SHICHENG LI

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EDUCATION

King's College London, London, United Kingdom– (First Class Honor Degree) Exp Grad: May 2025

About Me

I'm a passionate Computer Science student studying at a top world university.

Academics: Currently working towards a First Class Honors in Computer Science at King's College London. I have developed proficiency in multiple programming languages, adapted seamlessly to leading operating systems, and enhanced my skills through practical project experience.

Aspiration: Future-focused Software Engineer with a passion for technology and programming.

Strong academic performance, scoring notably high in core modules.
Practical experience in real-world projects, emphasizing problem-solving skills.

Technical Skills:
- Proficient in Java, C++, JavaFX, Django, HTML, CSS.
- Intermediate in Scala, Python, JavaScript, TypeScript, React Native and ROS.

Eager to contribute my skills and passion to a dynamic software development role. Open to exciting opportunities where I can bring innovation, problem-solving, and a collaborative spirit.

RESEARCH

Kinematics Modeling and Path Planning in Confined Spaces Summer 2023

- Developed and evaluated a 32-joint hyper-redundant continuum robot for operations in confined spaces, such as aircraft fuel tanks.
- Innovated an end-following-segmented Jacobi method for inverse kinematics, enhancing accuracy and efficiency in complex joint structures.
- Proposed a novel ray path-planning algorithm, superior to conventional RRT and PSO algorithms in planning time and path length efficiency.
- Conducted successful simulations demonstrating the robot's ability to navigate and perform tasks in restricted environments, validating the potential of the research for practical applications.

EXPERIENCE

Neusoft Software Engineer Intern Summer 2023

- Gathered requirements from 3 key stakeholders and conducted interviews over a 3-month period to ensure project alignment.
- Designed detailed project plans, comprising 1 UML Class diagram, 10 flowcharts (including system and product flowcharts), 7 data flow diagrams, and a total of 22 initial and final screen designs.
- Created 14 test suites comprising unit tests along with 11 pseudocodes consisting of methods.
- Implemented a user-friendly and aesthetic interface with the Tkinter GUI Framework, creating 7 distinct screens and utilizing up to 5 other Python modules for the back end.

BPuzzled Competition by Bloomberg & KCL Tech Spring 2024

- Collaborated with a team to solve a series of intricate puzzles centered around logic and coding, offering an experience akin to the thrill of navigating a real-life escape room.
- Actively participated in the BPuzzled competition, a challenging and engaging event organized by Bloomberg and KCL Tech.
- Demonstrated exceptional problem-solving, creative thinking, and teamwork skills in a high-pressure environment.
- Employed innovative strategies and critical thinking to devise solutions, pushing the boundaries of our cognitive abilities.
- Developed and showcased strong adaptability and communication skills, essential for effective teamwork under time constraints.

PROJECTS (All source code could be provided)

Collaborative Task Management Web Application(Django)

Description:

- Objective**: Design, develop, and deploy a Django-based web application for collaborative task management in a team environment.**
- Core Responsibilities**:**
  - Development**: Implemented a web application using Django, Python, and various libraries. Focused on producing a minimal viable product before expanding features.**
  - Team Collaboration**: Worked closely within a team, adapting to evolving requirements and collectively refining the application.**
  - User Experience Design**: Ensured a user-centric approach, focusing on the practical utility of the application for stakeholders.**
- Key Features**:**
  - User Authentication and Authorization**: Implemented mechanisms for account creation, login, and profile management.**
  - Team Collaboration Tools**: Enabled team formation and task assignment among team members.**
  - Task Management**: Developed features for creating, assigning, and tracking tasks with due dates and a dashboard for task management.**
- Advanced Features **(post core development):**
  Added functionalities such as task search, ordering, filtering, priority systems, task dependencies, time tracking, activity logs, notification system, and gamification elements.
- Quality Assurance**: Developed an automated test suite and deployed the application with comprehensive seed data to demonstrate functionality at scale.**
- Web Address**: mohaned5.pythonanywhere.com**

*Outcomes***:**

Successfully delivered a cohesive and polished task management solution, meeting the project's core requirements and extending beyond with additional features.

Application evaluated based on usability, relevance to stakeholders, and overall cohesion rather than just feature count.

Autonomous Home Monitoring Robot (ROS, Python)

Description:

In this innovative project, I spearheaded the development of an autonomous service robot using the TurtleBot3 platform, aimed at enforcing house rules in a simulated home environment. Key accomplishments include:

- Robotics and Automation: Designed and programmed a robot to autonomously navigate and monitor different rooms, ensuring compliance with predefined rules such as restricted areas and pet management.
- Software Development: Utilized Robot Operating System (ROS) for creating a complex behavior algorithm. This involved room-specific navigation, real-time rule violation detection, and interactive feedback mechanisms.
- Machine Learning Integration: Incorporated YOLO (You Only Look Once) for accurate real-time object detection, enhancing the robot's ability to identify rule violations.
- Interactive Feedback System: Implemented a Text-To-Speech (TTS) system for the robot to interactively manage rule violations, adding a layer of user engagement to the technology.
- System Testing and Simulation: Conducted comprehensive testing using video simulations to mimic real-world scenarios, ensuring robust performance in diverse environments.

London COVID Visualizer (Java, JavaFX, CSS)

- ***Spearheaded the technical development of a comprehensive application for visualizing COVID-19 data in London, focusing on user-centric design and data accuracy.***
- ***Implemented multifaceted functionalities including interactive maps for geographical data representation, statistical analysis panels for detailed data insights, and trend-tracking graphs.***
- ***Ensured the application's reliability and efficiency through rigorous coding practices and thorough unit testing.***
- ***Collaborated effectively with a team, contributing to all stages of software development, from initial design to final deployment, with a particular emphasis on problem-solving and innovative solutions.***
- ***Demonstrated proficiency in software development tools and methodologies, leading to a robust and user-friendly application that effectively communicates complex data.***

World of Zuul: ROOM ESCAPE Java Game (Java)

- ***Led the creation of a text-based Java adventure game, "ROOM ESCAPE," inspired by the classic game Zuul.***
- ***Designed a complex game environment with 9 interconnected rooms, enhancing player engagement and strategic thinking.***

- ***Implemented an innovative gameplay mechanism featuring item collection, monster encounters, and treasure acquisition.***
- ***Developed a user-friendly command interface with multiple functionalities, including item management and navigation aids.***
- ***Applied strategic game rules and challenges to enhance player experience and game longevity.***
- ***Demonstrated strong skills in Java programming, creative game design, and user interface development, contributing to an immersive and interactive gaming experience.***

NumberSets Puzzle Solver (C++)

- ***Spearheaded the creation of a novel algorithm for solving the "NumberSets" puzzle, a game with a format similar to Sudoku, but with distinct rules and challenges.***
- ***Employed fundamental C++ libraries to develop a robust and efficient puzzle-solving program, showcasing proficiency in coding with limited resources.***
- ***Developed a solver that strategically fills in missing numbers on a 9x9 board, adhering to unique game constraints and ensuring no repetition of numbers in any row or column.***
- ***Demonstrated problem-solving skills and innovative thinking in algorithm design, successfully tackling the complexity of compartmentalized number sets within the game.***

LEADERSHIP

Software development team leader

- Led a diverse team in the development of a Django-based web application using Agile methodologies.
- Organized and facilitated project kick-off, regular team meetings, and bi-weekly project reviews to ensure alignment and track progress.
- Managed the creation and prioritization of user stories, overseeing the project from initial planning through to execution.
- Coordinated team roles and responsibilities, adapting to evolving project needs and ensuring efficient workflow.
- Implemented risk management strategies and maintained clear communication channels within the team.

SKILLS

Software: Python, Java, C++ , SQL, SCALA, Django, JAVASCRIPT, CSS, HTML, ROS(operating system), Linux(operating system)
Language: Mandarin (Fluent), English, French (Intermediate)