Wu Kai

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EDUCATION

Zhejiang University *Hangzhou, China*

MEng. In Mechanical Engineering (GPA: 3.70/4.00) *Sep. 2021 - Mar. 2024*

- CAx(Computer-Aided x) Group, State Key Lab of Fluid Power & Mechatronic Systems
- Chinese Patent pending (Total**:** 9 patents)
- National first prize in Mathematics Competition for Chinese College Students (top 5%)
- Outstanding Graduate of Zhejiang University

Dalian Maritime University *Dalian, China*

B.Eng. in Rescue and Salvage Engineering (Best GPA: 4.26/5.00, Overall GPA: 3.56/5.00) *Sep. 2017 - Jun. 2021*

- Manyang Scholarship for 2 years & China Telecom Younger Scholarship (top 5%)
- College Student Pioneer Title in Innovation and Entrepreneurship in 2017 (top 10%)
- Outstanding Student Leader Title for 2 years & Outstanding Orienteering Club Leader Title (top 15%)
- Outstanding Graduate & Provincial Excellent Volunteer & EQ Scholarship (top 20%)

RESEARCH EXPERIENCE

Institute Of Advanced Machines Zhejiang University *Hangzhou, China*

Research Assistant, Advisor: Prof. Hongyao Shen *Mar.* 2023 –*Sep. 2023*

Research on Algorithms for Layout Planning of Stereo Garage

- Abstracted the layout planning problem of a stereo garage into a minimum connected dominating set (MCDS) problem
- A mathematical model involving nonlinear integer programming is constructed
- Proposed a Tabu Search algorithm based layout planning method for stereo garage
- Combining the Gurobi solver and heuristic algorithm, an innovative garage layout planning method is proposed

Dalian Maritime University *Dalian, China*

Undergraduate, Advisor: Prof. Jiaoyi Hou *Nov. 2020 – May. 2021*

Optimisation of Performance Parameters of In-Pipe Seal Ring

- Zhang K, **Wu K**. Optimisation of performance parameters of in-pipe seal ring based on ABAQUS[J]. Petroleum Mining Machinery,2022,51(01):45-52.
- The key parameters affecting the performance of in-pipe seal ring, including hardness, angle, shape, etc., and their adjustment ranges were investigated
- Origin and Design-Expert were used to fit the simulation data to determine the optimal design parameters of the seal ring

PROJECT HIGHLIGHTS

PSH Parking Layout Programme Generation Software *Jun. 2022 – Nov. 2022*

- **Technologies:** Based on the Dot Net development environment, a layout area recognition module, a outline extraction module, and a parking space connection module were constructed using CAD secondary development technology. In order to adapt to thousands of models of different sizes, a parking space module database was developed, using CSV file format for configuration management.
- **Achievement:** The efficiency comparison of parking space layout for a single drawing is: manual layout (120min), this software layout (3min), and it has good robustness.

PCS Tower Parametric Design Software *Mar. 2022 – Jun. 2022*

- **Technologies:** A parametric design software has been developed for tower parking (PCS). The software is based on the Winforms framework for building user interfaces, enabling the user to quickly reconstruct the drawing model through simple choices and judgements. Changes to key parameters are made parametrically and the entire model reconstruction process takes only 10 seconds.
- **Achievement:** Successfully realised the parametric design of 30 drawing models, which significantly improved the design efficiency of the tower parking.

MISCELLANEOUS

- **Character Traits:** Optimistic and Positive, Good at Cooperation and Teamwork, Quick Learner
- **Languages:** English(CET-6),Mandarin Chinese(Native)
- **Skills:** C#(Proficient), Python, Git, WinForms, AutoCAD Secondary Development, Gurobi, Postman, Overleaf