Pinhao Song

KU Leuven, Robotics Research Group & Processing Speech and Images
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Education

2023.02 – Present	Ph.D. candidate of Mechanical Engineering, Robotics Research Group & Processing Speech and Images, **KU Leuven**. Supervisor: **Prof. Renaud Detry**	
2019.09 – 2022.07	Master of Computer Science, Key Laboratory of Machine Perception, **Peking University**. Supervisor: **Prof. Hong Liu**	GPA: 3.6/4
2015.09 - 2019.07	Bachelor of Mechanical Engineering, School of Mechanical & Automotive Engineering, **South China University of Technology (SCUT)**	GPA: 3.74/4

Experience

Neurobotics | KU Leuven | 2022.03 - Present

Ph.D. candidate, Robotics Research Group & Processing Speech and Images

- Summary: Enabled monkeys with invasive BMI to navigate and manipulate with robot.
  - Developed a shared control system for brain-machine interface (BMI).
  - Validated the system on monkeys with invasive BMIs, enabling them to perform navigation in a simulated cluttered indoor Unity environment.

PlatoOCR | Bytedance | 2021.07 – 2021.10

Developer, Data-EDU Group

- Summary: Detected the paragraphs and characters end-to-end.
  - Designed the multi-tasking model for paragraph segmentation and character detection.
  - Developed a weekly supervise training paradigm for limited character annotations.
  - Achieved better performance on real-scene data.

Smart Shop System | Peking University | 2020.07 – 2022.07

Leader, Goods Detection Group

- Summary: Detected whether the goods are purchased.
  - Designed the auto-labeling system and building the goods dataset.
  - Developed a smart retail shelf with in-shelf cameras for goods detection.
  - Designed detection algorithm by using deep learning methods, achieving a 98% detection rate in real time for over 100 products simultaneously.

Object Detection for Underwater Robot | Pengcheng National Laboratory | 2019.09 – 2021.06

Developer, Underwater Image Processing Group

- Summary: Developed underwater object detection algorithm for underwater robot.
  - Developed fast and accurate object detection of marine products in underwater environment.
  - Developed robust underwater detection via domain generalization.

Academic Achievement

Total Publication: 23, Google Scholar citation: 1558

Representative Publications

- **Song, P.**, Li, P., Dai, L., Wang, T. and Chen, Z.. Boosting R-CNN: Reweighting R-CNN samples by RPN's error for underwater object detection. ***Neurocomputing 2023***. (Citation: 305)
- **Song, P.**, Li, P., Aertbeliën, E. and Detry, R., May. Robot trajectron: Trajectory prediction-based shared control for robot manipulation. ***ICRA 2024***. (Citation: 23)
- **Song, P.**, Li, P. and Detry, R., September. Implicit grasp diffusion: Bridging the gap between dense prediction and sampling-based grasping. ***CORL 2024***.
- **Song, P.**, Du, Y., Saussus, O., De Schrijver, S., Caprara, I., Janssen, P. and Detry, R.. Robot Trajectron V2: A Probabilistic Shared Control Framework for Navigation. **Submitted to *IJRR* (Major Revision)**.
    - 2025 IROS SASA workshop Best Poster Award 3rd place
- **Song, P.**, Hu, Y., Li, P. and Detry, R., 2025. Equivariant Volumetric Grasping. **Submitted to *IJRR***.
- Du, Y., **Song, P**., Hu, Y. and Detry, R.. ELVIS: Ensemble-Calibrated Latent Imagination for Long-Horizon Visual MPC. ***RSS 2026***.
- Hu, Y., **Song, P**., Wen, K. and Detry, R.. Mini Diffuser: Fast Multi-Task Diffusion Policy Training Using Two-Level Mini-Batches. ***RAL 2026***.

Prize

- 2025 IROS SASA workshop Best Poster Award 3rd place
- 2020 Scientific Research Progress Award (Peking University)
- Silver Prize of 2018 *Challenge Cup* National Entrepreneur Contest for Undergraduate Student
- 2018 Second Class School Scholarship; 2017 Third Class School Scholarship (SCUT)
- 2016 *Xiaochu* Enterprise Scholarship (SCUT, Top 1%)

Skills

Theory	Machine Learning, Robotics, Deep Learning, Computer Vision, Reinforcement Learning
Programming	python, ROS2, C/C++, MATLAB, pytorch, opencv
Software	Pybullet, Mujoco, IssacSim, Office, PS, CAD
Language	English (IELTS: 7), Japanese (JPLT N1), Dutch (A2)

Activity

- Work as a volunteer in Leuven AI conference (600 years KU Leuven – 70 years AI)