Lingwei Zhu

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Personal Page

Google Scholar

Born 25 Aug 1995

Personal Statement

Currently I am a PhD candidate at Robot Learning Lab, Nara Institute of Science and Technology (NAIST), Japan, under the supervision of Takamitsu Matsubara. I received the master degree from Intelligent System Control Lab, NAIST, and the bachelor degree from Tianjin Polytechnic University, China.

My research interest lies in developing both theoretically sound and practical reinforcement learning algorithms for realizing autonomous control of large-scale systems such as factory or robots.

Scholarship/Award

Apr. 2021 – present

Japan Society for Promotion and Science - DC2

JSPS DC is the best Japanese scholarship aiming for cultivating excellent young researchers. Aside from monthly stipend, doctor candidates receive also independent research funding from KAKENHI.
In 2020 the acceptance rate for DC2 was 19.8%. I was the only foreigner JSPS DC from NAIST for the past 5 years.

Apr. 2020 – Mar. 2021

Japanese Government Scholarship (MEXT)

MEXT is the Japanese Government Scholarship granted by Ministry of Education, Culture, Sports, Science and Technology of Japan.
I was recommended by university based on scientific performance.

Mar. 2021

IEEE Kansai Section Student Paper Award

The student paper award was conferred by IEEE Kansai Chapter to recognize the contribution on safe reinforcement learning in this ICRA conference paper.

Publications/Patents

Journal

- Lingwei Zhu, Y. Cui, G. Takami, H. Kanokogi, T. Matsubara
  Scalable Reinforcement Learning for Plant-wide Control of Vinyl Acetate Monomer Process, *Control Engineering Practice (IF: 3.475)*, Vol. 97, April 2020, link,
- Lingwei Zhu, T. Kitamura, T. Matsubara
  Exploiting KL Regularization in Monotonic Policy Improvement for Reinforcement Learning, *Neural Networks (IF: 8.05)*, `major revision, revised manuscript submitted`
- Lingwei Zhu, G. Takami, M.Kawahara, H. Kanokogi, T. Matsubara
  Alleviating Parameter-tuning Burden in Reinforcement Learning for Large-scale Process Control, *Computers and Chemical Engineering (IF: 3.845)*, Vol. 158, Jan. 2022, link,

Conference

- LINGWEI ZHU, T. KITAMURA, T. MATSUBARA
  Cautious Actor-Critic, Asian Conference on Machine Learning (ACML), 2021, `accepted`, (acceptance rate 30.4%) link
- T. KITAMURA, LINGWEI ZHU, T. MATSUBARA
  Geometric Value Iteration: Dynamic Error-Aware KL Regularization for Reinforcement Learning, ACML, 2021, `accepted`, (acceptance rate 30.4%) link
- LINGWEI ZHU, Y. CUI, T. MATSUBARA
  Dynamic Actor-Advisor Programming for Scalable Safe Reinforcement Learning, ICRA, 2020, link
- Y. CUI*, LINGWEI ZHU*, T. MATSUBARA
  Factorial Kernel Dynamic Policy Programming for Vinyl Acetate Monomer Plant Model Control, CASE, 2018, link

Patents

- United States patent (inventor of apparatus, method, program and recording medium, same as below; Patent Number US20200057416A1).
  TAKAMITSU MATSUBARA, YUNDUAN CUI, LINGWEI ZHU, ET AL.
- European patent (EP3620868A1). TAKAMITSU MATSUBARA, YUNDUAN CUI, LINGWEI ZHU, ET AL.
- Chinese patent (CN110837893A). TAKAMITSU MATSUBARA, YUNDUAN CUI, LINGWEI ZHU, ET AL.
- Japanese patent (JP2020027556A) TAKAMITSU MATSUBARA, YUNDUAN CUI, LINGWEI ZHU, ET AL.

Skills

Languages English, Japanese, Chinese (native)

Programming Programmining: Matlab, Python, Tensorflow, PyTorch

Work Experience / Professional Activities

Work Experience

Apr.2021 - present JSPS-KAKENHI funded researcher

Annual research grants of around $10K were provided by JSPS KAKENHI for the doctoral candidate to pursue high quality research in application of RL to safety-critical control problems such as real-time process control (e.g. chemical process) or robotics (e.g. safety-critical assembly robots or human-robot interaction).

Jan. 2022 - Intern student, Advanced Telecommunication Research (ATR)

I am currently an intern in the world-renowned research institute Advanced Telecommunication Research Institute International (ATR), supervised by Dr. Eiji Uchibe. The main topics are expected to be model-based RL and its application on robotics.

Apr.2018 - present Research Technician, NAIST-Yokogawa cooperated research

Cooperated with Yokogawa Electric Corporation in developing RL agents for plant-wide control of large-scale vinyl acetate monomer (VAM) manufacturing process. This result was featured by multiple press releases and magazines such as (in Japanese) Nikkei Robotics or Nikkan.

Oct. 2019 - present Research Assistant, Robot Learning Lab, NAIST

Apr. 2018 - Sep. 2019 Teaching Assistant, Intelligent System Control Lab, NAIST

Reviewer IEEE Robotics and Automation Letter (RAL)
IEEE International Conference on Robotics and Automation (ICRA)