Hanbit Oh

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Researcher Industrial CPS Research Center National Institute of Advanced Industrial Science and Technology 2nd Annex Waterfront 3F, 2-4-7, Aomi, Koto-ku, Tokyo, 135-0064, JAPAN

Hanbit Oh

Curriculum Vitae

About me I received the Ph.D. degree in information science from the Division of Information Science, Nara Institute of Science and Technology, Nara, Japan, in 2024. I am currently a Research Scientist with the Automation Research Team, Industrial CPS Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Japan. My research interests include machine learning, imitation learning, and control theory for robotics.

Education

- **Apr. 2021 - Mar. 2024, Doctor of Engineering, Nara Institute of Science and Technology (NAIST)**
  Advisor: Prof. Takamitsu Matsubara
- **Apr. 2019 - Mar. 2021, Master of Engineering, Nara Institute of Science and Technology (NAIST)**
  Advisor: Prof. Takamitsu Matsubara
- **Apr. 2013 - Mar. 2019, Bachelor of Engineering, Okayama University**
  Advisor: Prof. Kentaro Hirata
- **Oct. 2012 - Mar. 2013, Preparatory education of Japan-Korea Joint Government Scholarship Program, Okayama University**
- **Mar. 2012 - Sep. 2012, Preparatory education of Japan-Korea Joint Government Scholarship Program, Kyung Hee University**
- **Mar. 2009 - Feb. 2012, Jeonju Youngsaeng High School**

Educational and social activities

- **2024, 2025, Reviewer, Elsevier Neural Networks**
- **2024, Reviewer, International Journal of Robotics Research (IJRR)**
- **2022, Reviewer, IEEE Robotics and Automation Letters**
- **Jun. 2020 - Mar. 2021, Member - NAIST Creative and International Competitiveness Project (CICP 2020)**
  Project member: Hirotaka Tahara, Naoto Komeno, Hanbit Oh, Yuhwan Kwon, Hikaru Sasaki, Yoshihisa Tsurumine
  Teleoperated Robotic NASURA Project
- **Jun. 2019 - Mar. 2020, Member - NAIST Creative and International Competitiveness Project (CICP 2019)**
  Project member: Shuichi Fukuda, Seongeon Hong, Hanbit Oh, Hyuckjin Choi
  Prediction of size and species of fish by recognizing the vibration pattern generated from fishing
- **Jun. 2019 - Mar. 2020, Member - NAIST Global Entrepreneurs in Internet of Things(GEIOT 2019)**
  Project member: Takeaki Matsunaga, Hanbit Oh, Kenta Sugiyama, Yuta ishii, Chie Maeda, Ichiu Hitomi
  Artificial Intelligence for Suggesting Combinations of Nursing Care Insurance Services

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Professional experiences

- **Mar. 2024 - Present, Researcher, AIST**
- **May. 2023 - Mar. 2024, Research Assistant, NAIST**
  Research: “Imitation learning for robotic manipulation”
- **May. 2022 - Mar. 2023, Research Assistant, NAIST**
  Research: “Imitation learning for robotic manipulation”
- **Apr. 2021 - Mar. 2022, Research Assistant, NAIST**
  Research: “Imitation learning for robotic manipulation”
- **Apr. 2021 - Mar. 2024, Research Engineer, NAIST**
  " Research and engineering work related to the world model that fuses symbolic representation and the real world"
- **Jun. 2020 - Mar. 2021, Research Engineer, NAIST**
  "Research and experimental support for deep imitation learning"
- **Apr. 2014 - Dec. 2015, Sergeant - Korean Army (Military Service)**
  69T Trailer Driver, Honorable Discharge

Grants and Research Projects

- **June 2020 - Mar. 2021, NAIST CICP 2020**
  Project member: Hirotaka Tahara, Naoto Komeno, Hanbit Oh, Yuhwan Kwon, Hikaru Sasaki, Yoshihisa Tsurumine
  "**Teleoperated Robotic NASURA Project**"
- **June 2019 - Mar. 2020, NAIST CICP 2019**
  Project member: Shuichi Fukuda, Seongeon Hong, Hanbit Oh, Hyuckjin Choi
  "**Prediction of size and species of fish by recognizing the vibration pattern generated from fishing**"

Fellowships and Awards

- **2024, IEEE RAS JP Joint Chapter Young Award (IROS 2024)**
  Hanbit Oh, "**Leveraging Demonstrator-perceived Precision for Safe Interactive Imitation Learning of Clearance-limited Tasks**"
- **2021, JASSO Honors Scholarship**
  Total amount: approx. 300K yen
- **Dec. 2020, 第21回計測自動制御学会システムインテグレーション部門講演会(SI) 最優秀講演賞**
  田原熙昂, Hanbit Oh, 佐々木光, and 松原崇充
- **Dec. 2020, Best Oral Presentation Award, NAIST CICP 2020**
  Hirotaka Tahara, Naoto Komeno, Hanbit Oh, Yuhwan Kwon, Hikaru Sasaki, Yoshihisa Tsurumine, "**Teleoperated Robotic NASURA Project**"
  Total amount: approx. 700K yen
- **Feb. 2020, Excellent Research Project Award, NAIST CICP 2019**
  Shuichi Fukuda, Seongeon Hong, Hanbit Oh, Hyuckjin Choi, "**Prediction of size and species of fish by recognizing the vibration pattern generated from fishing**",
  Total amount: approx. 600K yen
- **2019, JASSO Honors scholarship**
  Total amount: approx. 600K yen
- **Mar. 2018, Excellent Student Award, Okayama Univ. 2019**
  Summa Cum Laude in Faculty of Engineering
- **2012, 13th Japan-Korea Joint Government Scholarship Program for the Students in Science and Engineering Departments**
  There are only 100 students selected from Korea per year
  Total amount: approx. 10M yen

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Skills

- **Languages**
  Korean (native) | Japanese (JLPT N1) | English (TOEIC score 845)
- **OS**
  Windows | Unix/Linux
- **Programming**
  Python 2/3 | MATLAB | C/C++/C#
- **Robotic Device**
  Universal Robots UR3/5/5e | Robotiq 2F-85, Hand-E
  Rethink Robotics Baxter | Robotis OP3, Open Manipulator-X
  ALOHA | GELLO
- **Vision Sensors**
  Intel RealSense D400-series | XBOX KINECT V2
- **Tactile Sensors**
  GelSight DIGIT
- **Software and Hard**
  Programming for robotics (ROS, Pytorch, mujoco, VREP, etc.)
  3D CAD and 3D printing (Fusion 360, etc.)
  Motion capture system (Optitrack Motive, AR Marker, etc.)
  Virtual reality system (Oculus quest 1, etc.)

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Publications

Journals

1. Ochoa Cynthia*, Hanbit Oh*, Yuhwan Kwon, Yukiyasu Domae, and Takamitsu Matsubara, "**ISPIL: Interactive Sub-Goal-Planning Imitation Learning for Long-Horizon Tasks With Diverse Goals,**" in *IEEE Access*, vol. 12, pp. 197616-197631, 2024, doi: 10.1109/ACCESS.2024.3521302.
   (IF: 3.4, *: Equal contribution)
2. Hanbit Oh, and Takamitsu Matsubara: "**Leveraging Demonstrator-Perceived Precision for Safe Interactive Imitation Learning of Clearance-Limited Tasks,**" *IEEE Robotics and Automation Letters*, vol. 9, no. 4, pp. 3387-3394, April 2024, doi: 10.1109/LRA.2024.3366755.
   (IF: 4.6, Google scholar Robotics #2)
3. Hanbit Oh, Hikaru Sasaki, Brendan Michael, and Takamitsu Matsubara: "**Bayesian Disturbance Injection: Robust Imitation Learning of Flexible Policies for Robot Manipulation,**" *Elsevier Neural Networks*, vol. 158, pp. 42-58, Jan 2023, doi: https://doi.org/10.1016/j.neunet.2022.11.008.
   (IF: 7.8)
4. Hirotaka Tahara, Hikaru Sasaki, Hanbit Oh, Edgar Anarossi, and Takamitsu Matsubara: "**Disturbance Injection under Partial Automation: Robust Imitation Learning for Long-horizon Tasks,**" *IEEE Robotics and Automation Letters*, vol. 8, no. 5, pp. 2724-2731, May 2023, doi: 10.1109/LRA.2023.3260586.
   (IF: 4.6, Google scholar Robotics #2)

International conferences

1. Hanbit Oh, and Takamitsu Matsubara:"**Leveraging Demonstrator-Perceived Precision for Safe Interactive Imitation Learning of Clearance-Limited Tasks,**" *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)*, Abu Dhabi, UAE, October, 2024
   (Acceptance rate: 47%, Google scholar Robotics #5)
2. Hirotaka Tahara, Hikaru Sasaki, Hanbit Oh, Brendan Michael, and Takamitsu Matsubara: "**Disturbance-injected Robust Imitation Learning with Task Achievement,**" *In IEEE International Conference on Robotics & Automation (ICRA 2022)*, Philadelphia (PA), USA, May, 2022
   (Acceptance rate: 43%, Google scholar Robotics #1)
3. Hanbit Oh, Hikaru Sasaki, Brendan Michael, and Takamitsu Matsubara:"**Bayesian Disturbance Injection: Robust Imitation Learning of Flexible Policies,**" *In IEEE International Conference on Robotics & Automation (ICRA 2021)*, Online, June, 2021
   (Acceptance rate: 48%, Google scholar Robotics #1)

Domestic conferences

1. 田原熙昂, Hanbit Oh, 佐々木光, and 松原崇充:"**Coarse2Fine** ロバスト模倣学習," *In* ロボティクス・メカトロニクス講演会講演*(ROBOMECH 2022)*, Sapporo, Japan, June, 2022
2. Hanbit Oh, Hikaru Sasaki, Brendan Michael, and Takamitsu Matsubara: "**Bayesian Disturbance Injections: Safely learning robust and flexible policies,**" *In* 第*39*回日本ロボット学会学術講演会 *(RSJ 2021)*, Online, Sep, 2021
3. 田原熙昂, Hanbit Oh, 佐々木光, and 松原崇充:"タスク達成度を考慮した教示者に摂動を加えるロバスト模倣学習," *In* 第*21*回計測自動制御学会システムインテグレーション部門講演会 *(SI 2020)*), Fukuoka, Japn, Dec, 2020
4. Hanbit Oh, 佐々木光, and 松原崇充:"無限重複混合ガウス過程に基づく頑健・柔軟な模倣学習," *In* 第*38*回日本ロボット学会学術講演会 *(RSJ 2020)*, Online, Oct, 2020
5. Shuichi Fukuda, Seongeon Hong, Hanbit Oh, Hyuckjin Choi, Yuki Matsuda and Keiichi Yasumoto:"**A proposal for a new method of fish species and size prediction by recognizing fishing vibration pattern using machine learning,**" *In* 情報処理学会関西支部支部大会 *2019*, Osaka, Japan, Sep, 2019
6. Hanbit Oh, 中村幸紀, 平田健太郎 and 岡野訓尚:"粒子フィルタを用いた筋骨格パラメータの同定," *In* システム制御情報学会 *2019*, Osaka, Japan, May, 2019