

DareFightingICE Competition

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40+ of our lab graduates have joined

KONAMI (8), KOEI TECMO (6), **Dimps** (5), SEGA (4), CAPCOM (4),
NHN PlayArt (2), FromSoftware (2), ATLUS, BANDAI NAMCO
BANDAI NETWORKS, COLOPL, CROOZ, DWANGO, Marvelous AQL,
PlatinumGames, Qmax, SQUARE ENIX, SSD, etc.

Our Previous Competition (Fighting Game AI : 2013-2021) : Fight and Graduate

<https://www.ice.ci.ritsumei.ac.jp/~ftgaic/index-4.html>



- @PhD**
Xenija Neufeld, "Long-Term Planning and Reactive Execution in Highly Dynamic Environments," Doctoral thesis, Otto-von-Guericke-Universität Magdeburg, Dec. 2020.
佐藤 直之, "多様な性質のゲームと用途のためのコンピュータプレイヤ拡張の研究," 北陸先端科学技術大学院大学博士論文, 2018年3月.
Marco Tamassia, "Artificial Intelligence Techniques Towards Adaptive Digital Games," PhD Thesis, RMIT, Sep 2017.
- @Master's**
Eirik H. Skjærseth and Harald Vinje, "Evolutionary algorithms for generating interesting fighting game character mechanics," Master's thesis, Norwegian University of Science and Technology, Jul. 2020.
山岡 勇太, "CFR 法と強化学習法の格闘ゲーム人工知能への適用," 電気通信大学大学院修士論文, 2020年3月.
Duc Tang Tri Nguyen, "Supervised and Reinforcement Learning for Fighting Game AIs using Deep Convolutional Neural Network," Master Thesis, Japan Advanced Institute of Science and Technology, Mar. 2017.
Ngoc Quang Vu, "Building a Strong Fighting Game Player," Master Thesis, Japan Advanced Institute of Science and Technology, Sep. 2016.
Richard Konecny, "Modeling of fighting game players," Master Thesis, Utrecht University, Aug, 2016.
- @Bachelor**
Marcel Hagen Francke, "Mehrkriterielle Optimierung anhand von Evolutionären Algorithmen unter genauerer Betrachtung des SMS-EMOA," Bachelor Thesis (The Universität der Bundeswehr München), Jan 31, 2021.
Haruto Sasaki, "Game AI Using Changes Caused by Selected Actions," Bachelor's Thesis (Extended Abstract), Hosei University, Mar. 2020. (in Japanese)
Alan Robson, "Neural Network AI for FightingICE," Senior Project Report, California Polytechnic State University, Jun. 2017.
Alex Osés Laza, "Reinforcement Learning in Videogames," Polytechnic University of Catalonia (UPC) Final Project, May 2017.

Our Previous Competition (Fighting Game AI : 2013-2021) : Fight and Graduate

CoG 2022: August 22, 2022

<https://www.ice.ci.ritsumei.ac.jp/~ftgaic/index-4.html>



List of Related Publications by Other Groups (those by our group are shown after this list)

JaeYoung Moon, YouJin Choi, TaeHwa Park, JunDoo Choi, Jin-Hyuk Hong, Kyung-Joong Kim, "Diversifying dynamic difficulty adjustment agent by integrating player state models into Monte-Carlo tree search," Expert Systems with Applications, 11 pages, Volume 205, 2022,117677,

[--- PDF file link ---](#)

Dae-Wook Kim, Sung-Yun Park, Seong-il Yang, "Reusing Agent's Representations for Adaptation to Tuned-environment in Fighting Game," 2021 International Conference on Information and Communication Technology Convergence, pp. 1120-1124, October 20-22, 2021.

[--- PDF file link ---](#)

江口雄貴, 藤井叙人, 片寄晴弘, "対戦型格闘ゲームにおけるゲームバランスの自動調整 (Automatic game balance adjustment in fighting games)," The 26th Game Programming Workshop 2021, pp. 15-19, November 13-14, 2021.

[--- PDF file link ---](#)

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CoG 2022: August 22, 2022

DareFightingICE

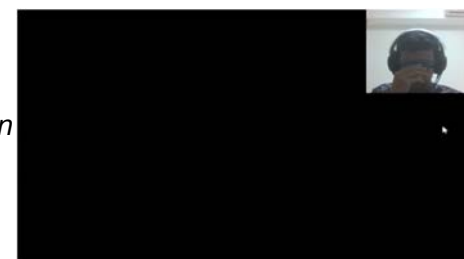
FightingICE with an enhanced sound design

➤ Sound Design Track <https://tinyurl.com/DareFightingICE/>

- Submit a sound design
 - a set of sound effects combined with the source code that implements their timing-control algorithm
 - Ibrahim Khan, et al., "DareFightingICE Competition: A Fighting Game Sound Design and AI Competition," **From 15:40 (GMT+8) August 23 @ CoG 2022**

➤ Blind AI Track

- Submit a blind AI
 - an AI that plays DareFightingICE using only in-game sound data as the input
 - Thai Nguyen, et al. "A Deep Reinforcement Learning Blind AI in DareFightingICE," **From 20:00 (GMT+8) August 23 @ CoG 2022**



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Inspired by

Sven The Blind Warrior

- Twitch streamer at <https://www.twitch.tv/blindwarriorsven>
- Blind Pro Street Fighter player
- Plays in tournaments



SightlessSenshi

- Youtuber 2.77K subscribers
- Channel name [SightlessSenshi](#)
- Plays Mortal Kombat and Street Fighter



DareFightingICE: Sound Design Track Results

Subjective (by human players)

- How much their performance can be retained in blindfolded play
- Their assessment of audio aesthetic

Objective (by Blind AI)

- Retrained per each sound design
- Its performance vs MctsAi65, another sample (but non-blind) AI

| Performance Retention Rate | Survey Results | AI - Win ratio | AI - HP Diff |
|----------------------------|----------------|----------------------|--------------|
| Default Sound Design | 2 | Default Sound Design | 2 |
| D.A. GameSoundDesign | 3 | D.A. GameSoundDesign | 3 |
| SoundEffectProject | 1 | SoundEffectProject | 1 |

F1 Point

| | | | |
|----------------------|----|----------------------|----|
| Default Sound Design | 18 | Default Sound Design | 18 |
| D.A. GameSoundDesign | 15 | D.A. GameSoundDesign | 15 |
| SoundEffectProject | 25 | SoundEffectProject | 25 |

Final Ranking

| | | | |
|----------------------|----|------------------|-----------------------------------|
| Default Sound Design | 69 | 3rd place | Organizers |
| D.A. GameSoundDesign | 73 | 2nd place | Dossymova Aiya, Ritsumeikan Univ. |
| SoundEffectProject | 90 | 1st place winner | Adam Kumar, Ritsumeikan Univ. |

DareFightingICE: AI Track Results

Sounder(P1) vs Mctsai65(P2) Standard

- Number of wins in a round-robin tournament, the higher the stronger

Sounder(P1) vs Blind AI(P2) Speedrun

- Time to beat MctsAi65, the lower the stronger

Standard League Ranking

| | ZEN |
|----------|-----|
| Sounder | 1 |
| MctsAi65 | 2 |
| BlindAI | 3 |

Ranking
Speedrunning League Ranking

| | ZEN |
|----------|-----|
| Sounder | 1 |
| MctsAi65 | 2 |
| BlindAI | 3 |

F1-Point

| | ZEN |
|----------|-----|
| Sounder | 25 |
| MctsAi65 | 18 |
| BlindAI | 15 |

F1-Point

| | ZEN |
|----------|-----|
| Sounder | 25 |
| MctsAi65 | 18 |
| BlindAI | 15 |

Final Ranking

| | SUM | RANK |
|----------|-----|------------------------|
| Sounder | 50 | 1 Eita Aoki, HEROZ.inc |
| MctsAi65 | 36 | 2 Sample MCTS AI |
| BlindAI | 30 | 3 Sample DRL AI |

DareFightingICE Competition

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- Thai Nguyen, et al. "A Deep Reinforcement Learning Blind AI in DareFightingICE," **From 20:00 (GMT+8) August 23 @ CoG 2022**

Let's Fight for SDGs!

See you next year and
look forward to your participation
<https://tinyurl.com/DareFightingICE/>



Dare Fighting ICE / Sound at Master

- Full Name: **Adam Kumar**
- Age: **18**
- Nationality: **Malaysian**
- College: **Ritsumeikan University (Undergraduate)**
- Major: **Information Systems Science and Engineering**

Information

- No original new sound effects were added and only modifications were made to the original sound effect as an optimization.
- As the base sound effects have been made with much more thought and time designed to suite the game, therefore I decided that it is unlikely for me to be able to make a better version of the sound effects from scratch.
- Some sound effects were changed / optimized in a way so the user can have a better / more pleasing experience listening to the sounds. (For example the Heartbeat and Border sounds)

Sources

- All unoriginal sound effect used are licensed with CC0 which gives me full rights to use and publish them.

THANK YOU

Dossymova Aiya

Ritsumeikan University

1st year of Bachelors
Information Systems Science and Engineering

D.A_GameSoundDesign

The original sound desing was modified to a certain extent, with some of the default sounds still remaining. Reasons for changing the sound effects are quite simple: to me, those sounds seemed more suitable for the game as they more accurately represented the actions.

Default source code by itself was not changed and remained the same as it was given, so no tutorial video for that was recorded. As the source code was not modified, it is not included in the file sent.

All the sound effects that were used were an already existing sound effects (CC0) and were taken from the following website: <https://freesound.org>

Sounder

Eita Aoki
HEROZ.inc,

Outline

- If Player Can Sliding, Sliding.
- If Player Can't Sliding,Crouch Kick.
- Because AI can't recognize Left or Right, AI try Both command.