CURRICULUM VITAE

JAMYANG SELDON

Contact: (+61) 450 710 992

Email: jseldon24@gmail.com

Address: Southport, QLD, 4215

LinkedIn: www.linkedin.com/in/jamyangseldon

EDUCATION

Doctor of Philosophy (Structural Engineering) – Griffith University *July 2025- Present*

Research Focus: Development and Validation of Post-Tensioned Two-Way Cross-Laminated Timber (PT2CLT) Flat Plate Systems for Mid-Rise Construction

Principal Supervisor: Professor Hong Guan
Scholarship: Griffith University Postgraduate Research Scholarship (GUPRS)

Details: Ongoing doctoral research within a 3-year full-time program. This PhD investigates the punching shear behaviour of post-tensioned two-way cross-laminated timber (PT2CLT) flat plate slab-column joints for mid-rise construction. Experimental testing and advanced LS-DYNA modelling are used to evaluate the effects of tendon layout, prestress levels, and drop panel geometry on shear capacity and failure mechanisms, aiming to produce validated design guidelines that promote safer, low-carbon timber structures.

Master of Civil Engineering Advanced with Distinction – Griffith University

Thesis Topic: The Influence of Prestressing Levels and Tendon Configurations on Post-Tensioned Flat Plate Slab-Column Joints with High-Strength Concrete – A Parametric Study *Mar 2024 - July 2025*

Details: Thesis length 11,499 words, undertaken over one trimester. This IAP research investigates the punching and post-punching behaviour of post-tensioned flat plate slab-column joints using high-strength concrete (HSC). A comprehensive parametric study was conducted using LS-DYNA to simulate and analyse the influence of varying prestressing levels (1.2, 1.8, and 2.4 MPa) and tendon configurations (PT2 and PT4) on shear resistance, load redistribution, and deformation patterns. The finite element models were validated against experimental data and provided insights into progressive collapse resistance, contributing to safer and more resilient flat plate design.

Supervisor: Professor Hong Guan

GPA: 6.7/7

B.E. in Civil Engineering – Royal University of Bhutan, College of Science and Technology

Graduated as Rank 1 of the Civil and Environmental Engineering Department with an aggregate of 79.86% (Recipient of His Majesty the King of Bhutan's Certificate of Academic Excellence) *July 2017- July 2021*

Research Topic: A Pre-feasibility Study of a Run-of-River Small Hydropower Project in a Himalayan Basin – A Case Study in Chamkhar River, Bhutan

Details: Final year capstone research project focused on identifying and assessing feasible locations for an eco-friendly small hydropower plant in the Chamkhar River Basin in Bhutan, using hydrological modelling, GIS, and multi-criteria decision analysis. Tools such as HEC-HMS and ArcGIS were used to simulate river flows and perform catchment analysis. The Analytic Hierarchy Process (AHP) was used to evaluate environmental and socio-economic factors. The study identified the most suitable site among 98 possible locations and proposed a technical and environmental layout for implementation. Three research papers published and represented the Department of Civil and Environmental Engineering in the College Annual Research Meet, 2021 as the "Best Research Project" in the department.

Supervisor: Mr. Leki Dorji (MSc)

PROFESSIONAL EXPERIENCE

Sessional Academic – Griffith University

Griffith University

July 2025 - Present

This role involves part-time academic engagement focused on delivering technical workshops for postgraduate students enrolled in 7304ENG - Concrete Design. The workshops support student learning through applied instruction in reinforced and prestressed concrete behaviour, structural analysis, and practical design methods aligned with Australian Standards. My responsibilities involve curriculum-aligned facilitation, assessment support, and academic mentoring-demonstrating teaching capability through the following activities:

- Designing and delivering weekly 2-hour workshops based on assignment-driven learning outcomes.
- Explaining complex structural concepts including flexure, shear, serviceability, and prestress analysis.
- Guiding students in applying AS 3600 provisions for concrete member design.
- Supporting students' technical development through clarifying assignment expectations and problem-solving approaches.
- Liaising with the course convenor to ensure pedagogical alignment and consistency across workshop sessions.

Hydrological Engineer/Research Engineer

Infrastructure Planning and Flood Adaptation Division, Department of Human Settlement, Ministry of Infrastructure and Transport, Royal Government of Bhutan

Thimphu, Bhutan

Jan 2022 – Dec 2023

This role involved sustained, full-time technical research and development work focused on hydrological modelling, climate resilience planning, and disaster risk reduction. These activities involved high-level technical modelling, spatial data analysis, infrastructure design, and cross-disciplinary integration-laying a strong foundation for research in flood-resilient infrastructure, spatial modelling, and disaster-adaptive systems. My responsibilities demonstrated research capability through the following activities:

- Developed and calibrated hydrological and 2D hydrodynamic flood models to support flood hazard and risk assessments for four major river catchments-Haa, Thimphu, Denchi, and Jomotsangkha-informing national-level flood management strategies.
- Planned and conducted bathymetric surveys and floodplain terrain assessments to support technical modelling, applying quantitative analysis techniques and spatial data interpretation.

- Designed site-specific flood mitigation and adaptation measures as part of comprehensive Flood Management Plans, integrating climate resilience and community safety considerations.
- Led UAV-based (drone) surveys and processed output data to create high-resolution Digital Terrain Models (DTMs) for use in post-disaster assessments and hydrological simulations (3.5 hours of drone flight time, including mission planning and processing).
- Developed stormwater management plans for Thimphu and Gelephu towns, involving mapping and modelling of urban drainage systems and infrastructure upgrade proposals using simulation tools.
- Served as Division Budget Focal for the 2022–2023 fiscal year-responsible for annual budget forecasting and planning, as well as coordinating the Annual Work Agreement and Individual Work Plan documentation for all division staff, supporting project accountability and planning.

Druk-Care Engineering

Thimphu, Bhutan

Engineer: Design and Drafting

July 2021 – December 2021

This sustained part-time role involved advanced technical and analytical tasks in structural design and cost estimation, contributing directly to applied research capabilities in structural engineering and digital modelling. The work is relevant to my proposed research on sustainable structural systems (e.g., mass timber) due to its focus on building analysis, design integration, and performance-based modelling. My responsibilities included:

- Completed detailed architectural, structural, and plumbing drawings for a G+3 (four-storey) building located in Thimphu, integrating spatial planning with structural performance considerations.
- Performed structural analysis and design using STAAD.Pro and STAAD RCDC, assessing load-bearing behaviour, member sizing, and concrete performance based on Bhutanese and international codes.
- Developed coordinated construction drawings using AutoCAD, ensuring clarity and alignment between architectural and structural elements.
- Prepared detailed quantity take-offs and cost estimates using MS Excel, applying principles of resource efficiency and material budgeting, which align with sustainability and circular economy approaches in infrastructure delivery.

This experience contributed to my technical proficiency in structural modelling, digital drafting, and performance-based design-competencies which are foundational for undertaking research in sustainable structural systems, including mass timber design, digital simulation, and construction innovation.

Civil Engineering Intern - Onsite

Tashi Yangtse, Bhutan

Department of Roads, Trashigang Regional Office, Ministry of Infrastructure and Transport, Royal Government of Bhutan

Dec 2020 – Feb 2021

Responsibilities:

During an eight-week, full-time On-Job Training placement, I worked on the construction of two Prestressed Concrete I-Girder Bridges at Doksum and Tsergom along the Chazam–Tashi Yangtse Primary National Highway in Eastern Bhutan. Under the guidance of site engineers and contractors (EWCPL), I developed practical skills in estimation, structural detailing, and quality control while engaging in the full lifecycle of bridge construction. Key activities included:

- Conducting layout and stakeout surveys using Total Station for bridge abutment placement.
- Executing reinforcement layout and bar bending, including calculation of reduced lengths based on bend angles and site-specific adjustments due to geological constraints.
- Participating in structural concrete mix design and cube testing to ensure compliance with strength standards (IS 10262-2009).
- Supporting project estimation and planning, including preparing a detailed cost analysis for a roadside two-storied gazebo structure.
- Performing material verification and quality checks for steel and concrete deliveries.
- Gaining exposure to procurement and project management tools such as e-GP (Electronic Government Procurement) and e-Tool systems.
- Attending technical lectures on blasting, structural integrity, and the roles of civil engineers in large infrastructure projects.

This internship provided hands-on research-relevant experience in field-based civil and environmental engineering, with a strong focus on structural analysis, materials testing, and real-world problem-solving under supervision.

RESEARCH PUBLICATIONS

Dorji, L., **Seldon, J**., Tashi, P., Letho, D., Chettri, N. (2022). Discharge Evaluation of Chamkhar River Basin in Bhutan Through Flow Modeling and Simulation in HEC-HMS Using SCS-CN Method. SSRN Journal.

Type of Publication: Journal Article | Refereed: Yes

DOI: 10.2139/ssrn.4123605

Authorship Statement: I (Seldon, J.) was the principal contributor to the research, responsible for conducting the modelling and simulations using HEC-HMS, performing the data analysis, and drafting the manuscript. However, my supervisor (Dorji, L.) has been listed as the first author. Tashi, P. participated in data analysis. Letho, D. and Chettri, N. helped in the review of the manuscript.

Letho, D., Dorji, L., **Seldon, J**. (2021). Using GIS to Assess the Hydropower Potential of a Run-of-River Small Hydropower Plant in Chamkhar River, Bhutan. International Journal of Scientific Research, Vol. 7. ISSN: 2395-566X.

Type of Publication: Journal Article | Refereed: Yes

URL:
https://www.researchgate.net/publication/359229567_Using_GIS_to_Assess_the_Hydropower_Potential_of_a_Run-_of-River_Small_Hydropower_Plant_in_Chamkhar_River_Bhutan

Authorship Statement: I (Seldon, J.) and Letho, D. were responsible for the GIS-based hydrological modelling. Tashi, P. was involved in drafting the manuscript and interpretation of results. Dorji, L. (supervisor) helped in review and paper publication.

Tashi, P., Dorji, L., **Seldon, J.,** Letho, D. (2021). Selection of Best Location for Small Hydropower Plant (SHP) along Chamkhar River, Bhutan using Analytical Hierarchy Process (AHP). International Multidisciplinary Research Journal, 11(7), 293–305.

Type of Publication: Journal Article | Refereed: No

DOI: 10.5958/2249-7137.2021.01741.9

Authorship Statement: Tashi, P. contributed to the multi-criteria evaluation using AHP, and assisted with drafting the discussion and conclusions. Seldon, J. was also involved in preparing figures and data visualizations. Dorji, L. was responsible for review and paper publication.

SKILLS AND COMPETENCIES

- Proficient in LS-DYNA for advanced finite element modelling of reinforced and prestressed concrete structures, including simulation of punching and post-punching failure mechanisms.
- Skilled in structural design and analysis using STAAD.Pro, STAAD RCDC, Strand7, and AutoCAD.
- Experienced in geospatial analysis using QGIS for watershed delineation, land use classification, and spatial data interpretation.
- Competent in hydrological modelling using HEC-HMS for runoff estimation and flood analysis.
- Applied Analytical Hierarchy Process (AHP) for multi-criteria decision-making in infrastructure site selection.
- Familiar with parametric studies, model calibration, and validation techniques for research-grade numerical simulations.
- Strong technical writing and reporting skills developed through thesis work and professional experience.
- Working knowledge of sustainable infrastructure design and disaster-resilient systems from both academic and field-based projects.

CONFERENCES/WORKSHOPS

- **MHR-DHS Multi-Hazard Risk Assessment:** Comprehensive training program focused on multi-hazard risk assessment methodologies, emergency preparedness, and disaster response planning (Thimphu). — *DHI Consultancy*, *Aug, 2022*
- **Water Resource Management (WRM) and Urban Resilience Training:** Included components of best practices in WRM and urban resilience strategies for disaster preparedness and response, and sustainable development (Bangkok, Thailand). — *Asian Disaster Preparedness Centre*, *Feb, 2023*
- **Advanced Drone Training for Multi Hazard Risk Assessment**: Comprehensive training program on the use of drones of multi hazard disaster risk assessments with components of drone flying, data capturing, mission planning, data processing, generation of terrain models and aspects of multi hazard assessments (Thimphu). — *Nepal Flying Labs & World Bank*, *April, 2023*

- **Environmental and Social Framework Training:** Conducted by the World Bank, included the ten Environmental and Social Standards to be considered and addressed in the planning and implementation of any project (Thimphu). *World Bank* *June, 2023*

GRANTS AND AWARDS

Royal Civil Service Examination (RCSE) Rank 1 - Technical Category (Civil Engineering)	*2021*
Recipient of Certificates for Academic Excellence from His Majesty the King of Bhutan	*2021, 2020, 2018*
Rank 1 in the Civil and Environmental Engineering Department in College in Years 4, 3 and 1	*2021, 2020, 2018*
Recipient of "The Ugyen Dorji Memorial Scholarship Award" for levels 9 and 10	*2013-2014*

REFERENCES

Academic Supervisor (Professor Hong Guan)
School of Engineering and Built Environment
Griffith University
h.guan@griffith.edu.au

Chief Executive Officer (Jigme Tobgyel)
Druk-Care Engineering, Bhutan
jtobgyel@gmail.com

Chief Engineer (Kuenzang Choden)
Infrastructure Planning and Flood Adaptation Division
Department of Human Settlement
Ministry of Infrastructure and Transport
Royal Government of Bhutan
kchoden@moit.gov.bt