENCE

Sustainable Concrete with Alternative SCMs Development **Jan 2025 – Present**
- Developing techno-economic-environmental analysis of concrete with up to **80%** cement replacement using locally available SCMs.
- Conducting mechanical testing (ASTM C78, C496, C1876, C403) for strength, durability, and shrinkage.
- Optimizing mix design with GGBS/PFA to achieve **4000 psi** strength and lower carbon footprint.
- Performing LCA to quantify environmental benefits over conventional Portland cement concrete.

5-Layer Hardwood CLT Development **Mar 2024 – Dec 2024**
- Collaborated with Michigan State University on ANSI/APA PRG-320-19 compliance for hardwood CLT.
- Evaluated CLT panels made from **4000+ board feet** of urban wood species; achieved **345%** of V3 strength requirements.
- Performed flexural, shear, delamination tests; validated **112%** of required stiffness under material variability.
- Advanced circular construction through urban wood waste conversion into structural CLT.

Renovated Building Energy Forecasting **Jan 2023 – Dec 2024**
- Built forecasting models on 15-minute ASHRAE building energy data using ANN, LSTM, GRU.
- Developed ML models (XGBoost, Random Forest) for energy performance prediction with **23%** RMSE reduction.
- Applied UMAP and t-SNE to enhance feature clustering and reduce model computation time.
- Manuscript under review: *Journal of Energy & Buildings.*

Lignin-Based Insulation Material Development **May 2023 – Oct 2024**
- Synthesized lignin-based polyurethane foam; conducted ASTM E84, C518, C1303 testing.
- Publication: *Chemical Engineering Journal*, on green co-solvent-assisted foam synthesis.

TDOT Retaining Wall Assessment **Jun 2021 – Jul 2021**
- Built GIS database for climate-linked asset management; improved data accessibility by **40%**.
- Published in Transportation Research Board: hybrid AHP–Markov model for wall life cycle prediction.

Intern, Zibo Structural Design Institute **Jun 2018 – Jul 2018**
- Reviewed structural drawings and performed basic load calculations under senior engineer supervision.
- Observed on-site concrete pouring and rebar placement to ensure code compliance.

Technician, Jiangsu Suzhong Construction **Feb 2018 – Mar 2018**
- Assisted with site surveying using Total Station and GPS equipment for dam alignment and layout verification.
- Performed concrete slump and air content tests to ensure mix compliance with design specifications.
- Monitored dam construction activities, inspected rebar placement, and enforced safety protocols.
- Updated construction drawings in CAD, improving record accuracy by 15%.

TECHNICAL SKILLS

- **Instructional Tools:** AutoCAD, Bluebeam Revu, Revit, Microsoft Project, Excel
- **Construction Planning:** BIM, Cost Estimation(HCSS, Togal.AI), Scheduling(Procore)
- **Energy Modeling:** EnergyPlus, ASHRAE Level 1/2 Audits, Infrared Thermography, DroneDeploy
- **Programming:** Python, MATLAB, SAS
- **Standards and Testing:** ASTM (C157, C518, E2178, C1303, E84), OSHA 10

CERTIFICATIONS

- Authorized to work in the U.S. (F-1 STEM OPT eligible, Ph.D. completion Dec 2025).
- OSHA 10-Hour Construction Safety and Health, July, 2025
- Forklift and Aerial Lift Safety Training
- Fundamentals of Engineering (FE), NCEES, in progress
- LEED Green Associate(GA), USGBC