

LE XUAN HUNG, PhD

Senior Structural Bridge Engineer

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Professional Summary

- Senior Structural Engineer with 10+ years of experience in the design, analysis, verification and delivery of bridge and civil infrastructure, including railway bridge projects, steel and concrete bridges, temporary works and complex construction methods.
- Backed by a PhD in Civil Engineering and a strong foundation in structural mechanics and finite element methods, with advanced capability in global and detailed modelling, staged construction, seismic, dynamic and nonlinear analysis, structural verification and steel connection design.
- Develops engineering tools and automated workflows using C#, Python, and web technologies to support bridge design - calculation sheets, quantity take-off, and design verification - improving efficiency and consistency in delivery.

Core Skills

Rail & Bridge Engineering: Railway and highway bridge infrastructure; prestressed concrete, segmental and composite steel bridges; steel box girders, temporary works and complex construction methods.

Structural Analysis & Design: Finite element modelling; global and detailed analysis; staged construction, seismic, dynamic and nonlinear analysis; steel connection design and structural verification. Experience applying Australian Standards through the development of P–M interaction and truss design and checking tools.

Software, Automation & AI: MIDAS Civil, SAP2000, RM, Abaqus, STAAD.Pro, IDEA StatiCa and Tekla Structures; development of engineering and project-management tools using C#, Python, VBA, web technologies and AI-assisted workflows.

Professional Experience

ENVICO Co., Ltd.

Deputy Project Manager & Engineering Software Developer

Seoul, Korea

Sep 2024 – Present

Key responsibilities

- Lead structural design and construction engineering for concrete railway bridges on the South Commuter Railway project in the Philippines, including balanced-cantilever and precast segmental bridges erected span-by-span using launching gantries.
- Perform advanced structural analyses, including seismic, nonlinear, staged construction, and steel connection design for complex structures.
- Lead the development of engineering software, automation tools, and AI-assisted workflows to optimise design processes, support rapid prototyping, and improve engineering productivity.

Selected projects

- **South Commuter Railway (Philippines) – Prestressed segmental bridge (balanced cantilever, span-by-span erection using launching gantry.** ➡ castcontrol.vercel.app
Digital geometry control (CastControl) for short-line segmental construction: automated alignment and tolerance verification for casting, match-casting, and staged assembly, reducing manual engineering effort by up to 95%.
- **Saemangeum Ring Road TK project (Korea) – steel and circular-pylon cable-stayed bridge.**
Global structural modelling and detailed analysis including seismic evaluation under earthquake loading; design calculations and structural verification with engineering calculations and documentation for review and approval.

Wookyoung Construction Co., Ltd.
Senior Structural and Bridge Engineer

Seoul, Korea
Sep 2018 – Sep 2024

Key responsibilities

- Designed and analysed steel box girder bridges for highway and railway infrastructure.
- Performed structural analysis and design checks for key components and temporary works including steel formwork and erection support structures.
- Developed .NET-based applications for automating steel box girder bridge design; produced technical reports, drawings, and quantity take-offs.

Selected projects

- **PUS Pro program (Prestressed composite U-type Steel box girder design and verification program)** 
blog.naver.com/lxhkhu/223514032727
.NET Desktop application for structural design and verification of PUS steel box girder bridges; automated code checking, calculation sheets, quantity take-offs, and technical reports.
- **Ihwa–Samgye Road widening (Section 2) – Hyeongok 2nd Bridge (Steel Composite Box girder)**
Structural modelling and analysis, steel connections, and temporary works (formwork systems); engineering calculations, drawings, and documentation for verification and approval.

Hung Nghiep Construction Consulting Co., Ltd.
Structural Engineer

HCMC, Vietnam
Aug 2007 – Aug 2010

Key responsibilities

- Conducted structural and staged construction analysis for balanced cantilever, precast concrete, cast-in-situ concrete, temporary steel truss bridges and others structures.

Selected projects

- **An Nghia Bridge – Can Gio, HCMC (Balanced cantilever bridge in construction stage).**
Detailed design and construction-stage analysis for balanced cantilever bridge construction.

Digital software projects

- **CastControl**  castcontrol.vercel.app
Digital geometry-control platform for short-line segmental railway bridge construction, automating alignment and tolerance verification during casting, match-casting and staged erection.
- **RC Designer**  pmdesigner.vercel.app
Web-based reinforced-concrete design and verification tool implementing Australian Standards, including P–M interaction diagrams and member-capacity checks.
- **Truss Designer**  struct-tools.vercel.app/truss/
Web-based structural analysis and truss-design tool implementing Australian Standards, with automated member-force analysis and code-based verification.
- **Bridge Alignment**  struct-tools.vercel.app/alignment/
Web-based horizontal and vertical alignment-modelling application supporting bridge geometry control, construction coordination and field surveys.
- **Web-based Steel Bridge Analysis**  struct-tools.vercel.app/bridge/
Parametric platform under development for I-girder and box-girder bridges, providing real-time structural analysis and design-oriented results.
- **Timesheets**  timesheets.co.kr
Full-stack project-management system for time tracking, resource allocation, labour-cost control and project performance and financial reporting.

Education

2012–2018 PhD Civil Engineering, Kyung Hee University
Research on bridge deflection and vibration reliability; peer-reviewed publications.

2010–2012 MEng, Kyung Hee University

2002–2007 BSc Civil Engineering, University of Communications and Transport, Vietnam