

Spatio-temporal metrics that distinguish plays in field hockey: a pilot study

MCINERNEY, Ciaran http://orcid.org/0000-0003-0638-911X, FOSTER, Leon http://orcid.org/0000-0002-1551-0316 and CHOPPIN, Simon http://orcid.org/0000-0003-2111-7710

Available from Sheffield Hallam University Research Archive (SHURA) at:

http://shura.shu.ac.uk/11873/

This document is the author deposited version. You are advised to consult the publisher's version if you wish to cite from it.

Published version

MCINERNEY, Ciaran, GOODWILL, Simon, FOSTER, Leon and CHOPPIN, Simon (2016). Spatio-temporal metrics that distinguish plays in field hockey: a pilot study. In: ISPAS 2016 International Workshop, Institute of Technology, Carlow, 22-23 March 2016.

Copyright and re-use policy

See http://shura.shu.ac.uk/information.html



Spatio-temporal metrics that distinguish plays in field hockey: A pilot study

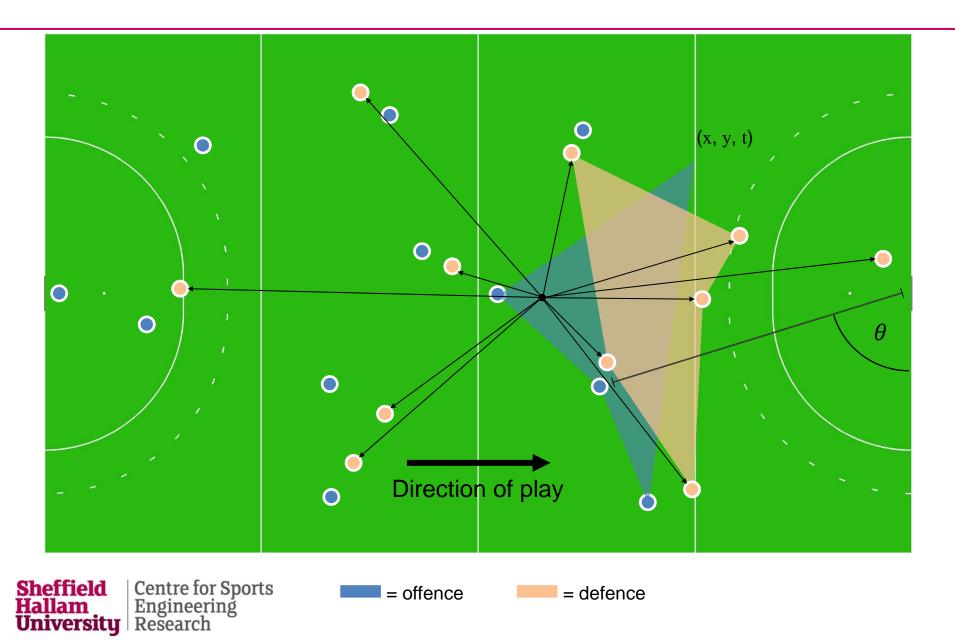
Ciarán McInerney¹,

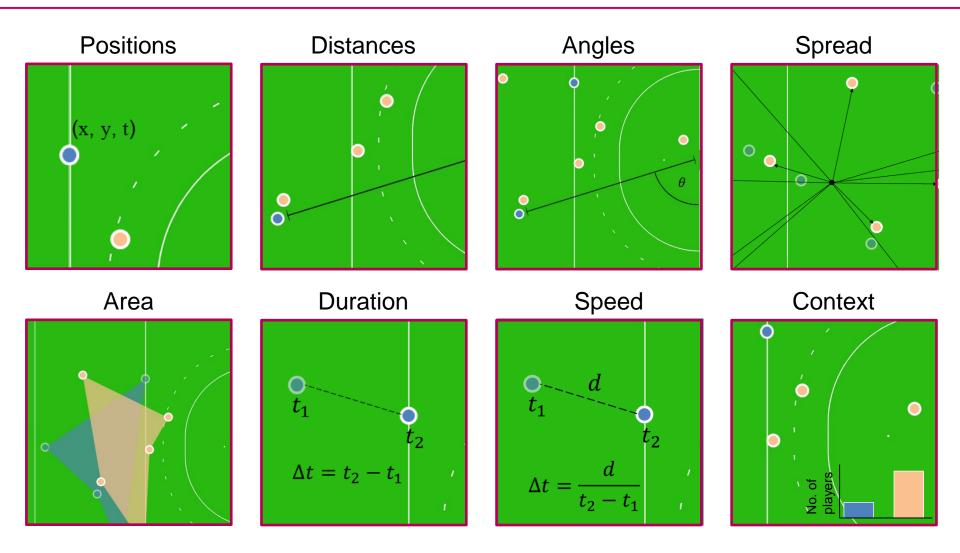
Dr. Leon Foster¹, Dr. Simon Choppin¹, Dr. Joseph Stone², Dr. Simon Goodwill¹

¹Centre for Sports Engineering Research, Sheffield Hallam University ²Academy of Sport and Physical Activity, Sheffield Hallam University











How many variables <u>actually</u> relate strongly to the output?

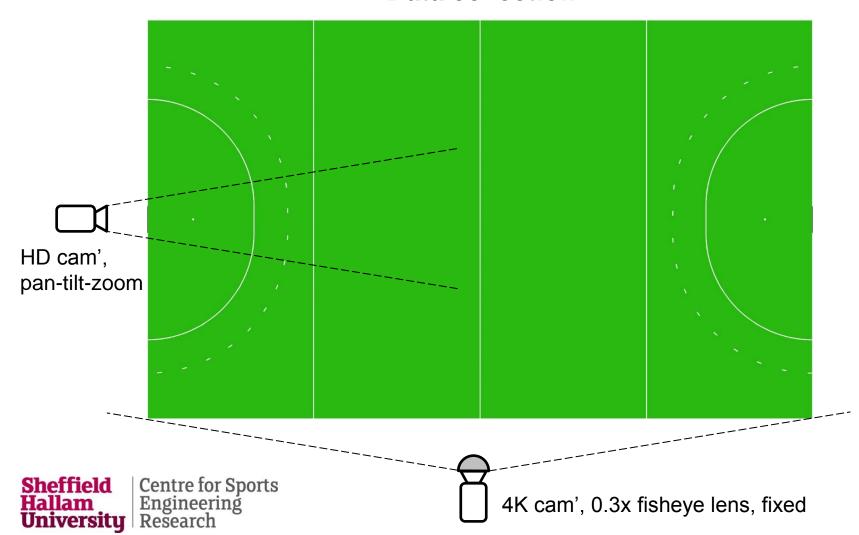


Aim

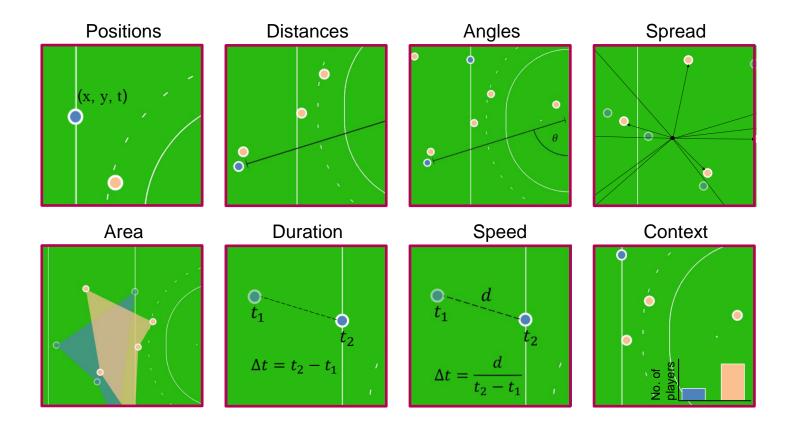
To estimate the distribution of strong marginal effects of spatio-temporal metrics in field hockey plays.



Data collection



Data processing





Data analysis

Statistic	Measure of	
Cramér's V	Association	
Mutual Information	Mutual dependency	
I-score	Influence / association	



Data analysis

	Good vs. Bad	Good vs. OK	Ok vs. Bad
metric ₁	{V, M, I}	{V, M, I}	{V, M, I}
metric ₂	{V, M, I}	{V, M, I}	{V, M, I}
:	:	:	:
metric _{1,837}	{V, M, I}	{V, M, I}	{V, M, I}

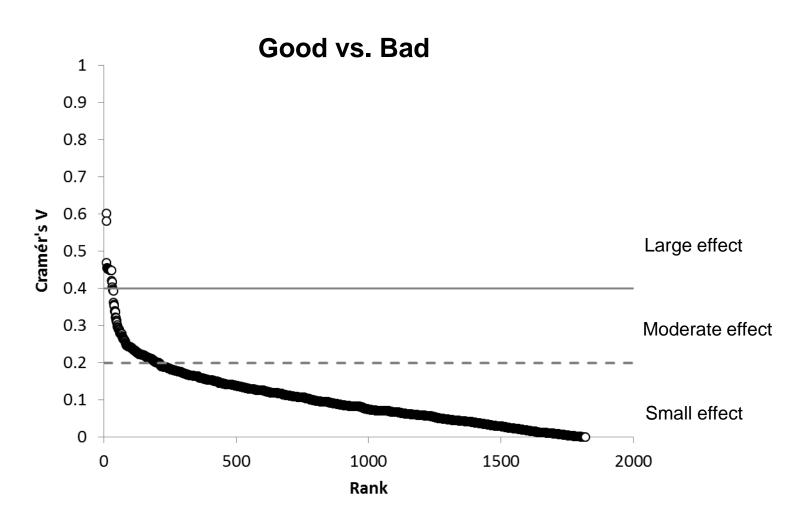
V = Cramér's V

M = Mutual Information

I = I-score



Results





Conclusions

Reminder

Aim: To estimate the distribution of strong marginal effects of spatio-temporal metrics in field hockey plays.

- Small subset of large effect metrics.
 - => use univariate variable-selection methods.
- 2. Agreement between statistics.
 - => confidence in apparent distribution.
- 3. Consistency across comparisons.
 - => same methods can be applied for all comparisons.





Spatio-temporal metrics that distinguish plays in field hockey: A pilot study

Ciarán McInerney

c.mcinerney@shu.ac.uk

Centre for Sports Engineering Research, Sheffield Hallam University



