

Explainable Fuzzy AI Challenge (XFC 2022)

Description of the XFC:

In this challenge, the teams have to create a fully autonomous eXplainable AI (XAI) XAI algorithm, in Python, that is able to play the Python Arcade Game “Asteroid Smasher”. In the game, a 2-dimensional spacecraft moves to avoid collisions with numerous asteroids that appear. The asteroids have different shapes, sizes, and velocities. The spacecraft also has a weapon that can shoot straight ahead. If the projectiles emitted reach any of the target asteroids, they break into smaller pieces. The smallest asteroid pieces disappear after being hit by a projectile. A control system must consider all the different features of the system and determine the movement and shooting decisions of the spacecraft. This year, for the challenge, the control system must be able to control a game with a single vehicle or multiple vehicles.

Past Editions:

XFC 2022 is the second edition of the XFC challenge. In the first edition (XFC 2021), we had participation from eight teams from the USA. This year, we have 23 participants on 13 teams (3 international).

Stakeholders:

Thales has been sponsoring financially and technically the XFC for the last two years. Their unparalleled expert guidance assures the quality of the challenge given their knowledge in the field coming directly from a top tier worldwide industrial organization.

The University of Cincinnati has been supporting the challenge through the volunteer students that also help organizing the event.

The North American Fuzzy Information Processing Society has also been instrumental for the reviewing and judging process, as well as for the support throughout the mentoring sessions of the XFC and in their annual conference.

Future and Vision:

We want to make the XFC a high impact, international competition in artificial intelligence and explainability. Our vision is to foster the spread of transparent and explainable AI through this event, by offering the students a unique opportunity to interact with industry experts and create a solid foundation for their AI career.

Agenda for the Session, duration of 2 hours:

- Introduction and highlight video – 20 minutes
- Announcing top Winners – 5 minutes
- 3 Presentations of 5 mins for each of the winners of the competition – 15 minutes
- Lessons Learned – 10 minutes
- The Next Landmark – XFC 2023 & roadmap – 10 minutes
- Discussion with the judges/sponsors, their thoughts, and comments (maybe Kelly? Scott Dick? Nick Ernest-Thales) – 30 minutes
- Open discussion and Q&A – 30 minutes

Organizers:

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| • Tim Arnett, PhD. | Thales Avionics, Inc. | Cincinnati, OH, USA |
| • Javier Viana, PhD Candidate | University of Cincinnati | Cincinnati, OH, USA |
| • Lynn Pickering, PhD Student | University of Cincinnati | Cincinnati, OH, USA |
| • Brandon Kunkel, Data Engineer | Pieces.app | Cincinnati, OH, USA |