AKIHISA WATANABE

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KEYWORDS

- Physics-based character animation
- Character animation for sports
- Hierarchical reinforcement learning
- Imitation learning
- Curriculum learning

SKILLS

Programming Languages

Python, C, Bash, C++, Swift, Matlab

Frameworks

PyTorch, Git, Gym, Docker, Isaacgym, Open-CV

LANGUAGES

English – proficient

Japanese - native

RELEVANT COURSES

University Course

- Optimization Algorithm [contents]

Online Courses (Coursera)

- Neural Networks and Deep Learning [certificate]
- Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization [certificate]

SUMMARY

I am currently a 3rd-year undergraduate student in Simo-Serra Lab of Waseda University, advised by Prof. Edgar Simo-Serra. My research interest lies in generating physically plausible 3D human motion, with the goal of revolutionizing the way people approach physical training and skill acquisition. By allowing for the simulation and analysis of a wide range of human movements in a virtual environment, this technology enables people to explore new techniques, optimize performance, and reduce the risk of injury without the need for physical practice. Ultimately, my work aims to provide a safe space for motion experimentation and learning, transforming how we enhance our physical capabilities.

EDUCATION

4/2021 – Present Waseda University (Tokyo, Japan)
Major: Applied Mechanics and Aerospace Engineering
Minor: Computer Science

4/2018 - 3/2021 Waseda University Honjo Senior High School (Saitama, Japan)

PUBLICATIONS

- Takehi.R, **Watanabe.A**, Sakai.T, Open-Domain Dialogue Quality Evaluation: Deriving Nugget-level Scores from Turn-level Scores, ACM SIGIR Asia'23, 2023. [pdf] [slide]
- **Watanabe.A**, Matsumoto.K, Mori.T, Iijima.R, Time's Up for Replay Attacks: Countermeasures Against Replay Attacks Considering the Temporal Changes of Biometrics, Computer Security Symposium, 2023. [pdf] [code] [slide]
- **Watanabe.A**, Iijima.R, Mori.T, sEMG-based Gesture Authentication for Smartwatch, IEICE Technical Committee on Information and Communication System Security, 2023. [pdf] [code]

RESEARCH PROJECTS

- **Akihisa Watanabe**, Tutorial: Reinforcement Learning for Character Animation, 2023. [pdf]
  - Review the mathematical fundamentals of reinforcement learning applied to character animation.
  - Provided a practical guide with examples drawn from UC Berkeley's CS285 course to illustrate the application of these concepts in character animation.
- **Akihisa Watanabe**, Reinterpretation of 'Eternal Sunshine of the Spotless Net: Selective Forgetting in Deep Networks', 2023. [pdf]
  - Provided an alternative interpretation of the selective forgetting process as shifting the optimal weights, rather than minimizing the KL divergence between distributions.
  - Identified and corrected an error in the original paper's proof of Proposition 4.

AWARDS

- Finalist at the 3rd IPSJ Junior High School and High School Information Science Research Contest, 2021. [website]
- Super Creator of Mitou Junior program, 2019. (acceptance rate 9/127 ≈ **7%**) [website]

EXPERIENCES

11/2023 SIGIR Asia 2023 (Beijin, China)
Oral paper presentation

10/2021 - 3/2023 Adacotech Inc. (Tokyo, Japan)
Primarily engaged in the implementation of PoC projects as an ML Engineer