**1.1 The TA problem**

Solutions to the TA problem are called homing missile guidance laws, and the most popular among them is a control law called proportional navigation [l-3], which is analogous to classical proportional control.The underlying basic concept is that if the direct Target-Attacker line-of-sight time rate is diminished, *i.e.,* if the direct TA Line-of-Sight ceases to change its direction then (for a non-maneuvering, constant velocity Target) the Attacker is on a collision course. If the Target is considered smart or maneuvering, then variations to the proportional navigation are needed so as to minimize the miss distance. These variations have been given optimal-control interpretations through linear quadratic Gaussian (LQG) formulations, and a variety of other techniques [4-31].

The literature has investigated manifold variations of the TA problem (including the TAD problem, producing a large amount of results, and a huge number of publications (see, *e. g.*, [9, 10, 31-34). The study of pursuit evasion games can be traced back to the von Neumann’s hide-and-seek games [35], where a hider chooses one cell of a two-dimensional grid in which to hide himself and a seeker chooses a subset of cells of the grid (usually one row and one column) in which to seek the hider. If the seeker selects the cell chosen by the hider, then the hider is captured and the seeker wins the game. Otherwise, the hider wins the game. Starting from this seminal work, adversarial pursuit evasion settings have been modeled by a variety of mathematical techniques. Notable among these are the optimal-control formulation and the differential-game one [7, 36, 37].

The fundamental conceptual difference between missile guidance laws based on optimal control theory and those based on differential game theory is in the assumptions made by the guidance laws on the future trajectory and maneuvering capabilities of the Target. Optimal control theory assumes that the future maneuver strategy of the Target is *completely defined*, either in open-loop or closed-loop form [7]. The feedback nature of missile guidance laws allows the missile to make corrections for inaccurate predictions of the maneuvers of the Target. The optimal-control formulation is appropriate only when future maneuver time history, or strategy, of the Target is known or can be justifiably assumed or accurately predicted. One possible perspective is to design strategies that maximize performance of the Attacker against a worst-case Target [32]. In such a setting, the Target is usually considered to be of infinite speed, complete awareness of the location and intent of the Attacker, and full knowledge of the conflict environment. Such a method guarantees the success of the pursuit, defined, for example, by capture of the Target in a finite time. However, this powerful-adversary model may yield solutions that are too conservative in practical applications. A better alternative is to use probabilistic formulations addressing average-case behaviours [32].

The most suitable (and presumably most successful) mathematical framework for analyzing conflicts controlled by two independent agents is in the realm of dynamic or differential games. Thus, the scenario of intercepting a maneuverable Target has to be formulated as a zero-sum pursuit–evasion game [36]. The roles of the game players are clearly defined, the interceptor (Attacker) is the pursuer and the Target is the evader. The natural cost function of such a zero-sum game is the miss distance (the distance of the closest approach, or in other words the smallest norm of the separation vector), to be minimized by the pursuer and maximized by the evader. The game solution provides simultaneously the missile’s guidance law (the optimal pursuer strategy), the “worst” Target maneuver (the optimal evader strategy), and the resulting guaranteed miss distance (the value of the game). As a consequence, the game solution provides a guidance law that is robust with respect to the Target maneuver structure.

Many prominent extensions of the TA problem are currently problems of hot research. In addition to the celebrated TAD problem (to be fully introduced in Subsection 1.2), we give a glimpse of problems of contemporary interest in the following (far-from-conclusive) list

* Three-dimensional pursuit-evasion [1, 5, 21, 37],
* Fuzzy guidance laws [23, 25],
* Non-conventional or modern approaches for interception [6, 20],
* Lyapunov-based non-linear guidance [16].
* Incorporation of probabilistic uncertainty in the location, behavior, and/or sensor observations of the Target.

**1.2 The TAD problem**

**انقل من هناك مع إضافة المراجع من هناك وتعديل أرقامها في النص**

**لاحظ أن كل مراجعي هنا جديدة عدا 31 فيما يبدو**

**1.2 Thesis Outline**

**الفقرة الأخيرة**

**References**

1. **Adler, F. P.** (1956). Missile guidance by three‐dimensional proportional navigation. *Journal of Applied Physics*, **27**(5): 500-507.
2. **Becker, K.** (1990). Closed-form solution of pure proportional navigation, *IEEE Transactions on Aerospace and Electronic Systems*, **26**(3): 526-533.
3. **Ghose, D**. (1994). On the generalization of true proportional navigation. *IEEE Transactions on Aerospace and Electronic Systems*, **30**(2): 545-555.
4. **Gutman, S**. (1979). On optimal guidance for homing missiles. *Journal of Guidance, Control, and Dynamics*, **2**(4): 296-300.
5. **Shinar, J.,** and **Gutman, S.** (1980). Three-dimensional optimal pursuit and evasion with bounded controls. *IEEE Transactions on Automatic Control*, 25(3): 492-496.
6. **Nesline, F. W.,** and **Zarchan, P.** (1981). A new look at classical vs modern homing missile guidance. *Journal of Guidance, Control, and Dynamics*, **4**(1): 78-85.
7. **Anderson, G. M.** (1981). Comparison of optimal control and differential game intercept missile guidance laws. *Journal of Guidance, Control, and Dynamics*, **4**(2): 109-115.
8. **Pastrick, H. L., Seltzer, S. M.,** and **Warren, M. E.** (1981). Guidance laws for short-range tactical missiles, *Journal of Guidance, Control, and Dynamics*, **4**(2), 98-108.
9. **Rodin, E. Y.** (1987). A Pursuit-evasion bibliography—Version 1. *Computers & Mathematics with Applications*, **13**(1-3): 275-340.
10. **Rodin, E. Y.** (1989). A Pursuit-evasion bibliography—Version 2. *Computers & Mathematics with Applications*, **18**(1): 245-320.
11. **Lin, C. F.** (1991). *Modern Navigation, Guidance, and Control Processing* (Vol. **2**). Prentice Hall, Englewood Cliffs, New Jersey, USA.
12. **Cochran, J. E., No, T. S.,** and **Thaxton, D. G.** (1991). Analytical solutions to a guidance problem, *Journal of Guidance, Control, and Dynamics*, **14**(1): 117-122.
13. **Lê, N. M.** (1998). On determining optimal strategies in pursuit games in the plane. *Theoretical Computer Science*, **197**(1): 203-234.
14. **Creaser, P. A.** (1998). Generation of missile guidance algorithms, *Proceedings of the IEE Colloquium on Optimisation in Control: Methods and Applications*, pp. 7/1-7/3.
15. **Siouris, G. M.** (2004). *Missile Guidance and Control Systems*. Springer Science & Business Media, New York, NY, USA.
16. **Lechevin, N.,** and **Rabbath, C. A.** (2004). Lyapunov-based nonlinear missile guidance. *Journal of guidance, control, and dynamics*, **27**(6): 1096-1102.
17. **Lee, J. I., Jeo, I. S.,** and **Tahk, M. J.** (2007). Guidance law to control impact time and angle. *IEEE Transactions on Aerospace and Electronic Systems*, **43**(1): 301-310.
18. **Breivik, M.,** and **Fossen, T.** (2008). Guidance laws for planar motion control. *Proceedings of the 47th IEEE Conference on Decision and Control, CDC 2008*. pp. 570-577.
19. **Rusnak, I.** (2008). Guidance laws in defence against missile attack*. Proceedings of the IEEE 25th Convention of Electrical and Electronics Engineers in Israel*, pp. 090-094.
20. **Shinar, J.,** and **Turetsky, V.** (2009). Meeting the challenges of modern interceptor guidance by non-conventional approaches. *Proceedings of the 17th IEEE Mediterranean Conference on Control and Automation, 2009. MED'09*, pp. 1563-1568.
21. **Lin, Y. P., Tsao, L. P.,** and **Lin, C. L.** (2010). Development of three-dimensional aiming point guidance law. *International Journal of Systems Science*, **41**(11): 1353-1362.
22. **Shneydor, N. A.** (2011). *Missile Guidance and Pursuit: Kinematics, Dynamics and Control*, Woodhead Publishing, Sawston, Cambridge, UK.
23. **Pham, T. D., Tran, Q.,** and **Vu, D. V.** (2012). Fuzzy guidance law for surface-to-air missile in the command control systems. *Proceedings of the 2012 IEEE International Conference on Control, Automation and Information Sciences (ICCAIS),* pp. 317-322.
24. **Balakrishnan, S. N., Tsourdos, A**., and **White, B. A.** (Editors) (2012). *Advances in Missile Guidance, Control, and Estimation* (Vol. 47). CRC Press, New York, NY, USA.
25. **Li, C., Sun, Y., Lv, T., Ma, G.,** and **Xiao, J.** (2014). A fuzzy guidance law design with terminal-angle constraint. *Proceedings of the 33rd IEEE Chinese Control Conference (CCC)*, pp. 749-753.
26. **Cho, H., Ryoo, C. K., Tsourdos, A.,** and **White, B.** (2014). Optimal impact angle control guidance law based on linearization about collision triangle. *Journal of Guidance, Control, and Dynamics*, **37**(3): 958-964.
27. **Grinfeld, N.,** and **Ben-Asher, J. Z.** (2015). Minimal-jerk missile guidance law. *Journal of Guidance, Control, and Dynamics*, **38**: 1-6.
28. **Zarchan, P.** (1999). Ballistic missile defense guidance and control issues. *Science & Global Security*, **8**(1): 99-124.
29. **Zarchan, P.** (2000). Tracking and intercepting spiraling ballistic missiles. *Proceedings of the IEEE Position Location and Navigation Symposium*, pp. 277-284.
30. **Zarchan, P.** (2011). Kill vehicle guidance and control sizing for boost-phase intercept. *Journal of Guidance, Control, and Dynamics*, **34**(2): 513-521.
31. **Zarchan, P.** (2012). *Tactical and Strategic Missile Guidance*. Sixth Edition. Vol. **239**: Progress in Astronautics and Aeronautics, American Institute of Aeronautics and Astronautics, Reston, VA, USA.
32. **Chung, T., Hollinger, G.,** and **Isler, V.** (2011). Search and pursuit-evasion in mobile robotics: A survey, *Autonomous Robots*, **31**(4): 299–316.
33. **Weiss, M., Shima, T., Castaneda, D.,** and **Rusnak, I.** (2017). Combined and cooperative minimum-effort guidance algorithms in an active aircraft defense scenario, *Journal of Guidance, Control, and Dynamics*, **40**(5): 1241-1254.
34. **Garcia, E., Casbeer, D.,** and **Pachter, M.** (2017). Optimal guidance for active aircraft defense against homing missiles. In *AIAA Guidance, Navigation, and Control Conference* (AIAA, 2017-1017): 1-8.
35. **Flood, M. M.** (1972). The hide and seek game of Von Neumann, *Management Science*, **18**(5-part-2): 107-109.
36. **Turetsky, V.,** and **Shinar, J.** (2003). Missile guidance laws based on pursuit–evasion game formulations. *Automatica*, **39**(4): 607-618.
37. **Gutman, S**., and **Goldan, O.** (2010). 3D differential game guidance, *Applied Mathematics and Computation*, **217**(3): 1077-1084.
38. **Ahmad, R. R., Yaacob, N.,** and **Mohd Murid**, A. H. (2004). Explicit methods in solving stiff ordinary differential equations. *International Journal of Computer Mathematics*, **81**(11): 1407-1415.
39. **Anderson, G. M.** (1978). A model for the bat versus moth pursuit‐evasion problem. *The Journal of the Acoustical Society of America*, **64**(S1), S88.
40. **Ang, K. C.** (2008). Introducing the boundary element method with MATLAB. *International Journal of Mathematical Education in Science and Technology*, **39**(4): 505-519.
41. **Aurenhammer, F.** (1991). Voronoi diagrams—a survey of a fundamental geometric data structure. *ACM Computing Surveys (CSUR),* **23**(3): 345-405.
42. **Austin, F., Carbone, G., Hinz, H., Lewis, M.**, and **Falco, M.** (1990). Game theory for automated maneuvering during air-to-air combat. *Journal of Guidance, Control, and Dynamics*, **13**(6): 1143-1149.
43. **Ayoub, A. B**. (2003). Proving the circle of Apollonius theorem. *The Mathematics Teacher*, **96**(6): 400-401.
44. **Ayoub, A. B**. (2006). On the Circle of Apollonius. *Mathematics and Computer Education*, **40**(3): 198-204.
45. **Bakolas, E.,** and **Tsiotras, P.** (2010). Optimal pursuit of moving targets using dynamic Voronoi diagrams. *Proceedings of the 49th IEEE Conference on Decision and Control (CDC*), 2010, pp. 7431-7436.
46. **Bakolas, E.,** and **Tsiotras, P.** (2010). The Zermelo–Voronoi diagram: a dynamic partition problem. *Automatica*, **46**(12): 2059-2067.
47. **Bakolas, E.,** and **Tsiotras, P.** (2011). Optimal pursuer and moving target assignment using dynamic Voronoi diagrams. *Proceedings of the IEEE American Control Conference (ACC),* pp. 5444-5449.
48. **Battistini, S**., and **Shima, T.** (2014). Differential games missile guidance with bearings-only measurements. *IEEE Transactions on Aerospace and Electronic Systems*, **50**(4): 2906-2915.
49. **Bergman, L. M.,** and **Fokin, I. N.** (1998). On separable non-cooperative zero-sum games. *Optimization*, **44**(1): 69-84.
50. **Berman, A., Zarchan, P.,** and **Lewis, B.** (2014). Comparisons Between the Extended Kalman Filter and the State-Dependent Riccati Estimator. *Journal of Guidance, Control, and Dynamics*, **37**(5): 1556-1567.
51. **Bhattacharya, S., Başar, T.,** and **Falcone, M.** (2014). Surveillance for Security as a Pursuit-Evasion Game. In *Decision and Game Theory for Security* (pp. 370-379). Springer International Publishing, New York, NY, USA.
52. **Blackrnan, S.,** and **House, A.** (1999). *Design and Analysis of Modern Tracking Systems*. Artech House, Boston, MA, USA.
53. **Boyell, R. L.** (1976). Defending a moving target against missile or torpedo attack., *IEEE Transactions on Aerospace and Electronic Systems*, **AES-12**(4): 522-526.
54. **Boyell, R. L.** (1980). Counterweapon Aiming for defense of a moving target. Aerospace and Electronic Systems, *IEEE Transactions on Aerospace and Electronic Systems*, **AES-12**(3): 402-408.
55. **Borie, R., Tovey, C.,** and **Koenig, S.** (2011). Algorithms and complexity results for graph-based pursuit evasion. *Autonomous Robots*, **31**(4): 317-332
56. **Brandenburger, A. M**., and **Nalebuff, B. J.** (1995). The right game: Use game theory to shape strategy. *Harvard business review*, **73**(4): 57-71.
57. **Brookner, E.** (1998). Tracking and Kalman Filtering Made Easy. Wiley, New York, NY, USA.
58. **Bucco, D., Zarchan, P.,** and **Weiss, M.** (2012). On some issues concerning the adjoint simulation of guidance systems. *Proceedings of the AIAA Guidance, Navigation, and Control Conference* (p. 4684).
59. **Buttazzo, G.,** and **Frediani, A.** (Editors) (2009). *Variational Analysis and Aerospace Engineering*, Vol. **33** in Springer Optimization and Its Applications. Springer Science & Business Media, Dordrecht-Heidelberg, Germany.
60. **Cardaliaguet, P.,** and **Cressman, R.** (Editors). (2012). *Advances in Dynamic Games: Theory, Applications, and Numerical Methods for Differential and Stochastic Games* (Vol. 12). Springer Science & Business Media, New York, NY, USA.
61. **Cheung, W,** and **Evans, W.** (2007). Pursuit/Evasion Voronoi Diagrams, *Proceedings of the 4th International Symposium on Voronoi Diagrams in Science and Engineering (ISVD 2007),* pp. 58 - 65
62. **Chiou, Y. C.,** and **Kuo, C. Y.** (1998). Geometric approach to three-dimensional missile guidance problem. *Journal of Guidance, Control, and Dynamics*, **21**(2): 335-341.
63. **Cho, D., Kim, H. J.**, and **Tahk, M. J.** (2015). Non-singular sliding mode guidance for impact time control. *Journal of Guidance, Control, and Dynamics*, **38**:1-8.
64. **Cliff, D.,** and **Miller, G. F.** (1995). *Co-evolution of Pursuit and Evasion, II: Simulation Methods and Results.* University of Sussex, School of Cognitive and Computing Sciences.
65. **Cloutier, J. R., Evers, J. H.**, and **Feeley, J. J.** (1989). Assessment of air-to-air missile guidance and control technology. *IEEE Control Systems Magazine*, **9**(6): 27-34.
66. **Cooperman, R. L.** (2002). Tactical ballistic missile tracking using the interacting multiple model algorithm. *Proceedings of the Fifth IEEE International Conference on Information Fusion*, **2**: 824-831.
67. **Cottrell, R. G.** (1971). Optimal intercept guidance for short-range tactical missiles. *AIAA Journal*, **9**(7): 1414-1415.
68. **Creaser, P. A., Stacey, B. A**., and **White, B. A**. (1998). Evolutionary generation of fuzzy guidance laws, *UKACC International Conference on Control '98*, pp. 883-888.
69. **Davies, A.** (1999). The solution of differential equations using numerical Laplace transforms. *International Journal of Mathematical Education in Science and Technology*, **30**(1): 65-79.
70. **Desouky, S. F.,** and **Schwartz, H. M**. (2009). Hybrid intelligent systems applied to the pursuit-evasion game. *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics, SMC* 2009, pp. 2603-2608.
71. **Dimirovski, G. M., Deskovski, S. M**., and **Gacovski, Z. M**. (2004). Classical and fuzzy-system guidance laws in homing missiles systems. *Proceedings of the 2004 IEEE Aerospace Conference*, 5: 3032-3047.
72. **Farrell, W. J.** (2008). Interacting multiple model filter for tactical ballistic missile tracking. *IEEE Transactions on Aerospace and Electronic Systems*, **44**(2): 418-426.
73. **Ficici, S. G.,** and **Pollack, J. B.** (1999). Statistical reasoning strategies in the pursuit and evasion domain. In *Advances in Artificial Life* (pp. 79-88). Berlin-Heidelberg, Springer, Germany.
74. **Fuchs, Z. E.,** **Khargonekar, P. P.,** and **Evers, J.** (2010). Cooperative defense within a single-pursuer, two-evader pursuit evasion differential game. Proceedings of the 49th IEEE Conference Decision and Control (CDC), pp. 3091-3097.
75. **Fuch, Z. E**., and **Khargonekar, P. P.** (2011). Encouraging attacker retreat through defender cooperation. *Proceedings of the 50th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC)*, pp. 235-242.
76. **Fuchs, Z. E.,** and **Khargonekar, P. P.** (2014). An engage or retreat differential game with an escort region. *Proceedings of the 53rd IEEE Conference on Decision and Control and European Control Conference (CDC-ECC)*, pp. 4290-4297.
77. **Fulton, N. L.,** and **Huynh, U. H. N.** (2015). Conflict Management: Apollonius in airspace design. *Safety science*, **72**: 9-22.
78. **Garcia, E., Casbeer, D. W., Pham, K.,** and **Pachter, M.** (2014). Cooperative aircraft defense from an attacking missile. *Proceedings of the IEEE 53rd Annual Conference on Decision and Control (CDC),* pp. 2926-2931.
79. **Garcia, E., Casbeer, D. W., Pham, K.,** and **Pachter, M.** (2015). Cooperative aircraft defense from an attacking missile using proportional navigation. *Proceedings of the 2015 AIAA Guidance, Navigation, and Control Conference*, pp. 0315-0337.
80. **Garcia, E., Casbeer, D. W**., and **Pachter, M.** (2015). Active target defense differential game with a fast defender. arXiv preprint arXiv:1502.02747.
81. **Garcia, E., Casbeer, D. W.,** and **Pachter, M**. (2015). Escape regions of the active target defense differential game. arXiv preprint arXiv:1504.07900.
82. **Garcia, E., Casbeer, D. W.,** and **Pachter, M.** (2015). Cooperative strategies for optimal aircraft defense from an attacking missile. Journal of Guidance, Control, and Dynamics, 1-11.
83. **Gavrilova, M. L.** (Editor) (2008). *Generalized Voronoi Diagram: A Geometry-Based Approach to Computational Intelligence*, Studies in Computational Intelligence (Vol. **158**). Springer-Verlag, Berlin-Heidelberg, Germany.
84. **Gowda, I. G., Kirkpatrick, D., Lee, D.** and **Naamad, A.** (1983). Dynamic Voronoi diagrams. *IEEE Transactions on Information Theory*, **29**(5): 724-731.
85. **Hafemeister, D.** (2013). *Physics of Societal Issues: Calculations on National Security, Environment, and Energy*. Springer Science & Business Media, New York, NY, USA.
86. **Harl, N.,** and **Balakrishnan, S. N.** (2012). Impact time and angle guidance with sliding mode control. *IEEE Transactions on Control Systems Technology*, **20**(6), 1436-1449.
87. **Harlin, W. J.,** and **Cicci, D. A.** (2007). Ballistic missile trajectory prediction using a state transition matrix. *Applied mathematics and computation*, **188**(2): 1832-1847.
88. **Hartl, R. F., Sethi, S. P.,** and **Vickson, R. G.** (1995). A survey of the maximum principles for optimal control problems with state constraints. *SIAM Review*, **37**(2): 181-218.
89. **Hargrave, P. J.** (1989). A tutorial introduction to Kalman filtering. *Proceedings of the IEE Colloquium on Kalman Filters: Introduction, Applications and Future Developments*, pp. 1/1 - 1/6.
90. **Hládek, D., Vaščák, J.,** and **Sinčák, P.** (2008). Hierarchical fuzzy inference system for robotic pursuit evasion task. *Proceedings of the 6th IEEE International Symposium Applied Machine Intelligence and Informatics, SAMI 2008*. pp. 273-277.
91. **Higham, D. J.** (2001). An algorithmic introduction to numerical simulation of stochastic differential equations. *SIAM Review*, **43**(3): 525-546.
92. **Ho, Y.C., Bryson, A.E.** and **Baron, S**. (1965) Differential games and optimal pursuit-evasion games, *IEEE Transactions on* *Automatic Control*, **10**(4): 385-389.
93. **Hoshen, J.** (1999). On the Apollonius solutions to the GPS equations. *Proceedings of IEEE Africon*, Vol. **1**: 99-102.
94. **Hsueh, M. H., Huang, C. I.,** and **Fu, L. C.** (2007). A differential game based guidance law for the interceptor missiles. *Proceedings of the 33rd Annual Conference of the IEEE Industrial Electronics Society, IECON 2007*, pp. 665-670.
95. **Humpherys, J., Redd, P.,** and **West, J.** (2012). A fresh look at the Kalman filter. *SIAM Review*, **54**(4): 801-823.
96. **Imado, F**. (1993). Some aspects of a realistic three-dimensional pursuit-evasion game. *Journal of Guidance, Control, and Dynamics*, **16**(2): 289-293.
97. **Imado, F**. (2004). A study on a missile guidance system against a randomly maneuvering air-to-surface missile. *Proceedings of the 2004 IEEE International Conference on Control Applications*, **1**: 430-435.
98. **Isaacs, R.** (1965), *Differential Games*. Wiley, New York, NY, USA.
99. **Jin, Y., Wang, S.,** and **Gu, W.** (2006). Three-Dimensional Guidance Law Design for Missile Based on Robust Adaptive Control. *Proceedings of the Sixth World Congress on Intelligent Control and Automation, 2006. WCICA 2006*. **2**: 6383-6387 (In Chinese).
100. **Jorgensen, S., Quincampoix, M**., and **Vincent, T. L.** (Editors). (2007). *Advances in Dynamic Game Theory: Numerical Methods, Algorithms, and Applications to Ecology and Economics* (Vol. **9**). Birkhäuser Boston, Springer Science & Business Media, New York, NY, USA.
101. **Jun, Y., Hai-tao, F.,** and **Peng, S.** (2014). Study of One Kind of Extended Proportional Guidance Law. *International Journal of Hybrid Information Technology*, **7**(6): 271-282.
102. **Josef, S.** (2001). On the feasibility of" hit-to-kill" in the interception of maneuvering targets. Proceedings of the 2001 American Control Conference, **5**: 3358-3363.
103. **Kane, S. A**., and **Zamani, M.** (2014). Falcons pursue prey using visual motion cues: new perspectives from animal-borne cameras. *The Journal of Experimental Biology*, **217**(2): 225-234.
104. **Kim, H.** (2001). *Multiagent Pursuit-Evasion Games: Algorithms and Experiments*. PhD Thesis, University of California, Berkeley, CA, USA.
105. **Kushnir, D.,** and **Rokhlin, V**. (2012). A highly accurate solver for stiff ordinary differential equations. *SIAM Journal on Scientific Computing*, **34**(3): A1296-A1315.
106. **Lambakis, S.** (2008). Missile defense in 2027. *Comparative Strategy*, **27**(1): 57-64.
107. **Le Ménec, S.** (2007). Min-Max Guidance Law Integration. In *Advances in Dynamic Game Theory* (pp. 679-694). Birkhäuser Boston, Springer Science & Business Media, New York, NY, USA.
108. **Le Ménec, S., Shin, H. S., Markham, K., Tsourdos, A.,** and **Piet-Lahanier, H.** (2014). Cooperative allocation and guidance for air defence application. *Control Engineering Practice*, **32**: 236-244.
109. **Lewis, C. M.** (2014). Trajectory Shaping Study for Various Ballistic Missile Scenarios. *McNair Scholars Research Journal*, 1(1): 1-18.
110. **Loper, M. L.,** and **Register, A**. (2015). Introduction to Modelling and Simulation. In *Modelling and Simulation in the Systems Engineering Life Cycle* (pp. 3-16). Springer, London, UK.
111. **Majdandzic, I., Trefftz, C.,** and **Wolffe, G.** (2008). Computation of Voronoi diagrams using a graphics processing unit. *Proceedings of the IEEE International Conference on Electro/Information Technology,* *EIT 2008.* pp. 437-441.
112. **Meier, L., III** (1969) A new technique for solving pursuit-evasion differential games, *IEEE Transactions on* *Automatic Control*, **14**(4): 352-359.
113. **Miller, G. F**., and **Cliff, D**. (1994). *Co-evolution of Pursuit and Evasion, I: Biological and Game-Theoretic Foundations*. University of Sussex, School of Cognitive and Computing Sciences.
114. **Minvielle, P.** (2005). Decades of improvements in re-entry ballistic vehicle tracking., *IEEE Aerospace and Electronic Systems Magazine*, **20**(8), CF/1 - CF14.
115. **Moler, C.,** and **Van Loan, C.** (1978). Nineteen dubious ways to compute the exponential of a matrix. *SIAM Review*, **20**(4): 801-836.
116. **Nesline, F. W.,** and **Zarchan, P.** (1984). Why modern controllers can go unstable in practice. *Journal of Guidance, Control, and Dynamics*, **7**(4): 495-500.
117. **Ohlmeyer, E. J.,** and **Menon, P. K.** (2013). Applications of the Particle Filter for multi-object tracking and classification. *Proceedings of the 2013 IEEE American Control Conference (ACC)*, pp. 6181-6186.
118. **Pachter, M., Garcia, E**., and **Casbeer, D. W**. (2014). Active target defense differential game. *Proceedings of the 2014 IEEE 52nd Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, pp. 46-53.
119. **Palumbo, N. F.,** and **Jackson, T. D.** (1999). Integrated missile guidance and control: A state dependent Riccati differential equation approach. *Proceedings of the 1999 IEEE International Conference on Control Applications,* **1**: 243-248.
120. **Parsons, T. D.** (1978). Pursuit-Evasion in a Graph. In *Theory and Applications of Graphs* (pp. 426-441). Springer, Berlin-Heidelberg, Germany.
121. **Partensky, M. B.** (2008). The circle of Apollonius and its applications in introductory physics. *The Physics Teacher*, **46**(2): 104-108.
122. **Pesch, H. J.** (1994). Solving optimal control and pursuit-evasion game problems of high complexity, In **Bulirsch, R**., and **Kraft, D**. (Editors) *Computational Optimal Control* (pp. 43-61). Birkhäuser Verlag, Basel, Switzerland
123. **Pekalski, A.** (2004). A short guide to predator-prey lattice models. *Computing in Science and Engineering*, **6**(1): 62-66.
124. **Pryluk, R., Shima, T**., and **Golan, O. M**. (2014). Shoot–Shoot–Look for an Air Defense System. *IEEE Systems Journal*, Early access: 1-11.
125. **Robin, C**., and **Lacroix, S**. (2013). Failure anticipation in pursuit-evasion. *Robotics Science and Systems*, 8 p., <https://hal.archives-ouvertes.fr/hal-00988333>.
126. **Shampine, L. F**., and **Reichelt, M. W**. (1997). The matlab ode suite. *SIAM Journal on Scientific Computing*, **18**(1): 1-2.
127. **Shima, T.,** and **Shinar, J.** (2002). Time-varying linear pursuit-evasion game models with bounded controls. *Journal of Guidance, Control, and Dynamics*, **25**(3): 425-432.
128. **Shinar, J**., and **Forte, I.** (1991). On the optimal pure strategy sets for a mixed missile guidance law synthesis.  *IEEE Transactions on* *Automatic Control*, ***36***(11): 1296-1300.
129. **Shinar, J.,** and **Shima, T.** (1996). A game theoretical interceptor guidance law for ballistic missile defence. *Proceedings of the 35th IEEE Conference on Decision and Control*, Vol. **3**, pp. 2780-2785.
130. **Shinar, J., Oshman, Y.,** and **Turetsky, V.** (2003). On the need for integrated estimation/guidance design for hit-to-kill accuracy. *Proceedings of the IEEE 2003 American Control Conference*, **1**: 402-407.
131. **Shneydor, N. A.** (1977). Comments on" Defending a moving target against missile or torpedo attack". *IEEE Transactions on Aerospace and Electronic Systems*, **AES-13**(3): 321.
132. **Skvortsov, L. M.** (2007). Explicit multistep method for the numerical solution of stiff differential equations. *Computational Mathematics and Mathematical Physics*, **47**(6): 915-923.
133. **Sun, S., Zhang, Q.,** and **Chen, Y.** (2013). Numerical solution for a class of pursuit-evasion problem in low earth orbit. *Proceedings of the IEEE 9th Asian Control Conference (ASCC)*, pp. 1-6.
134. **Sun, X.,** and **Xia, Y.** (2012). Optimal guidance law for cooperative attack of multiple missiles based on optimal control theory. *International Journal of Control*, **85**(8): 1063-1070.
135. **Tsao, L. P., Chou, C. L., Chen, C. M.,** and **Chen, C. T.** (1998). Aiming point guidance law for air-to-air missiles. *International Journal of Systems Science*, **29**(2): 95-102.
136. **Turetsky, V., Glizer, V. Y.,** and **Shinar, J.** (2014). Robust trajectory tracking: differential game/cheap control approach. *International Journal of Systems Science*, **45**(11): 2260-2274.
137. **Tyutyunov**, **Y., Titova, L.,** and **Arditi, R**. (2007). A minimal model of pursuit-evasion in a predator-prey system. *Mathematical Modelling of Natural Phenomena*, **2**(04): 122-134.
138. **Velić, M., May, D.,** and **Moresi, L.** (2009). A fast robust algorithm for computing discrete Voronoi diagrams. *Journal of Mathematical Modelling and Algorithms*, **8**(3): 343-355.
139. **Vidal, R., Shakernia, O., Kim, H. J., Shim, D. H**., and **Sastry, S.** (2002). Probabilistic pursuit-evasion games: theory, implementation, and experimental evaluation. *IEEE Transactions on Robotics and Automation*, **18**(5): 662-669.
140. **Walter, L**., **Schloffel, G**., **Theodoulis, S**., **Wernert, P**., **Kostina, E.,** and **Holzapfel, F.** (2014). Optimal control and numerical optimization for missile interception guidance. *Proceedings of the IEEE European Control Conference (ECC*): 1249-1255.
141. **Weiss, M.,** and **Shima, T.** (2014). Minimum variation guidance laws for interceptor missiles. *World Congress*, **19**(1): 3948-3953.
142. **Weiss, M.,** and **Shima, T.** (2014). Optimal linear-quadratic missile guidance laws with penalty on command variability. *Journal of Guidance, Control, and Dynamics*, **38**(2): 226-237.
143. **Yang, C. D., Yeh, F. B.,** and **Chen, J. H.** (1987). The closed-form solution of generalized proportional navigation. *Journal of Guidance, Control, and Dynamics*, **10**(2): 216-218.
144. **Yang, C. D.**, and **Yang, C. C.** (1996). Analytical solution of three-dimensional realistic true proportional navigation. *Journal of guidance, control, and dynamics*, **19**(3): 569-577.
145. **Yanfang, L., Naiming, Q.,** and **Zhiwei, T**. (2012). Linear quadratic differential game strategies with two-pursuit versus single-evader. *Chinese Journal of Aeronautics*, **25**(6): 896-905.
146. **Yanushevsky, R.,** and **Boord, W.** (2005). Lyapunov approach to guidance laws design. *Nonlinear Analysis: Theory, Methods & Applications*, **63**(5): e743-e749.
147. **Yavin, Y.,** and **Pachter, M.** (2014). *Pursuit-Evasion Differential Games*, In International Series in Modern Applied Mathematics and Computer Science, Elsevier, Amsterdam, The Netherlands.
148. **Yi, L., Yan, Y., Tian, G**., and **Zhanrong, J.** (2010). An improved terminal guidance algorithm based on differential game theory. *Proceedings of the IEEE International Conference on Intelligent System Design and Engineering Application (ISDEA),* 2010 **1**: 250-254.