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 is in 3D human motion generation, focused on generating a wide range of movements, from daily activities to complex, sport-specific and specialized movements. My vision is to leverage this technology to devise new techniques for fields such as sports, facilitating new ways of learning and advancing while reducing the risks associated with physical practice.

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]

- **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] [code]
  - Review the mathematical fundamentals of reinforcement learning applied to character animation.
  - Implemented reinforcement learning algorithms tailored specifically for character animation, ranging from vanilla policy gradient to Generalized Advantage Estimation (GAE).

- **Akihisa Watanabe**, Reinterpretation of 'Eternal Sunshine of the Spotless Net: Selective Forgetting in Deep Networks', 2023. [pdf]
  - Simplified the concept of selective forgetting using quadratic forms, successfully deriving the same equation.
  - Identified and corrected an error in the proof.

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 (Anomaly Detection)