

# LOUIS SUNGWOO CHO

louis.s.cho@gmail.com | +1-312-539-1340 | <https://lotlouischoitslab.github.io>

## EDUCATION

University of Illinois at Urbana Champaign, Grainger College of Engineering

August 2020 - May 2025 (Expected)

M.S in Civil Engineering (Transportation)

B.S in Civil Engineering (Transportation), Minor in Computer Science

GPA: 3.53/4.00

## EXPERIENCES

Undergraduate Research Assistant: Smart City Laboratory at UIUC

August 2023 – Present

- Collaborating on various Autonomous Vehicles Research projects with Professor Alireza Talebpour from the Department of Civil Engineering (Transportation) at UIUC.
- Developing algorithms for optimizing and predicting trajectories by integrating AI into Traffic Flow Theory.
- Integrating LSTM-based neural networks for trajectory prediction and optimization for self-driving vehicles.

May 2023 – August 2023

- Conducted research on GPT and Deep Reinforcement Learning Sequence-based Framework for Traffic State Space Shaping.
- Introduced a sequence-based simulation using LSTM-based neural networks to optimize the agent's action selection process.

Undergraduate Researcher: Human-Centered Autonomy Laboratory at UIUC

January 2023 – May 2023

- Contributed to the development of an End-to-End Autonomous Driving Model using TransFuser model with Professor Katherine Driggs-Campbell, Department of Electrical & Computer Engineering at UIUC.
- Implemented Computer Vision and RL techniques to optimize TransFuser Neural Networks for autonomous agents.

Research Assistant: Reliable Autonomy Group at UIUC

May 2022 – August 2022

- Collaborated with Professor Sayan Mitra, Department of Electrical & Computer Engineering at UIUC for AutoVerse-AI Simulation Research for Control Verification. Code link: <https://github.com/AutoVerse-ai/Verse-library>
- Created parsing functions to visualize and generate road attributes inside the ASAM OpenDRIVE files for the simulators.

## EXTRACURRICULAR ACTIVITIES

President: Institute of Transportation Engineers UIUC Chapter (ITE@UIUC)

August 2022 – May 2024

- Connected students and networking with transportation professionals from top transportation companies by hosting and moderating conferences and panels such as Illinois Traffic Engineering Safety Conference (TES), Illinois Transportation Highway Engineering Conference (T.H.E), monthly seminars and field trips. Topics covered were Autonomous Vehicles, Intelligent Transportation Systems (ITS), Connected and Automated Vehicle (CAV) Infrastructure, Public Transit, Aviation, High-speed Rail, Electric Vehicles, Buses and designed website: <https://ite.cee.illinois.edu/>.
- Lead the Transportation Data Science Team of 6 students to analyze public transit passenger data using Time-series Forecasting Machine Learning Algorithm and Deep Learning models for vehicle classification to present exhibitions by ITE@UIUC at the UIUC Engineering Open House (EOH).
- Mentored passionate students who are Civil Engineering (Transportation) Majors, Computer Science Majors and Minors offering them thorough guidance by assisting curriculum planning and coursework selection.
- Representative for ITE@UIUC in the UIUC Engineering Council (engineering organization consisting members who are presidents of engineering-related RSOs at UIUC) to promote diversity in transportation and get involved with various volunteering activities for the university community.

## AWARDS AND RECOGNITIONS

UIUC EOH 2024 Outstanding Exhibit Award 3<sup>rd</sup> Place

April 2024

ITE@UIUC was awarded the "Outstanding Exhibit Award" in 3<sup>rd</sup> place for demonstrating what "Mobility for Our Future" will look like during the UIUC Engineering Open House 2024. CAD design of new High-speed Rail, Maglev, eVTOL, Unmanned Aerial Vehicles (UAV), Bus Rapid Transit (BRT) system and data visualization using AI for time-series forecasting for public transit planning were shown.

Grant W. Shaw Memorial Scholarship

March 2023

Scholarship award for students demonstrating the best leadership in Traffic Engineering awarded by faculty members in the Transportation area of the Department of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign, and the Schaumburg Chapter of the Illinois Association of Highway Engineers.

Dean's List

May 2022

The Dean's List is given to honor full-time students whose grade-point average (GPA) for that semester ranks in the upper 20 percent of their college every semester.

## SKILLS

**Programming Languages:** Python, Java, C++, HTML, CSS, JavaScript, ReactJS, MySQL, MongoDB, NodeJS, Neo4j, MATLAB

**Tools:** Git, LaTeX, Microsoft Excel, Word, PowerPoint, AutoCAD, Revit

**Languages:** English, Korean