

# AI tool for predicting MMA matches

With this tool it will be possible to predict the outcome of a fight between two fighters.

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Created on: November 29, 2024 8:36 AM  
Changed on: December 2, 2024 11:55 AM

Context of use: Education  
Level of education: Bachelor

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## Impact on society

What impact is expected from your technology?

### What is exactly the problem? Is it really a problem? Are you sure?

There is not actual problem to which the tool answers to. It does not help in any specific way. However, the tool could be used to enhance the performance of a fighter. This is due to the fact that if a fighter sees what could be the likelihood of the outcome of the bout he is attending, maybe he could develop further the skills the person needs in order to reduce the chance of being defeated.

### Are you sure that this technology is solving the RIGHT problem?

The technology that I am developing does not have a specific problem that it is solving.

### How is this technology going to solve the problem?

The tool that will be developed will use the past bouts that a fighter has had in the organization 'The Ultimate Fighter (UFC)'. Based on them I will calculate the probability of an outcome of two fighters in a match.

### What negative effects do you expect from this technology?

Negative impact would be that the tool could be used for betting purposes.

### In what way is this technology contributing to a world you want to live in?

It does not directly contribute in any shape or form, however it can help fighters better prepare themselves for a bout against a specific fighter. A possible continuation of the project could be a fighter analyzing tool which further supports the idea.

### Now that you have thought hard about the impact of this technology on society (by filling out the questions above), what improvements would you like to make to the technology? List them below.

I do not want the technology to be public and used by many people. That way the tool can be exploited and used in an inappropriate way.

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## Hateful and criminal actors

What can bad actors do with your technology?

### **In which way can the technology be used to break the law or avoid the consequences of breaking the law?**

There are two main things to consider in the project. Compliance to the GDPR, since I am processing personal data and the betting system that could be further developed from the project.

### **Can fakers, thieves or scammers abuse the technology?**

Since the project will not be open-source the tool cannot be accessed by any sort of criminals, thieves or scammers.

### **Can the technology be used against certain (ethnic) groups or (social) classes?**

I believe the tool will not have anything against any ethnic groups or social classes.

### **In which way can bad actors use this technology to pit certain groups against each other? These groups can be, but are not constrained to, ethnic, social, political or religious groups.**

There is a scenario where the bad actors are the media. The media could use the tool for promotions only showcasing fighters with favorable predictions, leading to a lack of diversity in representation. As well as targeted advertising. Gambling companies could use the tool to target vulnerable populations, leading to financial exploitation.

### **How could bad actors use this technology to subvert or attack the truth?**

It is possible that predictions made by the tool may be misinterpreted or deliberately conveyed in misleading ways, leading to false expectations about fight outcomes. This risk is especially relevant if platforms like statistics websites or prediction tools (e.g., Verdict MMA) present predictions without proper context or disclaimers.

### **Now that you have thought hard about how bad actors can impact this technology, what improvements would you like to make? List them below.**

Conveying the prediction as transparent as possible. And always force people to read the terms and conditions of the usage of the tool.

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Restricted access and the distribution of the technology to verified organizations (e.g., sports organizations, trainers) and not directly to the public or gambling platforms.

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## Privacy

Are you considering the privacy & personal data of the users of your technology?

### **Does the technology register personal data? If yes, what personal data?**

The tool uses personal data of all the fighters in the organization 'The Ultimate Fighter (UFC)'. That means that the project needs to obey the GDPR. The data was taken from the website 'kaggle' and it is licensed. The dataset has been used previously by other people for the creation of different models.

### **Do you think the technology invades the privacy of the stakeholders? If yes, in what way?**

I do not think the project affects directly any of the fighters, since in the original website of the 'UFC' all the fighter data is available.

### **Is the technology is compliant with prevailing privacy and data protection law? Can you indicate why?**

The technology can be GDPR-compliant if it ensures transparency in how data is collected and used, limits data processing to its stated purpose, and collects only the necessary data. Explicit consent must be obtained for any personal data, and measures should be in place to secure it, including encryption and access controls. Retention policies should ensure data is deleted or anonymized when no longer needed, and user rights, such as data access, correction, and deletion, must be respected. Conducting regular audits can help identify and mitigate risks. By anonymizing data where possible and adhering to these measures, the technology can align with GDPR requirements.

### **Does the technology mitigate privacy and data protection risks/concerns (privacy by design)? Please indicate how.**

Whenever a feature is found useless it is deleted and not used for the purpose of the project. However, personal fighter statistics and personal data such as: height, weight, reach are needed for the prediction of the bout.

### **In which way can you imagine a future impact of the collection of personal data?**

The technology is primarily designed for predictive modeling in MMA fights and not inherently for creating or tracking data about individuals over their lifetimes. However, if it processes or generates data tied to specific fighters or individuals (e.g., performance stats, predictions, or probabilities), it could

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have the following long-term consequences:

**Now that you have thought hard about privacy and data protection, what improvements would you like to make? List them below.**

The technology should operate within strict ethical and legal boundaries, ensuring data is used solely for its intended purpose, and users are provided with mechanisms to exercise their data rights, such as access, correction, and deletion. Regular audits and privacy impact assessments should be conducted to adapt to evolving laws and risks.

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## Human values

How does the technology affect your human values?

### How is the identity of the (intended) users affected by the technology?

The technology can enhance relationships by fostering shared interests and creating new ways for fans to engage with sports analytically. However, it may detract from relationships if disagreements arise over predictions.

### How does the technology influence the users' autonomy?

The technology empowers users to make better decisions by providing data-driven insights but still allows them to make their own choices, avoiding over-reliance on automated outcomes. However, users could become dependent on the technology for sports analysis, especially if they start valuing predictions over personal judgment. The product is not inherently addictive, but frequent use in gambling contexts or constant reliance for predictions could make it harder to disengage.

### What is the effect of the technology on the health and/or well-being of users?

There are none effects of the tool on the health and well-being of the users.

### Now that you have thought hard about the impact of your technology on human values, what improvements would you like to make to the technology? List them below.

The technology should ensure transparency, fairness and inclusivity while avoiding deterministic messaging or reinforcing stereotypes, aligning with users' values and empowering them responsibly

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## Stakeholders

Have you considered all stakeholders?

**Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by answering these questions.**

**Name of the stakeholder**

Fighters

**How is this stakeholder affected?**

The fighters' statistical data and match history is used to train a model to predict the outcome of a bout between to fighters.

**Did you consult the stakeholder?**

No

**Are you going to take this stakeholder into account?**

Yes

**Did you consider all stakeholders, even the ones that might not be a user or target group, but still might be of interest?**

**Name of the stakeholder**

Betting instituions

**How is this stakeholder affected?**

The stakeholders might misuse the tool for their personal advantage and disturb the betting market.

**Did you consult the stakeholder?**

No

**Are you going to take this stakeholder into account?**

Yes

**Now that you have thought hard about all stakeholders, what improvements would you like to make? List them below.**

In order to address the fighter stakeholders it must be conveyed to them why their data is being used and further create a document of how the data is being used and ensure that the data is not going to be distributed. To ensure that the product is not being misused the availability of the product will be made private, thus limiting the possibility of the product falling into the wrong hands.



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## Data

Is data in your technology properly used?

### **Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into account in the technology?**

In the technology I am currently developing there are many pitfalls. Predicting the outcome of a sports bout is very difficult given the reason that there are many external factors that influence the decision if a fighter will win.

### **How does the technology organize continuous improvement when it comes to the use of data?**

The good thing about the data that is being used to develop the technology is that it is using the match history of an organization, so the only way you can update the data is by adding the recent matches to the dataset.

### **How will the technology keep the insights that it identifies with data sustainable over time?**

The technology keeps its insights sustainable over time by regularly updating its dataset with new fight results and statistics, ensuring the model reflects current MMA dynamics. Periodic retraining of algorithms maintains accuracy as trends evolve. Long-term data source agreements and secure backups ensure historical data remains accessible even if sources are discontinued.

### **In what way do you consider the fact that data is collected from the users?**

The intend of the project will never be to scale to the point where the user data will be sold for some kind of profit. The users in my case are professional fighters whos data is publicly published and they have signed a consent that states that their data will be shared in a public website.

### **Now that you have thought hard about the impact of data on this technology, what improvements would you like to make? List them below.**

It is very difficult to make a prediction model based on a sport, especially fighting. Everything can happen before a bout. My purpose is to make the prediction as fair and transparent as possible. Complying to the GDPR and not distribute any of the data that is being used in the tool that is being developed.

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## Inclusivity

Is your technology fair for everyone?

### Will everyone have access to the technology?

No one will have access to the technology because of the reason that many people could exploit it to their own imagination and start developing malicious tools out of the model. That is why the strict restriction is applied.

### Does this technology have a built-in bias?

A potential built-in bias in the MMA prediction tool could stem from historical or systemic biases in the data, such as underrepresentation of female fighters, fighters from certain regions, or specific fighting styles. If the data used for training primarily reflects trends or fighters from dominant demographics or regions, predictions could unfairly favor these groups.

### Does this technology make automatic decisions and how do you account for them?

Currently the model estimated the likelihood of a fighter winning against another fighter based only on the difference in the statistics between the fighters.

### Is everyone benefitting from the technology or only a small group?

#### Do you see this as a problem? Why/why not?

There is no actual benefit from the technology. The main purpose and benefit is educational.

### Does the team that creates the technology represent the diversity of our society?

The development of the tool is being done by only one person. However, in order to accreditate to diversity the project has been shared with different people in order to get insight on how different people perceive the project.

### Now that you have thought hard about the inclusivity of the technology, what improvements would you like to make? List them below.

To fix the bias in the system, more female fight bouts need to be added to the dataset. And in order to ensure that the system is used as it is supposed to be used limitation to access need to take place.

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## Transparency

Are you transparent about how your technology works?

### **Is it explained to the users/stakeholders how the technology works and how the business model works?**

The tool will not be publicly available, but the work behind it will be completely transparent. Comprehensive documentation will be provided to explain how the technology functions, the methodologies used, and the intended use cases. This ensures that users and stakeholders fully understand the tool's purpose, capabilities, and limitations.

### **If the technology makes an (algorithmic) decision, is it explained to the users/stakeholders how the decision was reached?**

To contribute to the algorithmic decisions made by the technology, the decision-making process will be thoroughly analyzed to ensure transparency and quality. The data used to train the model will be clearly documented, detailing what data is collected, why it is relevant, and how it influences the outcomes. To enhance reliability, multiple models will be tested and compared to identify the most accurate and fair approach.

### **Is it possible to file a complaint or ask questions/get answers about this technology?**

Unfortunately no, due to the nature of the availability of the product. As previously mentioned the product will not be publicly available, thus meaning that if somebody will have question on the project it will be discussed privately.

### **Is the technology (company) clear about possible negative consequences or shortcomings of the technology?**

The possible negative consequences of the technology, such as its potential impact on betting systems, public perception of matches, and unintended biases in predictions, have been clearly communicated to stakeholders. These concerns have been discussed in the context of how the tool might influence fighter reputations, match anticipation, and gambling behaviors. To ensure transparency, these potential shortcomings will be further detailed in the project's supporting documentation, including how they have been mitigated during development. This proactive approach ensures stakeholders are fully aware of the limitations.

**Now that you have thought hard about the transparency of this technology, what improvements would you like to make? List them below.**

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The improvements that will be taken into account for the transparency of the tool will be to provide clear, user-friendly explanations of how the decisions are made. As well as ensuring all data used in the predictions is thoroughly documented, including its sources, relevance and limitations. And further trying to detect bias and mitigating it.

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## Sustainability

Is your technology environmentally sustainable?

*This category is not applicable for this technology.*

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## Future

Did you consider future impact?

### **What could possibly happen with this technology in the future?**

The technology could potentially disrupt betting systems by providing highly accurate predictions that skew betting odds, giving an unfair advantage to certain users or organizations. Additionally, it may influence public perception of matches, causing fans to lose interest in specific match-ups if the predictions heavily favor one fighter, reducing the excitement and anticipation. This could also discourage promoters from organizing certain fights, impacting the sport's diversity and growth. To address these issues, the technology should include responsible use guidelines, emphasize the probabilistic nature of predictions, and actively monitor for misuse to ensure fairness and maintain the integrity of the sport.

### **Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one utopian scenario.**

The technology serves as a comprehensive performance analytics system for fighters. It provides real-time insights into their strengths and areas for improvement, helping them craft personalized training regimens. With fully anonymized historical data and AI-powered simulations, fighters can test strategies against virtual opponents, leveling the playing field for competitors from underprivileged backgrounds.

### **Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one dystopian scenario.**

The gambling industry has exploited the technology to manipulate betting markets, leading to widespread corruption. Wealthy bettors and syndicates leverage insider access to predictions to game the system, while average fans are discouraged from participating due to the predictability of outcomes.

### **Would you like to live in one of this scenario's? Why? Why not?**

I would like to live in the utopian scenario, because I find that technology can improve fighters health and preparation for an opponent thus making it more interesting for the fans and for the fighters' preparation for an opponent.

### **What happens if the technology (which you have thought of as ethically well-considered) is bought or taken over by another party?**

It should be made clear the ethical agreements when the third party is trying to buy-out the tool. Any buy-out must ensure that it includes strict contractual

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clauses that require the new owner to adhere to the original ethical guidelines, including transparency, fairness and responsibility use of the tool.

**Impact Improvement: Now that you have thought hard about the future impact of the technology, what improvements would you like to make? List them below.**

Improvements of the technology include bias mitigation, better explainability, privacy and long-term adaptability. In order to improve the usage of the product the tool should have fair use guidelines, meaning that there are clear guidelines ensuring the misuse in areas like betting or biased decision-making. Inclusivity and public communication.