Zongnan Bao

zb3@illinois.edu | 1013 Macomber Dr, Urbana, IL, 61801 | (217) 904-8058 | https://bznick98.github.io/

EDUCATION

University of Illinois at Urbana-Champaign <div align="right">**Champaign, IL**</div>

Bachelor of Science in Computer Engineering <div align="right">*Aug 2017 - May 2021(Expected)*</div>

- **GPA:** 3.78/4.00   **Third-year GPA:** 3.88/4.00
- **Honors:** Deans List (Spring 2020, Fall 2019, Spring 2018)
- **Core Courses:** Machine Learning, Artificial Intelligence, Robotics, Algorithms, Data Structure, Operating System, Database, Computational Photography, Multimedia Signal Processing, Safe Autonomy, Digital System Lab, Applied Linear Algebra

RESEARCH EXPERIENCE

Center for Autonomy at **UIUC** <div align="right">*May 2020 - Aug 2020*</div>

Undergraduate Research Assistant (35 hrs/week) - Advised by Prof. Sayan Mitra

C2E2: Verification System for Simulink/Stateflow

The C2E2: Hybrid Verification Engine is designed to analyze the reachability of hybrid automata which could be applied to a wide range of control systems including robots, autonomous cars, and medical devices.

- Wrote a python package using the backend of C2E2 to carry out reachability analysis.
- Applied C2E2 to verify the safety of an autonomous vehicle scenario: vehicles following a series of waypoints.
- Fixed bugs and added new functionalities to the C2E2 software such as deterministic transition and a drop-down option for a new verification method.
- Presented the newly-designed functionalities to group members; a part of the presentation was recorded as a tutorial.

INTERNSHIP

Malu Innovation Co., Ltd, Shanghai, China <div align="right">*Jun 2019 - Jul 2019*</div>

Software Engineering Intern, Research and Development Department

Data Analysis of Warehouse Robots

As the leader of Large-scale Robots Scheduling in China, the company develops advanced robots for automating warehousing operations such as box handling, sorting, transporting, etc. This project mainly analyzed the data of warehousing scheduling and transformed it into useful information.

- Extracted and processed data from warehouse scheduling; used C++ to optimize scheduling location.
- Captured and transformed laser scan data from Lidar into usable and readable data.
- Assisted the R & D Department in improving the robots; translated product documentation.

PROJECTS

Pedestrian Pose Detection in Autonomous Driving <div align="right">*Feb 2020 - May 2020*</div>

- Developed a python program to evaluate the safety of intent of pedestrians recorded by the dash camera.
- Harnessed the OpenPose pre-trained model to extract human body key-points from video inputs.
- Evaluated a safety score based on the extracted key-points.

Go Rent! **- A Sublease Website Designed for UIUC Students** <div align="right">*Jun 2020 - Aug 2020*</div>

- Developed a website for UIUC students to post sublease information and search for rentals by creating a personal account.
- Implemented the backend using Django.
- Leveraged MySQL as the database to store and fetch data.

SKILLS

- **Programming Languages:** Python, C++, C, SQL
- **Packages/Frameworks:** OpenCV, Pytorch, ROS, Django
- **Others:** LaTex, Markdown, Linux