

# Jiyeon Hwang

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## **EDUCATION**

<b>Part-time Student in Computer Science</b> , Korea National Open University	<b>Mar, 2020– Present</b>
<b>M.S. in Astronomy</b> , Yonsei University - <i>Thesis</i> : Collision-Free Control for Formation Flying of Multiple Satellites using Artificial Potential Field ( <a href="#">link</a> )	<b>Jun, 2016– Feb, 2019</b>
<b>B.S. in Astronomy and Physics</b> , Yonsei University	<b>Mar, 2012– Aug, 2016</b>

## **RELEVANT COURSES**

C++programming, Programming Languages, Data Structures, Introduction to Computer Science, Computer Architecture, Algorithms, Discrete Mathematics, Mechanical System Control, Optimal Control, Theory of Automatic Control, Nonlinear Control

## **PROFESSIONAL EXPERIENCE**

<b>Korea Atomic Energy Research Institute</b> <i>Research Intern</i> , Nuclear Robot Division	<b>Oct, 2020– Present</b>
<ul style="list-style-type: none"><li>♦ Robot shared autonomy control algorithm development using deep learning</li><li>♦ Security patrol robot development</li><li>♦ Dual arm manipulator path planning</li></ul>	
<b>Jetson AI</b> , South Korea <i>Contract Worker</i>	<b>Jul, 2020</b>
<ul style="list-style-type: none"><li>♦ Developed Map Server and Client based on OpenStreetMap</li></ul>	
<b>Hancom MDS Academy</b> , South Korea <i>Trainee</i> , NVIDIA Platform-based Developer Training Project	<b>May, 2019– Nov, 2019</b>
<ul style="list-style-type: none"><li>♦ Developed automotive software using C, Embedded C, C++, and Robot Operating System.</li><li>♦ Team Project: Self-driving Restaurant Server Robot (<a href="#">Code</a>) (<a href="#">Demo Video Link</a>)</li><li>– Received the Prize for Excellence in Project</li></ul>	

## **TEACHING ASSISTANT EXPERIENCE**

Department of Astronomy, Yonsei University, Seoul, South Korea

2016–2017

- ♦ Spacecraft Systems
- ♦ Astrodynamics
- ♦ Introduction to Astronomy

## **RESEARCH INTERESTS**

Robotics, Control Systems, Artificial Intelligence, SLAM, Path Planning

## **TECHNICAL SKILLS**

- ♦ C/C++, MATLAB, and Python
- ♦ ROS, Satellite Tool Kit, Git and Linux (Ubuntu)

## **PUBLICATIONS AND CONFERENCE PROCEEDINGS**

- [1] **Hwang, J.**, Lee, K., and Park, C., “Trajectory Control for Obstacle Avoidance of Multiple Autonomous Space Vehicles in Formation Keeping”, in *Proceedings of 2018 Korean Society for Aeronautical & Space Sciences Spring Conference*, Republic of Korea, April 18–21, 2018
- [2] **Hwang, J.**, Lee, K., and Park, C., “Simultaneous Trajectory/Attitude Control for Obstacle Avoidance of Autonomous Flight Vehicles using Artificial Potential Field and Rotational Force Field”, in *Proceedings of 2017 Korean Society for Aeronautical & Space Sciences Fall Conference*, Republic of Korea, November 15–18, 2017
- [3] Choi, J., **Hwang, J.**, Choi, S., and Park, C., “Preliminary Mission Planning for Multiple Asteroid Exploration”, in *Proceedings of 2018 Korean Society for Aeronautical & Space Sciences Fall Conference*, Republic of Korea, November 28–30, 2018
- [4] Park, J-P., Park, S-Y., Song, Y., Kim, G. N., Lee, K., Oh, J. H., Yim, J-C., Lee, E., Hwang S-H., Kim, SW., Choi, K. Y., Lee, D. S., Kwon, S. H., Kim, M-S., Yeo, S-W., Kim, T-H., Lee, S-h., Lee, K. B., Seo, S-W., Cho, W-H., Lee, J., Park, J-H., Kim, Y. W., Kang, S. J., **Hwang, J.**, Lee, S.H., Yang, J-H., Jin, S., Lee, Y., "CANYVAL-X Mission Development Using CubeSats." *Space Operations: Contributions from the Global Community*. Springer, Cham, 2017. 681–691.

## **SCHOLARSHIPS AND GRANTS**

Department of Astronomy, Yonsei University, Seoul

- ♦ Institute of Earth Atmosphere Astronomy Brain Korea 21 Grant Mar, 2016–Feb, 2019
- ♦ Office Assistant Scholarship Mar–Aug, 2018
- ♦ Teaching Assistant Scholarship 2016–2017

## **RESEARCH PROJECTS**

### **Department of Astronomy, Yonsei University, Seoul**

- ♦ Development of an attitude determination and a control system for the CANYVAL-X mission. **Jul, 2015–Jun, 2016**
- ♦ Space asset survey/auto-docking/protection technology research **Apr, 2016–Dec, 2018**
- ♦ Application of state-of-the-art nonlinear control techniques and geometric mechanics for high-precision space missions **May, 2016–Apr, 2017**
- ♦ Development of optimal trajectory design and navigation/guidance/control techniques for exploring small and asymmetric asteroids **Oct, 2016–Sep, 2017**
- ♦ Design of optimal transfer/proximity-operation/landing trajectory for asteroid exploration **Jun, 2018–Feb, 2019**

## **EXTRACURRICULAR ACTIVITIES**

- Official Interviewer, 2019 Korea Space Forum ([link](#)) **Jul 18-20, 2019**
- Crew Member of “Space Idiots,” a Korean space social media channel.
- Official Interviewer, 2020 New Space Korea: Uplift ([link](#)) **Nov 13, 2020**