Methods for the Efficient Deployment and Coordination of Swarm Robotic Systems

List of Corrections

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List of Corrections

The following table summarises the corrections proposed to my thesis in response to the examiners and my supervisors suggestions. In this table we adopt the following notations and assumptions:

- ID stands for the number of a proposed correction.
- PJ, KS shown between the two brackets refer to the examiners (Dr Peter Jancovic. and Dr Konstantantinos Sirlantzis) who have suggested the correction, respectively.
- In the table of each correction, the first row shows a short description of the proposed correction according to the page number of the original thesis; the second row shows the action made for the correction according to the page number of the old thesis.

1.1 General Corrections

ID:(KS)	**Short description of a proposed correction.**
	Action taken to resolve proposed correction.
(KS)	Use of the word chaotic/chaos could be confusing
	Renamed initial phase of the swarms development to 'disorganised' throughout.
(KS)	Context of chapter 3 could be moved to end of chapter 2 and the data analysis section moved to an appendix
	Moved simulation implementation from chapter 3 into Chapter 2. Moved data aggregation component into a new appendix.
(PJ & KS)	Several references are showning journal/publication title followed by *'Proceedings of' or 'Transaction on'*. All titles need to be made consistent:- 6, 7, 9, 10, 11, 12, 14, 15, 16, 18, 20, 24, 25, 28, 33, 37, 41, 47, 50, 52, 54, 55, 56, 58, 59, 61, 65, 67, 69, 71, 74, 76, 77, 78, 79, 82, 86, 90, 93, 94, 96, 98, 100, 113, 118, 126, 127, 130, 137, 139, 140, 141, 142, 146, 147, 150, 151, 152, 154, 155, 156, 157, 158, 161
	Bibtex data file updated by restructuring the title text.

1.2 Specific Corrections

(KS)	Page (Abstract) Line 14 - Use of the term nodes needs to be made consistent with the rest of the thesis
	Changed to agents for consistency
(KS)	Page 2 Line 24 - Explain *boid-based*
	Paragraph extended to include reference to seminal paper by Reynolds and comparison added to highlight similarity.

(KS)	Page 6 Line 21 - Typo - fire service [111], as
	updated to “fire service [111] as”
(KS)	Page 8 Line 30 - typo - anomalies ‘healing’
	updated to “anomalies thus ‘healing’”
(KS)	Page 9 Line 6 - Reference to Hoff paper requires clarification
	extended sentence to include message propogation reduction issue identified by Hoff

1.3 Bibliography

(KS) No dates	References 21, 60, 70, 75, 92, 135
	?
(KS) References with no publisher	References 27, 30, 36, 49, 60, 101, 108, 115, 132, 148, 149
	?
(KS) References apostrophe missing from name	References 115
	?
(KS) References with capitalised Author	References 88, 149
	?
(KS) References requiring page numbers	Reference 117
	?
(PJ) Clarify	The coordinates of an agent
	The position vector is given by the coordinates of an agent
(KS) Section 2.3	described in 2.2
	extended to include vectors
(PJ) Citations sections 2.1, 2.7	Separate references
	Split references from Barnes and Bennet appropriately
(PJ/KS) Typo	Section 2.3 interction
	interaction
(PJ) Incorrect reference	Figure 2.6 shows the...
	Equation 2.5 shows ...
(KS) Incorrect reference	(Figures 2.10, 2.10, 2.11)..
	(Figures 2.10, 2.11, 2.12)..

(PJ) Formulae 2.1, 2.3, 2.4 - Formula notation	Cardinality notation changed to use $\|\|.\|\|$
	$nbr(b) \triangleq \{b' \in S \ : \ \|bb'\| <= C_b\}$ $R(b) = \{b' \in S \ : \ \|bb'\| <= R_b\}$ $v_r(b) = \ -\frac{1}{\|\|R(b)\|\|}\left(\sum_{b' \in R(b)}\left(1 - \frac{\|bb'\|}{R_b}\right)bb'\right)$ $\{o \ \in O \ : \ \|bo\| <= O_b\}$
(PJ) Section 2.6 - Sentence restructure	moves an obstacles
	moves it may enter an obstacle's
(PJ) Section 2.8 - Special case reference error	Special case of Equation 2.7
	Special case of Equation 2.8
(PJ) Spelling	Section 2.11 amp Figure 2.12 Stabalise
	Stabilise
(PJ) Expand Conclusion	No mention of current work
	Added small discussion of current work
(PJ) Explain ˆ	Section 2.6 uses unexplained notation
	Moved ˆ explanation from section 2.9 to 2.6
(PJ) No equation	Section 2.9 uses inline formulae for movement.
	Equation broken out and referenced.

1.4 Simulator

(PJ) Consistency in capitalisation	Player/Stage
	player/stage

1.5 Magnitude Metric

(KS) Table 4.1 → 3.1 Explain parameters	Hexagonal
	Modified labels and altered section to highlight that the parameters are arbitrary as they are only required to create a swarm to highlight the inter-agent relationships that exist.
(KS) Typos	swarms
	swarm's
(PJ) Table 4.2 → 3.2 Explain Labels	Log, Id, N.Id
	Labels expanded in text

(PJ) Section 4.2 → 3.2 Sentence error	vectorTable 4.4 vector. Table 4.4
(PJ) Section 4.3 → 3.3 Punctuation	= 0) The = 0). The
(PJ) Diagram 4.7 → 3.7 Label error	bot agent
(KS) Equations 4(3).2, 4(3).3, 4(3).4, 4(3).6, 4(3).7, 4(3).8 and inline equations cardinality notation changed	|.| ||.||for magnitude. |.|for cardinality
(KS) Section 4.6 Typo	described is here described here

1.6 Swarm Type

(PJ) Typo in introduction	is a swarm in a swarm
(PJ) Parameter explanation, Table 5.1 → 4.1	Explain parameter requirements Paragraph added
(NE) Table labels in 5.1 → 4.1	Neighbour and agent altered Cohesion field, Repulsion field
(PJ) Section 5.2.1 → 4.2.1	Clarify graph mean Paragraph extended
(PJ) Section 5.3.1 → 4.3.1	Clarify bi-modal Paragraph extended
(PJ) Section 5.4 → 4.4 Comment	Isn't Sect 5.4 a repetition Section is a comparison to highlight that the new metric could be used as a replacement for the distance metric and provide additional status information
(PJ) Section 5.4 → 4.4 Punctuation	metric Figure 5.21 metric. Figure 5.21

(PJ) Section 5.5 → 4.5 Expand	identical? description extended

1.7 Perimeter Coordination

(PJ) Typo in introduction	applied. Partial applied, partial
(PJ) Fig 6(5).4 6(5).28, 6(5).29	Needs to indicate starting point Added "Start Point" and arrows to graphs
(PJ) Section 6(5).2 Typo	there their
(ks) Section 6(5).7.1.1 Typo	problem can is problem is
(KS) Section 6(5).7.2 Typo	algorithms selection algorithm's selection
(PJ) Section 6(5).8 Typo	must are are
(PJ) Section 6(5).8 Typo	its a goal towards it's goal
(KS) Section 6(5).8.1 Typo	algorithm is produces algorithm produces
(KS) Section 6(5).8.1 Sequence of refs	6.23, 6.25, 6.24 and 6.26 6.23, 6.24, 6.25 and 6.26
(KS) Section 6(5).8.3 Typo	(Figure 6.30) Figure 6(5).30
(PJ) Figure 6(5).31 Title change	speed path
(PJ) Section 6(5).9 Reference	tables above Tables 6.8, 6.9 and 6.10
(PJ) Figure 6(5).42 Font	n_{1-7} Font increased
(PJ) Missing Section	Conclusion section missing Added conclusion

1.8 Concave Reduction

(PJ) Introduction sentence duplicates explanation	Depending upon ....
	Sentence removed
(PJ) Expand explanation	In some circumstances ...
	Circumstance explained
(PJ) Table Reference	Table 8.4 ...
	Table 7.1 (Error in latex label corrected)
(PJ) Figure title clarification Fig 7(6).12, 7(6).13	Baseline/Concave path effect
	Baseline/Concave path effect (after 600 iterations / 60s)
(PJ) Figure title clarification Fig 7(6).16, 7(6).18, 7(6).19	(80/60)
	(cohesion field 80 / repulsion field 60)
(PJ) Table 7.3 Location	Located below Figure 7(6).19
	Moved to below 7(6).16 and referenced.
(PJ) Page 143? Figure reference 7.32	Incorrect latex reference
	Corrected
(PJ) Typo section 7(6).4	seem
	seen
(PJ) Figure title clarification 7(6).38, 7(6).39	60 Obstacle
	repulsion field 60 units for obstacle

1.9 Flood Filling

(PJ) Section 8.1.1 Typo	rseultant
	resultant
(PJ) Section 8.1.2 Typo	space. each
	space. Each
(PJ) Section 8.1.2 Typo	seconds. between
	seconds. Between
(PJ) Section 8.1.2 Typo	feild
	field

(PJ) Section 8.1.3 Sentence restructure	uses a swarm that utilises
	uses both
(PJ) Section 8.2 Typo	thier
	their
(PJ) Section 8.2.1 Typo	stabalises
	stabilises
(PJ) Section 8.2.1 Typo	distrurbances
	disturbances

1.10 Future Work