



Game-State Strategy Solver

When to press and when to hold, by backward induction on the game state.

A finite-horizon Markov decision process over minute and score difference, with transition rates fitted on half-time and full-time states, solved exactly for the policy that maximises expected points.

SPORT

Football

FAMILY

Markets and staking

LICENCE

£399

one-off, perpetual

RUNNING IN THE PLATFORM

<https://edgewortharena.com/arena/api/strategy?lead=0&minute=60>

Inputs

NAME	TYPE	UNITS	WHERE IT COMES FROM
state rates	dict	goals per minute by lead	fitted on your own match states
actions	list	-	press, hold, park, with their effect on both sides' rates
objective (optional)	string	-	points, or win probability

Outputs

NAME	TYPE	UNITS	NOTES
policy	action per (minute, lead)	-	
value	expected points	points	
gain over holding	float	points per match	

Method

- 1 Discretise the match into minutes and the score into a bounded lead.

THIS IS THE SAMPLE

The method runs to 3 steps; one is shown. The assumptions, the limits, the module layout and the reference implementation come with the licence. Everything on the page below this -- what the model was measured at -- is the same in both versions, because that is the part you should not have to take on trust.



What it was measured at

From the fitted game-state model the Manager game plays against.

MEASURE	RESULT	READING
Fitted on	14,504 half-time and full-time states	
A side one goal down	scores about 14% faster	
Gain over holding	0.1 to 0.2 points per match	
Solution	exact backward induction	

Assumptions

What has to be true for the numbers to mean what they say.

- Actions change rates in the way your fit says they do, and a manager can actually execute them.

Limits

Where it is known to be wrong. Published because a model without stated limits is one nobody has pushed on.

- The gain over simply holding a balanced approach is a tenth or two of a point per match. It is real and it is small, and anyone claiming more is selling something.

LICENCE

Issued to Evaluation copy. One perpetual licence to use and modify this model inside your own organisation. Redistribution of the specification or the reference implementation is not included. No warranty is given: the validation above is the whole of the claim being made.