

# BONSUCK KOO

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## EDUCATION

### **Integrated Masters and Bachelor of Science in Mechanical Engineering**

*The University of Texas at Austin*

Graduation: 12/2024

GPA: 3.92/4.00

Relevant Coursework: Aerial Robotics, Spacecraft Dynamics, Automated Control Systems Lab, Stochastic estimation and control

## SKILLS

Technical: Simulink, MATLAB, Git, C++, Python, PowerShell, Task Scheduler, Alteryx, Tableau, JavaScript, HTML CSS, SolidWorks, VBA

Languages: Korean (Fluent)

## WORK EXPERIENCE

### **Navigation and Guidance Control Graduate Intern, Sandia National Laboratories**

05/2024-Present

- Improve MATLAB and Simulink models of a flight vehicle to enhance its overall accuracy and reduce SWIL development time
- Automate 6-DOF simulations and GIT updates and introduce error logging feature through PowerShell and Task Scheduler to save 30 mins for SWIL engineers
- Presented my project to the department engineers to promote its application to other projects, receiving positive feedback from the audience

### **Guidance Navigation and Control Intern, Blue Origin**

09/2023-12/2023

- Implemented a new navigation related feature to a rocket simulation in MATLAB and Simulink, improving its overall fidelity
- Collaborated with other GNC engineers to enhance navigation simulation in Simulink and MATLAB through GIT and regular meetings
- Documented my work on Confluence to explain changes to code and common errors that appear, enhancing transferability of work to other engineers

### **CMP Engineering Intern, Samsung Semiconductors**

05/2022 – 08/2022

- Debugged a production failure tracking tool using VBA, saving 1 hour for the technicians every shift
- Created a website version of the production failure tracking tool using JavaScript, CSS, and HTML to improve accessibility and reduce errors made by technicians

### **Systems Engineering Team, Co-op, Trane Technologies**

05/2021 – 01/2022

- Validated performance of mechanical fittings that can reduce residential installation time by 25%, and collaborated with technicians to define verification requirements
- Analyzed products against new federal standard using Alteryx and Tableau, contributing to potential savings of \$400,000

## PROJECT

### **Drone Project Team Member, Aerial Robotics**

01/2024 – 05/2024

- Developed C++ algorithm for a drone to find the optimal path through obstacles, finishing the race in 2<sup>nd</sup> place
- Created a 6-DOF simulation and used the Unscented Kalman filter in MATLAB to test attitude and position controllers' performance with understanding of dynamics and GNSS and IMU measurements
- Led the team to use GIT to easily divide and share tasks, enhancing teamwork and time management

### **Suspension Team Lead, Guadaloop (Hyperloop Team)**

01/2023 – 08/2023

- Managed a suspension project to produce a design in 6 months with its analysis on stress and cost
- Conducted FEA of suspension mount and shaft to withstand dynamic and static force during vehicle operation

### **Team Leader, Senior Capstone Design Project (Southwest Research Institute)**

08/2022 – 12/2022

- Produced a preliminary hammer design for the Medium Weight Shock Machine to produce the least amount of stress on the hammer pivot upon impact and comply with MIL-DTL-901E
- Organized weekly meetings with sponsors, teaching staff and advisors to discuss technical issues and communicate the team's progress