

Publications of THOMAS L. VINCENT

BOOKS

- S. Jorgensen, M. Quincampoix, and T. L. Vincent, eds., *Advances in Dynamic Game Theory, Numerical Methods, Algorithms, and Applications to Ecology and Economics*, Annals of the International Society of Dynamics Games, Volume 9, Birkhauser, Boston 2007.
- Vincent, T. L. and J. S. Brown, *Evolutionary Game Theory, Natural Selection & Darwinian Dynamics*, Cambridge University Press, Cambridge England, 2005
- Grantham, W.J. and Vincent, T.L., *Sistemas De Control Moderno*, Limusa, Mexico, 1998.
- Judd, K., Mees, A., Teo, K.L., and Vincent, T.L., *Control and Chaos*, Birkhäuser Boston, New York, 1997
- Vincent, T.L. and Grantham, W.J., *Nonlinear and Optimal Control Systems*, Wiley-Interscience, New York, 1997
- Grantham, W. J. and Vincent, T. L., *Modern Control Systems Analysis and Design*, Wiley, New York, 1993.
- Vincent T. L., Mees, A. I., and Jennings, L. S., *Dynamics of Complex Interconnected Biological Systems*, Birkhäuser Boston, New York, 1990.
- Vincent T. L., Cohen, Y., Grantham, W.J., Kirkwood, G.P., and Skowronski, J.M., Editors, *Modeling and Management of Resources under Uncertainty*, Lecture Notes in Biomathematics, No. 72, Springer-Verlag, Heidelberg, 1987.
- Vincent T. L. and Grantham, W. J., *Optimality in Parametric Systems*, Wiley-Interscience, New York, 1981.
- Vincent, T. L. and Skowronski, J. M., Editors, *Renewable Resource Management Lecture Notes in Biomathematics*, No. 40, Springer-Verlag, Heidelberg, 1981.

PROFESSIONAL JOURNAL ARTICLES

- T. L. S. Vincent and T. L. Vincent, “Predicting relative abundance using evolutionary game theory”, *Evolutionary Ecology Research*, **11**: 265–294, 2009.
- R.C. Rael, R.F. Costantino, J.M. Cushing, and T.L. Vincent, “Using stage-structured evolutionary game theory to model the experimentally observed evolution of a genetic polymorphism”, *Evolutionary Ecology Research*, **11**: 141–151, 2009.
- Brown, J. S. and Vincent, T. L., “Evolution of cooperation with shared costs and benefits,” *Proceedings of the Royal Society B*, **275**:1985–1994, 2008.
- T. L. Vincent and R. A. Gatenby, An evolutionary model for initiation, promotion, and progression in carcinogenesis, *International Journal of Oncology*, **32**:729-737, 2008
- T. L. Vincent and R. A. Gatenby, Somatic evolution of cancer, *International Game Theory Review*, **10**, No. 1, 101-118, 2008.
- J. S. Brown and Y. Cohen and T. L. Vincent, Adaptive dynamics with vector-valued strategies, *Evolutionary Ecology Research*, **9**:719:756, 2007.
- T. L. Vincent, Carcinogenesis as an evolutionary game, *Advances in complex systems*, **4**, No. 9, 369-382, 2006.
- A. Kini and T. L. Vincent and B. Paden, The bouncing ball apparatus as an experimental tool, *Journal of Dynamical Systems, Measurement, and Control*, **128**, No. 2, 330-340, 2006

- Brown, J. S. and Vincent, T. L., *G*-functions for the hermeneutic circle of evolution, *Computers and Operations Research*, 33, 479-499, 2006.
- R. A. Gatenby and T. L. Vincent and R. J. Gilles, "Evolutionary Dynamics in Carcinogenesis," *Mathematical Models and Methods in Applied Sciences*, 15 (11) 1619-1638, 2005.
- T. L. Vincent and R. A. Gatenby, "Modeling Cancer and an Evolutionary Game," *International Game theory Review*, Vol. 7 No. 3 pp. 331-346, 2005
- T. L. Vincent, R. G. Cottrell, and R. W. Morgan, "Minimizing maneuver advantage requirements for a hit-to-kill interceptor," *Journal of Aerospace Engineering*, 219: 113-129, 2005.
- T. L. Vincent, The *G*-function method for analyzing Darwinian dynamics, *International Game Theory Review*, 6:69-90, 2004
- Gatenby, R.A., Vincent, T.L., "Application of quantitative models from population biology and evolutionary game theory to tumor therapeutic strategies," *Molecular Cancer Therapeutics*, 2:919-927, 2003.
- Gatenby, R.A., Vincent, T.L., "An Evolutionary Model of Carcinogenesis," *Cancer Research*, 63:6212-6220, 2003.
- Vincent, T. L. and Grantham, W. J., Trajectory Following Methods in Control System Design," *Journal of Global Optimization*, 23, 267-282, 2002.
- Vincent, T. L. and Brown, J.S., "Evolutionarily Stable Strategies in Multistage Biological Systems", *Selection*, 2, 85-102, 2001.
- Vincent, T. L., "Chaotic Control Systems," *Nonlinear Dynamics and Systems Theory*," 1(2) 205-218, 2001.
- Cohen, Y., Vincent, T.L., and Brown, J.S., "Does the *G*-function deserve an F?," *Evolutionary Ecology Research*, 3, 375-377, 2001.
- Vincent, T.L. and Cressman, R., "An ESS Maximum Principle for Matrix Games," *Theoretical Population Biology*, 58, 173-186, 2000.
- Cohen, Y., Pastor, J. and Vincent, T. L., "Evolutionary Strategies and Nutrient Cycling in Ecosystems," *Evolutionary Ecology Research*, Vol. 2, pp 719-743, 2000.
- Vincent, T. L., and Vincent, T. L. S., "Evolution and Control System Design," *IEEE Control System Magazine*, Vol. 20, No. 5, 20-35, 2000.
- Vincent, T.L. and Mees, A.I., "Controlling a Bouncing Ball," *Journal of Bifurcation and Chaos*, Vol. 10, No. 3, pp. 579-592, 2000.
- Cohen, Y., Vincent, T.L., and Brown, J.S., "A *G*-function Approach to Fitness Minima, Fitness Maxima, Evolutionary Stable Strategies, and Adaptive Landscapes," *Evolutionary Ecology Research*, 1, 923-942, 1999.
- Vincent, T.L., "Control Using Chaos," *IEEE Control Systems*, Vol. 17, No. 6, pp. 65-76, 1997.
- Vincent, T.L.S., Scheel, D, Brown, J.S., Vincent, T.L., "Trade-Offs and Coexistence in Consumer-Resource Models: It all Depends on What and Where You Eat," *The American Naturalist*, Vol. 148, No. 6, pp. 1038-1058, 1996.
- Vincent, T.L., "Modeling and Managing the Evolutionary Component of Biological Systems," *Ecological Modelling*, Vol. 92, pp. 145-153, 1996
- Vincent, T.L., Van, M.V., and Goh, B.S., "Ecological Stability, Evolutionary Stability, and the ESS Maximum Principle," *Evolutionary Ecology*, Vol. 10, pp. 567-591, 1996
- Vincent, T.L.S., and Vincent, T.L., "Using the ESS Maximum Principle to Explore Root-Shoot Allocation, Competition and Coexistence," *Journal of Theoretical Biology*, Vol. 180, pp. 111-120, 1996..

- Cottrell, R.G., Vincent, T.L., and Sadati, S.H., "Minimizing Interceptor Size Using Neural Networks for Terminal Guidance Law Synthesis," *Journal of Guidance, Control, and Dynamics*, Vol. 19, No. 3, pp. 557-562, May-June, 1996.
- Fisher, M.E., Vincent, T.L., and Summers, D., "Under-Estimates of Reachable Sets for Linear Control Systems," *Dynamics and Control*, Vol. 5, No. 3, pp.241-251, 1995
- Vincent, T.L., and Lin, Y.C., "Some Performance Measures Useful in the Design of Controllers for Two Dimensional Dynamical Systems Subject to Uncertain Inputs," *Dynamics and Control*, Vol. 5, No. 1, pp. 69-98, January 1995.
- Vincent, T.L., Cohen, Y. and Brown, J.S., "Evolution Via Strategy Dynamics," *Theoretical Population Biology*, Vol. 44, No. 2, pp. 149-176, October 1993.
- Brown, J.S. and Vincent, T.L., "Organization of Predator-prey Communities as an Evolutionary Game," *Evolution*, Vol. 46, pp. 1269-1283, 1992
- Vincent, T.L., Goh, B.S., and Teo, K.L., "Trajectory-Following Algorithms for Min-Max Optimization Problems," *Journal of Optimization Theory and Applications*, Vol. 75, No. 3, pp. 501-519, December 1992.
- Vincent T.L., and Yu, J., "Control of a Chaotic System", *Dynamics and Control*, Vol. 1, No. 1, pp. 35-52, March 1991.
- Vincent, T.L., Lin, Y.C., and Joshi, S.P., "Positioning and Active Damping of Flexible Beams", *Journal of Guidance, Control, and Dynamics* Vol. 13, No. 4, pp. 714-724, 1990.
- Joshi, S.P., Vincent, T.L., and Lin, Y.C., "Control for Energy Dissipation in Structures," *Journal of Guidance, Control, and Dynamics*, Vol. 13, No. 4, pp. 751-753, July/August 1990.
- Vincent, T.L. and Wu, Z.Y., "Estimating Projections of the Controllable Set", *Journal of Guidance, Control, and Dynamics*, Vol. 13, No. 3, pp. 572-575, May/June 1990.
- Fisher, M.E. and Vincent, T.L., "Single Input-Output Systems with a Small Parameter," *International Journal of System Science*, Vol. 20, No. 9, pp. 1659-1677, 1989.
- Vincent, T.L., Joshi, S.P., and Lin, Y.C., "Positioning and Active Damping of Spring-Mass Systems", *Journal of Dynamical Systems, Measurement, and Control*, Vol. 111, No. 4, pp. 592-599, December 1989.
- Vincent T.L., "Estimating Projections of the Playable Set", *Journal of Guidance, Control, and Dynamics*, Vol. 12, No. 2, pp. 182-187, Mar/April 1989.
- Vincent, T.L. and Brown, J.S., "The Evolutionary Response of Systems to a Changing Environment", *Applied Mathematics and Computation* Vol. 32, pp. 185-206, 1989.
- Vincent, T.L. and Fisher, M.E., "Evolutionarily Stable Strategies in Differential and Difference Equations", *Evolutionary Ecology* Vol. 2, pp. 321-337, 1988.
- Gayek, J.E. and Vincent, T.L., "An Existence Theorem For Boundary Trajectories," *Journal of Mathematical Analysis and Applications*, Vol. 132, No. 1, pp. 290-299, May 1988.
- Vincent, T. L., "Modelling and Management in the Presence of Uncertain Inputs," *Canadian Journal of Fisheries and Aquatic Sciences*, Vol. 44, Supplement II, pp. 267-274, 1987.
- Cohen, Y., Stone, J. N., and Vincent, T. L., "Vulnerability, Stability, and Coherence of the Fish Community in Lake Superior," *Canadian Journal of Fisheries and Aquatic Sciences*, Vol. 44, Supplement II, pp. 404-410, 1987.
- Brown, J. S. and Vincent, T. L., "Coevolution as an Evolutionary Game," *Evolution*, Vol. 41, No. 1, pp. 66-79, 1987.
- Vincent, T. L. and Brown, J. S., "Evolution Under Nonequilibrium Dynamics," *Mathematical Modelling*, Vol. 8, pp. 766-771, 1987.

- Brown, J. S. and Vincent, T. L., "A Theory for the Evolutionary Game," *Theoretical Population Biology*, Vol. 31, No. 1, pp. 140-166, February 1987.
- Rosenzweig, M. L., Brown, J. S., and Vincent, T. L., "Red Queens and ESS: The Coevolution of Evolutionary Rates," *Evolutionary Ecology*, Vol. 1, No. 1, pp. 59-94, January 1987.
- Gayek, J. E. and Vincent, T. L., "On the Intersection of Controllable and Reachable Sets," *Journal of Optimization Theory and Applications*, Vol. 50, No. 2, pp. 267-278, August 1986.
- Vincent, T. L., Lee, C. S., and Goh, B. S., "Maintenance of an Equilibrium State in the Presence of Uncertain Inputs," *International Journal of System Science*, Vol. 16, No. 11, pp. 1335-1344, 1985.
- Vincent, T. L., "Evolutionary Games," *Journal of Optimization Theory and Applications*, Vol. 46, No. 4, pp. 605-612, August 1985.
- Gayek, J. E. and Vincent, T. L., "On the Asymptotic Stability of Boundary Trajectories," *International Journal of Control*, Vol. 41, No.4, pp.1077-1086, 1985.
- Vincent, T. L. and Brown, J. S., "Stability in an Evolutionary Game," *Theoretical Population Biology*, Vol. 26, No. 3, pp. 408-427, December 1984
- Ritter, S. E. and Vincent, T. L., "A Nonlinear Digital Controller for the Inverted Beam," *IASTED Journal Control and Computers*, Vol. 12, No. 1, pp.201-209, 1984.
- Vincent, T. L., "Game Theory as a Design Tool," *Journal of Mechanisms, Transmissions and Automation in Design*, Vol. 105, pp. 165-170, 1983.
- Vincent, T. L. and Lee, C. S., "Parametric Optimization with Dynamic Systems," *Applied Mathematics and Computation*, Vol. 12, pp. 169-185, 1983.
- Skowronski, J. M. and Vincent, T. L., "Playability with and without Capture," *Journal of Optimization Theory and Applications*, Vol. 36, No. 1, pp. 111-128, January 1982.
- Vincent, T. L. and Gayek, J. E., "A Game Theoretic Analysis for Renewable Resource Management," *Ecological Modeling*, Vol. 14, pp. 213-227, 1982.
- Vincent, T. L. and Pulliam, H. R., "Evolution of Life History Strategies for an Asexual Annual Plant Model," *Theoretical Population Biology*, Vol. 17, No. 2, pp.215-231, April 1980.
- Vincent, T. L., "Control Design for Magnetic Suspension," *Optimal Control Applications and Methods*, Vol. 1, pp. 41-53, Jan/Mar 1980.
- Vincent, T. L. and Skowronski, J. M., "Controllability with Capture," *Journal of Optimization Theory and Applications*, Vol. 29, No. 1, pp. 77-86, September 1979.
- Fisher, M. E., Goh, B. S., and Vincent, T. L., "Some Stability Conditions for Discrete-Time Single Species Models," *Bulletin of Mathematical Biology*, Vol. 41, pp. 861-875, 1979.
- Vincent, T. L. and Anderson, L. R., "Return Time and Vulnerability for a Food Chain Model," *Theoretical Population Biology*, Vol. 15, No.2, pp. 217-231, April 1979.
- Vincent, T. L., "Yield for Annual Plants as an Adaptive Response," *Rocky Mountain Journal of Mathematics*, Vol. 9, No. 1, pp. 163-173, Winter 1979.
- Lee, C. S. and Vincent, T. L., "A Sufficient Theorem for an Optimal Control of a General Periodic System," *Bulletin of Malaysian Mathematical Society*, Vol. 1, No. 2, pp. 81-89, 1978.
- Vincent, T. L., Lee, C. S., and Goh, B. S., "Control Targets for the Management of Biological Systems," *Ecological Modelling*, Vol. 3, pp. 285-300, 1977.
- Swan, G. W. and Vincent, T. L., "Optimal Control Analysis in the Chemotherapy of IgG Multiple Myeloma," *Bulletin of Mathematical Biology*, Vol. 39, pp. 317-337, 1977.
- Vincent, T. L., Sticht, D. J., and Peng, W. Y., "Aircraft Missile Avoidance," *Operations Research*, Vol. 24, No. 3, pp. 420-437, May-June 1976.

- Sticht, J. D., Vincent, T. L., and Schultz, D. G., "Sufficiency Theorems for Target Capture," *Journal of Optimization Theory and Applications*, Vol. 17, No. 5-6, pp. 523-543, December, 1975.
- Grantham, W. J. and Vincent, T. L., "A Controllability Minimum Principle," *Journal of Optimization Theory and Applications*, Vol. 17, No. 1-2, pp. 93-114, October 1975.
- Vincent, T. L., Lee, C. S., Pulliam, H. R., and Everett, L. G., "Applications of Optimal Control Theory to the Modeling and Management of Ecosystems," *Simulation*, Vol. 24, No. 3, pp. 65-72, March 1975.
- Vincent, T. L., "Pest Management Programs Via Optimal Control Theory," *Biometrics*, Vol. 31, No. 9, pp. 1-10, March 1975.
- Goh, B. S., Peng, W. Y., Vincent, T. L., and Riley, J. J., "Optimal Management of Greenhouse Crops," *Hortscience*, Vol. 10, No. 1, pp. 7-11, February 1975.
- Peng, W. Y., and Vincent, T. L. "Some Aspects of Aerial Combat," *AIAA Journal*, Vol. 13, No. 1, pp. 7-11, January 1975.
- Vincent, T. L., Cliff, E. M., Grantham, W. J. and Peng, W. Y., "Some Aspects of Collision Avoidance," *AIAA Journal*, Vol. 12, No. 1, pp. 3-4, January 1974.
- Vincent, T. L., Cliff, E. M., and Goh, B. S., "Optimal Direct Control Programs for a Prey-Predator System," *Journal of Dynamic Systems, Measurement, and Control*, Vol. 96, Series G, No. 1, pp. 71-76, May 1974.
- Goh, B. S., Leitmann, G., and Vincent, T. L., "Optimal Control of a Prey-Predator System," *Mathematical Biosciences*, Vol. 19 pp. 263-286, 1974.
- Cliff, E. M., and Vincent, T. L. "An Optimal Policy for a Fish Harvest," *Journal of Optimization Theory and Applications*, Vol. 12, No. 5, pp. 485-496, November 1973.
- Leitmann, G., Rocklin, S., and Vincent, T. L., "A Note on Control-Space Properties of Cooperative Games," *Journal of Optimization Theory and Applications*, Vol. 9, No. 6, pp. 379-390, June 1972.
- Vincent, T. L. and Goh, B. S., "Terminality, Normality and Transversality Conditions," *Journal of Optimization Theory and Applications*, Vol. 9, No. 1, pp. 32-50, January 1972.
- Brusch, R. G., and Vincent, T. L. "Low-Thrust, Minimum-Fuel, Orbital Transfers," *Astronautica Acta*, Vol. 16, pp. 65-74, February 1971
- Brusch, R. G., and Vincent, T. L. "Numerical Implementation of a Second Order Variational Endpoint Condition," *AIAA Journal*, Vol. 8, No. 12, pp. 2230-2235, December, 1970.
- Vincent, T. L. and Bruschi, R. G., "Optimal Endpoints," *Journal of Optimization Theory and Applications*, Vol. 6, No. 4, pp. 299-319, October 1970
- Vincent, T. L. and Leitmann, G., "Control Space Properties of Cooperative Games," *Journal of Optimization Theory and Applications*, Vol. 6, No. 2, pp. 91-113, August 1970.
- Basile, G. and Vincent, T. L., "Absolutely Cooperative Solution for a Linear Multiplayer Differential Game," *Journal of Optimization Theory and Applications*, Vol. 6, No. 1, pp. 41-46, July 1970.
- Vincent, T. L. and Cliff, E. M., "Maximum-Minimum Sufficiency and Lagrange Multipliers," *AIAA Journal*, Vol. 8, No. 1, pp. 171-173, January 1970.
- Vincent, T. L. and Mason, J. D., "Disconnected Optimal Trajectories," *Journal of Optimization Theory and Applications*, Vol. 3, No. 4, pp. 263-281, April 1969.
- Vincent, T. L., "Satellite Life Duration," *American Rocket Society Journal*, Vol. 31, No. 7, pp. 1015-1018, July 1961.

CHAPTERS IN BOOKS

- T. L. S. Vincent and T. L. Vincent, "Evolutionary stable relative abundance distributions," *Advances in Dynamic Game Theory, Numerical Methods, Algorithms, and Applications to Ecology and Economics, Annals of the International Society of Dynamic Games*, Volume 9, S. Jorgensen, M. Quincampoix, and T. L. Vincent, eds, pp. 305-326, 2007
- R. C. Rael and T. L. Vincent and R. F. Costantino and J. M. Cushing, "Corn oil sensitivity in the flour beetle," *Advances in Dynamic Game Theory, Numerical Methods, Algorithms, and Applications to Ecology and Economics, Annals of the International Society of Dynamics Games*, Volume 9, S. Jorgensen, M. Quincampoix, and T. L. Vincent, eds, pp. 367-376, 2007
- Vincent, T.L., "State Variable Feedback," *The Engineering Handbook*, second edition, edited by R.C. Dorf, CRC Press, IEEE Press, pp. 177-1 to 177-6, 2005.
- Vincent, T. L., "Optimization by way of the Trajectory Following Method," *Progress in Optimization*, edited by X. Q. Yang, et. al., Kluwer, pp. 239-254, 2000.
- Vincent, T.L., "Chaotic Control Systems," In *Advances of Stability Theory at the End of XX Century*, Gordon and Breach, London, In Press.
- Vincent, T.L., "Utilizing Chaos in Control System Design," in *Controlling Chaos and Bifurcations in Engineering Systems*, Edited by Guanrong Chen, CRC Press, Boca Raton, pp. 89 – 106, 2000.
- Vincent, T.L. "Controllable Targets Near a Chaotic Attractor," *Control and Chaos*, edited by K. Judd, A. Mees, K.L. Teo, and T.L. Vincent, Birkhäuser Boston, pp. 260-277, 1997.
- Y. Cohen and Vincent, T.L., "The Dynamics of Evolutionary Stable Strategies," *Control and Chaos*, edited by K. Judd, A. Mees, K.L. Teo, and T.L. Vincent, Birkhäuser Boston, pp. 278-303, 1997.
- Vincent, T.L., "State Variable Feedback," *The Engineering Handbook*, edited by R.C. Dorf, CRC Press, IEEE Press, pp. 1696-1701, 1995.
- Vincent, T.L., "The EES Maximum Principle as a Tool for Modeling and Managing Biological Systems," *Control and Game Theoretic Models of the Environment*, Edited by J.A. Filar, and C. Carraro, Birkhäuser Boston, New York, pp. 259-278, 1995.
- Vincent, T.L., "An Evolutionary Game Theory for Differential Equation Models with Reference to Ecosystem Management," *Advances in Dynamic Games and Applications*, Edited by Tamer Bazar and Alain Haurie, Birkhäuser Boston, New York, pp. 356-374, 1994.
- Vincent, T.L., Schmitt, T.J., and Vincent, T.L., "A Chaotic Controller for the Double Pendulum," *Proceedings of the Fifth Workshop on Control Mechanics*, Plenum, pp.257-274, 1994.
- Vincent, T. L. and Lin, Y.C., "Regions of Attraction for two Dimensional Uncertain Dynamical Systems," *Mechanics and Control*, Edited by J.M. Skowronski, H. Flashner, and R.S. Guttala, Lecture Notes in Control and Information Science, Vol 170, pp. 265-301, Springer-Verlag, Berlin, 1992.
- Vincent, T.L. and Yu, J., "Control of Chaotic Systems," *Mechanics and Control*, Edited by Skowronski, J.M., Flashner, H., and Guttala, R.S., Lecture Notes in Control and Information Sciences, Vol. 151, pp. 440-454, Springer-Verlag, Berlin, 1991.
- Vincent, T.L., "Strategy Dynamics and the ESS", *Dynamics of Complex Interconnected Biological Systems*, Edited by T.L. Vincent, et. al., Birkhäuser Boston, New York, pp. 236-249, 1990.

- Vincent, T. L., Lin, Y. C., and Joshi, S.P., "Controlling a Flexible Plate to Mimic a Rigid One," *Control and Dynamic Systems*, Volume 35: Advances in Control Mechanics Part 2 of 2, edited by C. T. Leondes, Academic Press, New York, pp. 87-135, 1990.
- Vincent, T.L. and Brown, J.S., "The Evolution of ESS Theory", *Annual Review of Ecology and Systematics*, Vol. 19, pp. 423-443, Annual Reviews Inc., Palo Alto, 1988.
- Brown, J.S. and Vincent, T.L., "Predator-Prey Coevolution as an Evolutionary Game," *Applications of Control Theory in Ecology*, Edited by Y. Cohen, Springer-Verlag, Berlin, pp. 83-101, 1987.
- Vincent, T.L. and Brown, J. S., "An Evolutionary Response to Harvesting," *Modeling and Management of Resources under Uncertainty*, Edited by T. L. Vincent, et. al., Springer-Verlag, Heidelberg, pp. 80-97, 1987.
- Vincent, T.L., "Renewable Resource Management," *Applications of Multicriteria Optimization in Engineering and Science*, Edited by W. Stadler, Plenum, pp. 161-186, 1987.
- Vincent, T. L. and Brown, J. S., "The Effect of Competition on the Flowering Time of Annual Plants," *Mathematical Ecology*, Edited by S. L. Levin and T. G. Hallam, Springer-Verlag, Berlin, 1984.
- Vincent, T. L. and Brown, J. S., "Necessary Conditions for an Invasion Proof Strategy," *Population Biology*, Edited by H. I. Freedman and C. Strobeck, Springer-Verlag, Berlin, 1983.
- Vincent, T. L., "Vulnerability of a Prey-Predator Model, *Renewable Resource Management*, Edited by T. L. Vincent and J. M. Skowronski, Springer-Verlag, Heidelberg, 1981.
- Vincent, T. L., "Environmental Adaptation by Annual Plants (An Optimal Control/Games Viewpoint)," *Lecture Notes in Control and Information Sciences*, Vol. 3, Edited by P. Hagedorn, Springer-Verlag, Berlin, 1977.
- Vincent, T. L., "Collision Avoidance at Sea," *Lecture Notes in Control and Information Sciences*, Vol. 3, Edited by P. Hagedorn, Springer-Verlag, Berlin, 1977.
- Vincent, T. L., "Avoidance of Guided Projectiles," *The Theory and Applications of Differential Games*, Edited by J. D. Groter, Reidel, Dordrecht, Holland, 1975.

PROCEEDINGS

- Vincent, T. L. and Gatenby, R. A., "Modeling cancer as an evolutionary game," Proceedings of the ISDG workshop, Goslar, Germany, Edited by M. H. Breitner, May 19-21, 2003.
- T. L. Vincent and R. W. Morgan, Guidance against maneuvering targets using Lyapunov optimizing feedback control, Proceedings of the American Control Conference, Anchorage, AK, May 8-10, 2002, 215-220.
- Vincent, T. L., "The G-function method for analyzing Darwinian dynamics," Proceedings of the ISDG workshop, Cargese, Corsica, July 16-21, 2001.
- Vincent, T. L., Cottrell, R. G. and Morgan, R. W., "Minimizing Maneuver Advantage Requirements for a Hit-to-Kill Interceptor," Proceedings of the 2001 AIAA Guidance, Navigation, and Control Conference, Montreal, Quebec, 6-9 August 2001.
- Vincent, T. L. and Mees, A. I., "Controllers for the Bouncing Ball," Proceedings of the 1999 International Symposium on Nonlinear Theory and its Applications, pp. 395-398, November 28 – December 2, 1999.
- Vincent, T.L. "Optimization by way of the Trajectory Following Method," Proceedings of the Fifth Optimization Days mini-conference, June 29-30, 1998.

- Vincent, T.L., "How Fast can a Species Adapt and Still be Evolutionarily Stable," Artificial Intelligence in Real- Time Control, Extended Abstracts from the 7th IFAC Symposium, Grand Canyon National Park, Arizona (Edited by Yo-Han Pao and S.R. LeClair), October 5-8, 1998.
- Vincent, T.L. and Grantham, W.J., "Using the Trajectory Following Method to Find Sub-optimal Controllers," Optimization Techniques and Applications, Proceedings of the International Conference on Optimization Techniques and Applications (ICOTA 98), Curtin University of Technology, Perth, Western Australia, (Edited by L. Caccetta, K.L. Teo, P.F. Siew, Y.H. Leung, L.S. Jennings, and V. Rehbock, Vol.1, pp. 584-591, July 1-3, 1998.
- Cohen, Y., Vincent, T.L., and Brown, J.S., "Fitness Minima, Maxima, and the Fitness Generating Function," Optimization Techniques and Applications, Proceedings of the International Conference on Optimization Techniques and Applications (ICOTA 98), Curtin University of Technology, Perth, Western Australia, (Edited by L. Caccetta, K.L. Teo, P.F. Siew, Y.H. Leung, L.S. Jennings, and V. Rehbock, Vol.1, pp. 169-176, July 1-3, 1998.
- Vincent, T.L., "Controlling a Ball to Bounce at a Fixed Height," Proceedings of the American Control Conference, Seattle, Washington, pp. 842-846. June, 1995.
- Vincent, T.L., "Some Trajectory-Following Algorithms for Min-Max Optimization," Proceedings of the First World Congress of Nonlinear Analysts, Tampa, Florida, August 19-26, 1992.
- Vincent, T.L., "The Evolutionary Response of Biological Systems to Human Control," Proceedings of the Fifth International Symposium on Dynamical Games and Applications, Grimentz, July 15-17, 1992.
- Vincent, T.L. and Cline, R.E., "Differential Game Analysis Using Projections of the Playable Set," Proceedings of the 27th IEEE Conference on Decision and Control, Austin, Texas, pp. 1430-1435, December 7-9, 1988.
- Cline, R.E. and Vincent, T.L., "Air-Combat Analysis Using Projections of the Playable Set," Proceedings of the AIAA Guidance, Navigation, and Control Conference, Minneapolis, Minnesota, August 15-17, 1988.
- Joshi, S.P., Vincent, T.L., and Lin, Y.C., "Control For Energy Dissipation in Structures," Proceedings of the AIAA/ASME/ASCE/AHS 29th Structures, Structural Dynamics, and Materials Conference, Williamsburg, VA, April 18-20, 1988.
- Vincent, T. L. and Brown, J. S., "An Application of Evolutionary Game Theory," Proceedings of the 1986 IFAC Workshop on Modelling Decision and Game with Application to Social Phenomena, August 11-15, Beijing, China, (Song Jian and Yu-Chi Ho, Eds.), Chinese Association of Automation for IFAC, 1986.
- Vincent, T. L. and Brown, J. S., "Evolution Under Nonequilibrium Dynamics," *Mathematical Modelling in Science and Technology*, Proceedings of the Fifth ICMM, July 29-31, 1985, University of California, Berkeley (X. J. R. Avula, G. Leitmann, C. D. Mote Jr., and E. Y. Roden, Eds.) Peramon Press, New York, 1986.
- Vincent, T. L. and Brown, J. S., "Evolutionary Games," Proceedings of the Third Pacific Coast Resource Modeling Conference, University of California at Davis, June 14-16, 1984.
- Vincent, T. L., "Multispecies Harvesting of a Prey-Predator System," Proceedings of the 19th IEEE Conference on Decision and Control, Albuquerque, New Mexico, December, 1980
- Vincent, T. L., "Game Theoretic Predictions of Genetic Shifts in a Plant Breeding Model," Proceedings of the Twenty-first Midwest Symposium on Circuits and Systems, Iowa State University, Ames, August 14-15, 1978.

- Goh, B. S., Vincent, T. L., and Wilson, D. J., "A Method for Formulating Suboptimal Policies for Crudely Modeled Ecosystems," Proceedings of the First International Congress of Ecology, The Hague, Netherlands, September, 1974.
- Vincent, T. L., Pulliam, R. H., and Everett, L. G., "Modeling and Management of Ecosystems via Optimal Control Theory," Proceedings of the First International Congress of Ecology, The Hague, Netherlands, September 1974.
- Goh, B. S., Vincent, T. L., and Wilson, J. D., "Suboptimal Control of Prey-Predator Systems by Graphical Analysis," Proceedings of the Seventh Hawaii International Conference on System Sciences, Honolulu, Hawaii, January 1974.
- Vincent, T. L., Cliff, E. M., and Goh, B. S., "Optimal Direct Control Programs for a Prey-Predator System," Proceedings of the Fourteenth Joint Automatic Control Conference, Ohio State University, Columbus, Ohio, June 20-22, 1973.
- Peng, W. Y. and Vincent, T. L., "A Problem of Aerial Combat," Navy Workshop in Differential Games, Annapolis, Maryland, July 31-August 3, 1973.
- Vincent, T. L., Cliff, E. M., Grantham, W. J., and Peng, W. Y., "Aircraft Collision Avoidance." Navy Workshop in Differential Games, Annapolis, Maryland, July 31-August 3, 1973.
- Vincent, T. L. and Peng, W. Y., "Ship Collision Avoidance," Navy Workshop in Differential Games, Annapolis, Maryland, July 31-August 3, 1973.
- Vincent, T. L. and Grantham, W. J., "Optimal Control of the Spread of a Contagious Disease," Proceedings of the Sixth Hawaii International Conference on System Sciences, Honolulu, Hawaii, January 1973.
- Vincent, T. L., Goh, B. S., and Leitmann, G., "Optimal Control of the Prey-Predator System," Proceedings of the 14th International Congress of Entomology, Canberra, Australia, August 1972.
- Vincent, T. L., "Pest Management Programs Via Optimal Control Theory," Proceedings of the 13th Joint Automatic Control Conference, Stanford, California, August 1972.
- Vincent, T. L., Cliff, E. M., Grantham, W. J., and Peng, W. Y., "A Problem of Collision Avoidance," University of Arizona, Engineering Experiment Station, Report 39, November 1972.
- Grantham, W. J., Cliff, E. M., and Vincent, T. L., "On Barriers in a Problem of Collision Avoidance," Proceedings of the fourth Hawaii International Conference on System Sciences, Honolulu, Hawaii, January 1971.
- Vincent, T. L. and Goh, B. S., "A Terminality Condition," Proceedings of the fourth Hawaii International Conference on System Sciences, Honolulu, Hawaii, January 1971.
- Brusch, R. G. and Vincent, T. L., "Second Order Endpoint Condition," NASA, N70-40836, March 1970.
- Basile, G. and Vincent, T. L. "On the Cooperative Differential Game," Proceedings of the Third Hawaii International Conference on System Sciences, Honolulu, Hawaii, January 1970.
- Vincent, T. L., "An Endpoint Sufficiency Test," Proceedings of the Third Hawaii International Conference on System Sciences, Honolulu, Hawaii, January 1970.
- Vincent, T. L., "Sufficiency Conditions and Lagrange Multipliers," Proceedings of the Third Hawaii International Conference on System Sciences, January 1970.
-

OTHER PUBLICATIONS

T. L. Vincent and R. W. Morgan, "Guidance Against a Maneuvering Target in Two and Three Dimensions," Prepared for US Army Space Missile Defense Command Contract DASG60-99-C-0063, October 1, 2000

Vincent, T. L., "An Endpoint Sufficiency Condition for Multiple Stationary Solutions," NASA, N 69-36371, August 1969.

Vincent, T. L., "Multisegmented Optimal Trajectories," NASA, CR-1103, June 1968.

Vincent, T. L., "A New Method for Treating Optimal Trajectories with Restricted Segments," NASA, CR-744, April 1967.

Vincent, T. L. and Bruschi, R. G., "Minimum Time Aircraft Trajectories between Two Points in Range Altitude Space," NASA CR-631, October 1966.

Vincent, T. L., Lutze, F., and Ishihara, T., "Applications of the Calculus of Variations to Aircraft Performance," NASA, CR-499, May 1966.

Vincent, T. L., "An Experimental Verification of Static Stability Predicted by Nonlinear Elastic Beam-Column Theory," 1958 First Award Papers, IAS Student Branch Paper Competition, The Minta Martin Aeronautical Student Fund.