

# KAN DONG

kan.dong@rice.edu • (832)228-6348 • [linkedin.com/in/kan-dong](https://www.linkedin.com/in/kan-dong)  
2410 Shakespeare St. • Apt 181 • Houston, TX 77030

## EDUCATION

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**Rice University** Houston, TX Dec 2022

Master of Electrical and Computer Engineering, GPA 4.0/4.0

Courses: Computer Systems Architecture, Advanced VLSI Design

**Southwest Jiaotong University** Chengdu, China Jun 2020

Bachelor of Electronic Information Engineering, GPA 3.9/4.0

Courses: Data Structure and Programming, Object-oriented Programming, Software Engineering, Operation System, Computer Network, Principle and Application of Database, Computer Graphics

## PROJECT EXPERIENCE

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**FPGA-based Acceleration of Linear System Solver** Houston, TX Aug 2021 - Dec 2021

- Designed an FPGA accelerator for a linear system solver to speed up computation and succeeded in solving a 4 x 4 linear system in 29 microseconds
- Developed FPGA implementation of QR decomposition and matrix multiplication using MATLAB Simulink
- Coded and optimized FPGA implementation of multiplier-less CORDIC algorithm using Xilinx Vivado HLS
- Connected ARM core and FPGA with AXI Streaming FIFO to pipeline the FPGA Accelerator
- Wrote C++ code for ARM core which takes advantage of the FPGA accelerator and pipeline

**Visualization Platform for Automated Parking Valet** Chengdu, China Sept 2020 - Jul 2021

- Led a team of 3 members to develop a path planning algorithm, user interfaces and a visualization for validation
- Created visualization in Unreal Engine 4 and coded gRPC functions in C++ that provide APIs for external programs to move and control objects
- Developed path planning algorithm based on hybrid A\* and genetic algorithm in MATLAB and exposed the API to a C# gRPC server
- Designed user interface with WinUI 3 in C# and integrated it with MATLAB and visualization
- Achieved moving more than 20 cars at the same time without collision and smoothly displaying animations in the visualization

**NXP Cup National University Students Intelligence Car Race** Chengdu, China Sept 2018 - Aug 2019

- Collaborated with two people to design an intelligent model car to drive along a magnet wire and won the first prize in the 14th final
- Built well-structured C code for an embedded system to facilitate adding and modifying peripherals
- Designed user interface on a 128X64 OLED graphic display and data system on flash to realize reading, changing and saving parameters without reprogramming
- Implemented fuzzy PID algorithm and tuned parameters
- Developed data visualization application in Python which reads the real-time data from the intelligent car via Bluetooth and displays the data curve on a window to advance debugging

## SKILLS

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- **Programming** - C, Python, C#, MATLAB, C++, R, Java, SQL
- **Software** - Vivado Design Suite, Unreal Engine 4, gRPC, WinUI 3, Qt 4, VS Code, Git