



Part 1:



<https://matlabacademy.mathworks.com/progress/share/report.html?id=5ca4951c-4579-4df2-9df3-2ccf5acfe762&>

Extra bonus:


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Master's in Cybersecurity Engineering @GMU | Actively seeking internship or full time position in IT/ Cybersecurity field
~~Bachelor of Science - BS, Information Technology~~
Jan 2018 - Jan 2022
Grade: 3.79


Digital Marketing, C (Programming Language) and +10 skills

Licenses & certifications + 

**Simulink Onramp**
MathWorks
Issued Jun 2024
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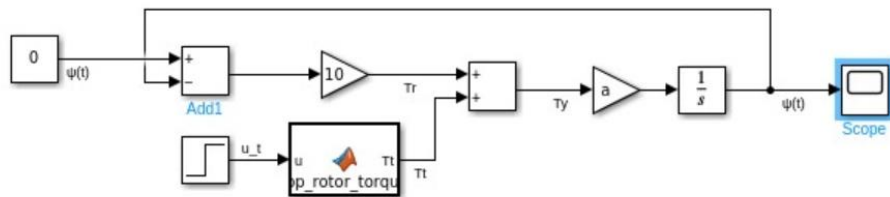
Simulink and Constructing model

Skills + 

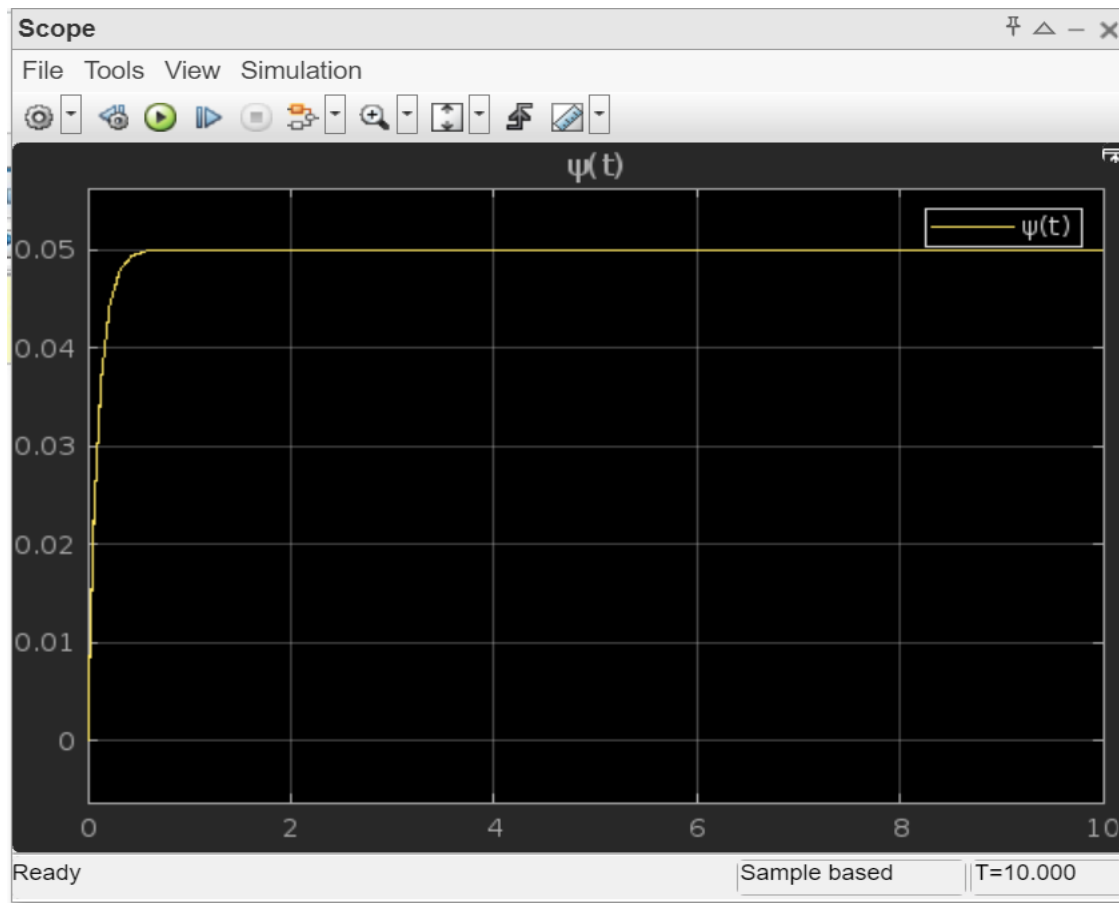
Simulink
 Simulink Onramp

Part 2:

1. For K=10



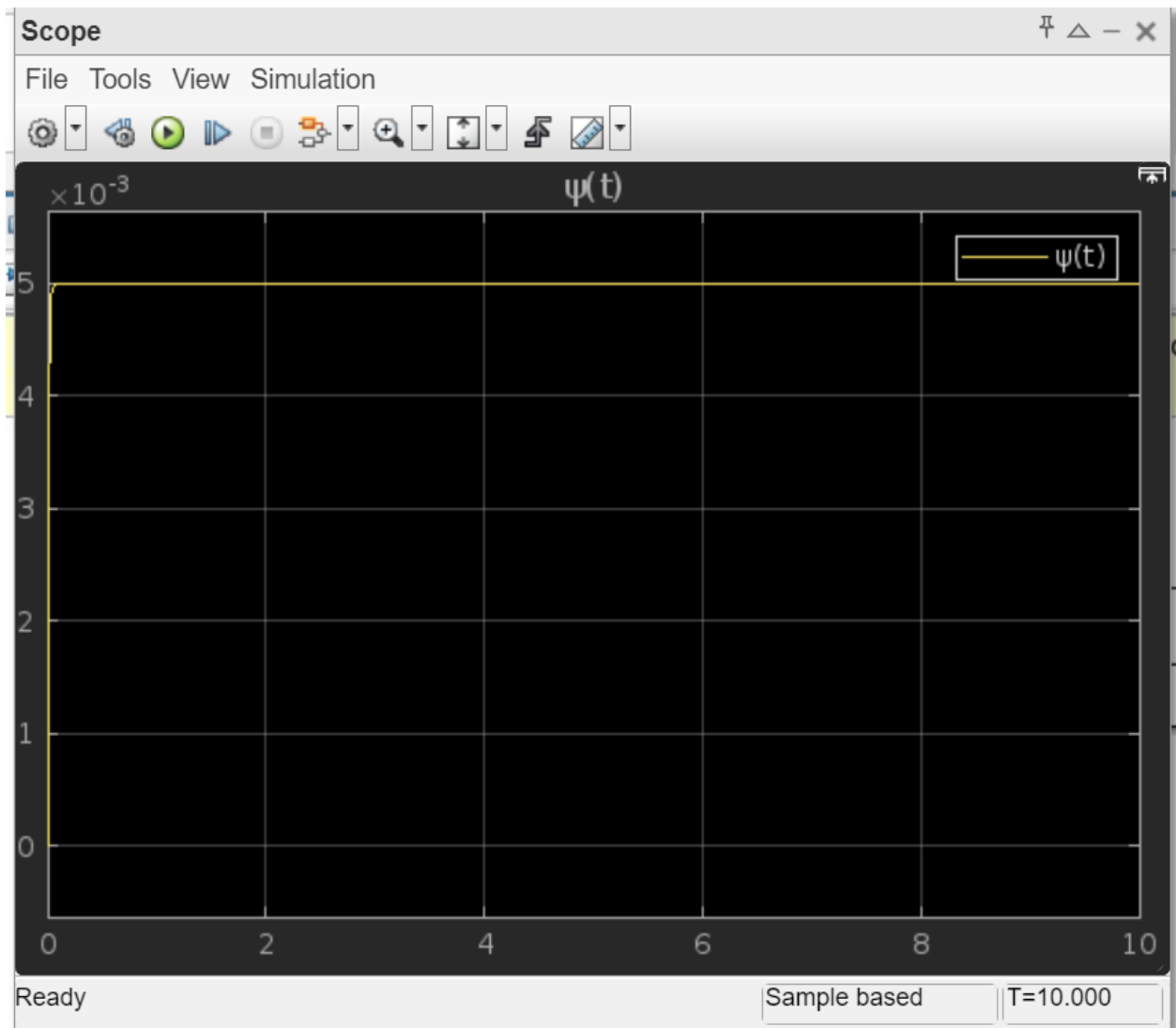
The output is:



2.

For $K = 100$

The output is:



Due to increasing K value, there is a rapid initial change in angular velocity. For $K = 10$, there is small increase upto 0.05 and after that it was constant. But for $K=100$, the rapid velocity change occurs upto 5 and after that it was constant.

3.

Attacker could exploit K to make the helicopter unstable by increasing K to a high value.

The controller gain K controls how strongly the system reacts to differences between the desired angular velocity (which is zero) and the actual angular velocity. The effect can be-

- If K is too high, the system reacts too strongly to small differences, causing high-frequency oscillations or even instability.

- With a high gain, the system might oscillate wildly instead of stabilizing, making it unstable.