GEORGE N. KARYSTINOS, Ph.D.
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EDUCATION

- **Ph.D.**, Electrical Engineering, State University of New York at Buffalo, Buffalo, NY, July 2003.
- **Diploma**, Computer Engineering and Science, University of Patras, Patras, Greece, July 1997.

RESEARCH AREAS

- Communication theory and systems.
- Information theory and coding.
- Statistical signal and data processing.

CURRENT RESEARCH INTERESTS

- Physical-layer optimization for wireless communications.
- Signal waveform design and low-complexity sequence detection, interference suppression and receiver adaptation with short data records.
- Channel coding and physical-layer security.
- MIMO systems, adaptive antenna arrays and array radar.
- Discrete optimization with low complexity and limited data.
- L_1-norm principal component analysis of data and signals.

ACADEMIC POSITIONS

- **Dean**, School of Electrical and Computer Engineering, Technical University of Crete, Chania, Greece, 2021 - present.
- **Professor**, School of Electrical and Computer Engineering, Technical University of Crete, Chania, Greece, 2019 - present.
- **Associate Professor**, School of Electrical and Computer Engineering, Technical University of Crete, Chania, Greece, 2012 - 2019.
- **Assistant Professor**, School of Electrical and Computer Engineering, Technical University of Crete, Chania, Greece, 2005 - 2012.
- **Assistant Professor**, Dept. of Electrical Engineering, Wright State University, Dayton, OH, 2003 - 2005.

AWARDS

- **IEEE MOCAST 2018 Best Student Paper Award** (Intern. Conf. Modern Circuits System Tech. Electr. Commun.)
  "Intelligent noncoherent sequence equals coherent detection: Experimental proof in industrial RFID,"
  in Proc. IEEE MOCAST 2018, by M. Ouroutzoglou, A. Bletsas, and G. N. Karystinos.

- **IEEE ICASSP 2015 Best Student Paper Award** (Intern. Conf. Acoust., Speech and Signal Proc.)
  "Noncoherent sequence detection of orthogonally modulated signals in flat fading with log-linear complexity,"
  in Proc. IEEE ICASSP 2015, pp. 2974-2978, by P. N. Alevizos, Y. Fountzoulas, G. N. Karystinos, and A. Bletsas.

- **IEEE ISWCS 2013 Best Paper Award** (Intern. Symp. Wireless Comm. Syst.)
  "Some options for L_1-subspace signal processing,"
  in Proc. IEEE ISWCS 2013, pp. 622-626, by P. P. Markopoulos, G. N. Karystinos, and D. A. Pados.

- **IEEE RFID-TA 2011 Second Best Student Paper Award** (Intern. Conf. RFID-Tech. Applic.)
  "Inventory time reduction in Gen2 with single-antenna separation of FM0 RFID signals,"
  in Proc. IEEE RFID-TA 2011, by J. Kimionis, A. Bletsas, A. G. Dimitriou, and G. N. Karystinos.

- **2003 IEEE Transactions on Neural Networks Outstanding Paper Award** (papers published in years 2000 and 2001)
  "On overfitting, generalization, and randomly expanded training sets,"
  IEEE Trans. Neural Net., vol. 11, pp. 1050-1057, Sept. 2000, by G. N. Karystinos and D. A. Pados.

- **IEEE ICT 2001 Paper Award** (IEEE International Conf. on Telecom.)
  "New bounds on the total-squared-correlation and optimum design of DS-CDMA binary signature sets,"
  in Proc. IEEE ICT 2001, vol. 3, pp. 260-265, by G. N. Karystinos and D. A. Pados.

- **"Prof. David M. Benenson," Dept. of Electrical Engineering Graduate Research Award**
  Department of Electrical Engineering, State University of New York at Buffalo, Mar. 2001 ($500).

- **I. S. Latsis Foundation Graduate Studies Fellowship Award**
  I. S. Latsis Foundation, Athens, Greece, 1998-2001 ($31,000).

- **I. S. Latsis Foundation Undergraduate Studies Fellowship Award**
  I. S. Latsis Foundation, Athens, Greece, 1993-1997 ($5,000).

- **IEEE Merit-based Student Travel Grants**
  IEEE ICC 2003 (International Conf. on Communications), Anchorage, AK ($1,000).
  IEEE GLOBECOM 2001 (Global Communications Conf.), San Antonio, TX ($600).

- **Second (2nd) Award, National Competition in Mathematics**
  National Mathematical Association, Athens, Greece, Apr. 1992.

SPONSORED RESEARCH (PRINCIPAL INVESTIGATOR)

Aggregate funding from European sources: 280,500 EUR.
Aggregate funding from National sources: 637,000 EUR.

- *"Secure Communication Based on Robust 3D Localization,"* European Commission, Horizon 2020 Program, NGIatlantic.eu 3rd Open Call, Oct. 1 2021 - May 27, 2022, 47,500 EUR.
- *"Plasma Antenna Technologies,"* European Commission, Horizon 2020 Program, Grant No. 734629, Jan. 1, 2017 - Mar. 31, 2022, 153,000 EUR.
- *"Blind Detection in the Power-limited Regime,"* Hellenic Foundation for Research and Innovation, Doctoral Candidate Scholarship Program, Grant No. 1080, Aug. 4, 2017 - July 31, 2020, 32,000 EUR.
- *"Distributed Wireless Communications,"* Ministry of National Education of Greece, Thales Program, Jan. 1, 2012 - Sept. 30, 2015, 600,000 EUR.
- *"Power and Rate Efficient Modulation in UHF-SHF Multicarrier Communications,"* European Commission, Sixth Framework Program, Grant No. 46563, June 1, 2007 - May 31, 2009, 80,000 EUR.
- *"Development of Signal Design and Processing Methods in Wireless Communications,"* Technical University of Crete, Basic Research Grant, Grant No. 405/002, Mar. 1, 2008 - Oct. 30, 2008, 5,000 EUR.

TEACHING EXPERIENCE

School of Electrical and Computer Engineering, Technical University of Crete, Greece

- TEL 201 - Signals and Systems (Fall 2006 - 2011, 2013 - 2021).
- TEL 415 - Statistical Signal Processing for Communications (Spring 2006, 2014 - 2016, 2018, 2020, 2022).
- TEL 416 - Information Theory and Coding (Spring 2007 - 2010, 2015 - 2021).
- TEL 501/609 - Wireless Communication Systems (Fall 2005).
- TEL 511/MATH 602 - Number Theory and Cryptography (Fall 2020, Spring 2022).
- TEL 601 - Probability and Random Processes (Fall 2006 - 2008, 2010).
- TEL 611 - Coding Theory (Spring 2010, Fall 2013, Spring 2017, Spring 2019).

Dept. of Electrical Engineering, Wright State University

- EE 421/621 - Communication Theory (Fall 2003, Fall 2004, Winter 2005).
- EE 480/680 - Modern Digital Communications (Spring 2004).
- EE 735 - Wireless Communication Techniques (Winter 2004, Winter 2005).
- EE 761 - Random Processes (Spring 2004, Fall 2004).

Dept. of Electrical Engineering, State University of New York at Buffalo

- EE 203 - Electric Circuits II (Fall 1997, Spring 1998).

PUBLICATIONS

Book Chapters

1. G. N. Karystinos, "Optimal algorithms for binary, sparse, and L_1-norm principal component analysis," in P. M. Pardalos and T. M. Rassias (Eds.), *Mathematics Without Boundaries: Surveys in Interdisciplinary Research*, pp. 339-382, New York, NY: Springer, 2014.

Journal Papers

26. I. Mandourarakis, E. Koutroulis, and G. N. Karystinos, "Power line communication method for the simultaneous transmission of power and digital data by cascaded H-bridge converters," *IEEE Transactions on Power Electronics,* to appear.

25. M. Ouroutzoglou, G. Vougioukas, G. N. Karystinos, and A. Bletsas, "Multistatic noncoherent linear complexity Miller sequence detection for Gen2 RFID/IoT," *IEEE Transactions on Wireless Communications*, vol. 20, pp. 8067-8080, Dec. 2021.

24. H. Kamrani, A. Zolghadr Asli, P. P. Markopoulos, M. Langberg, D. A. Pados, and G. N. Karystinos, "Reduced-rank L1-norm principal-component analysis with performance guarantees," *IEEE Transactions on Signal Processing*, vol. 69, pp. 240-255, Jan. 2021.

23. P. P. Markopoulos, N. Tsagkarakis, D. A. Pados, and G. N. Karystinos, "Realified L1-PCA for direction-of-arrival estimation: Theory and algorithms," *EURASIP J. Adv. Signal Process.*, vol. 2019, pp. 1-16, June 2019.

22. P. P. Markopoulos and G. N. Karystinos, "Noncoherent Alamouti phase-shift keying with full-rate encoding and polynomial-complexity maximum-likelihood decoding," *IEEE Transactions on Wireless Communications*, vol. 16, pp. 6688-6697, Oct. 2017.

21. P. N. Alevizos, A. Bletsas, and G. N. Karystinos, "Noncoherent short packet detection and decoding for scatter radio sensor networking," *IEEE Transactions on Communications*, vol. 65, pp. 2128-2140, May 2017.

20. P. N. Alevizos, Y. Fountzoulas, G. N. Karystinos, and A. Bletsas, "Log-linear-complexity GLRT-optimal noncoherent sequence detection for orthogonal and RFID-oriented modulations," *IEEE Transactions on Communications*, vol. 64, pp. 1600-1612, Apr. 2016.

19. M. Gkizeli and G. N. Karystinos, "Maximum-SNR antenna selection among a large number of transmit antennas," *IEEE Journal of Selected Topics in Signal Processing*, vol. 8, pp. 891-901, Oct. 2014.

18. P. P. Markopoulos, G. N. Karystinos, and D. A. Pados, "Optimal algorithms for L_1-subspace signal processing," *IEEE Transactions on Signal Processing*, vol. 62, pp. 5046-5058, Oct. 2014.

17. M. Asteris, D. S. Papailiopoulos, and G. N. Karystinos, "The sparse principal component of a constant-rank matrix," *IEEE Transactions on Information Theory*, vol. 60, pp. 2281-2290, Apr. 2014.

16. A. Kyrillidis and G. N. Karystinos, "Fixed-rank Rayleigh quotient maximization by an MPSK sequence," *IEEE Transactions on Communications*, vol. 62, pp. 961-975, Mar. 2014.

15. D. S. Papailiopoulos, G. Abou Elkheir, and G. N. Karystinos, "Maximum-likelihood noncoherent PAM detection," *IEEE Transactions on Communications*, vol. 61, pp. 1152-1159, Mar. 2013.

14. A. Bletsas, J. Kimionis, A. G. Dimitriou, and G. N. Karystinos, "Single-antenna coherent detection of collided FM0 RFID signals," *IEEE Transactions on Communications*, vol. 60, pp. 756-766, Mar. 2012.

13. K. R. Dalbey and G. N. Karystinos, "Generating a maximally spaced set of bins to fill for high-dimensional space-filling Latin hypercube sampling," *International Journal for Uncertainty Quantification*, vol. 1, pp. 241-255, July 2011.

12. H. Ganapathy, D. A. Pados, and G. N. Karystinos, "New bounds and optimal binary signature sets-Part II: Aperiodic total squared correlation," *IEEE Transactions on Communications*, vol. 59, pp. 1411-1420, May 2011.

11. H. Ganapathy, D. A. Pados, and G. N. Karystinos, "New bounds and optimal binary signature sets-Part I: Periodic total squared correlation," *IEEE Transactions on Communications*, vol. 59, pp. 1123-1132, Apr. 2011.

10. G. N. Karystinos and A. P. Liavas, "Efficient computation of the binary vector that maximizes a rank-deficient quadratic form," *IEEE Transactions on Information Theory*, vol. 56, pp. 3581-3593, July 2010.

9. D. S. Papailiopoulos and G. N. Karystinos, "Maximum-likelihood noncoherent OSTBC detection with polynomial complexity," *IEEE Transactions on Wireless Communications*, vol. 9, pp. 1935-1945, June 2010.

8. G. N. Karystinos and D. A. Pados, "Rank-2-optimal adaptive design of binary spreading codes," *IEEE Transactions on Information Theory*, vol. 53, pp. 3075-3080, Sept. 2007.

7. G. N. Karystinos and D. A. Pados, "Supervised phase correction of blind space-time DS/CDMA channel estimates," *IEEE Transactions on Communications*, vol. 55, pp. 584-592, Mar. 2007.

6. G. N. Karystinos and D. A. Pados, "The maximum squared correlation, total asymptotic efficiency, and sum capacity of minimum total-squared-correlation binary signature sets," *IEEE Transactions on Information Theory*, vol. 51, pp. 348-355, Jan. 2005.

5. S. Gopalan, G. N. Karystinos, and D. A. Pados, "Capacity, throughput, and delay of slotted ALOHA DS-CDMA links with adaptive space-time auxiliary-vector receivers," *IEEE Transactions on Wireless Communications*, vol. 4, pp. 79-92, Jan. 2005.

4. G. N. Karystinos and D. A. Pados, "New bounds on the total squared correlation and optimum design of DS-CDMA binary signature sets," *IEEE Transactions on Communications*, vol. 51, pp. 48-51, Jan. 2003.

3. G. N. Karystinos, H. Qian, M. J. Medley, and S. N. Batalama, "Short-data-record adaptive filtering: The auxiliary-vector algorithm," *Digital Signal Processing*, vol. 12, pp. 193-222, Apr./July 2002.

2. D. A. Pados and G. N. Karystinos, "An iterative algorithm for the computation of the MVDR filter," *IEEE Transactions on Signal Processing*, vol. 49, pp. 290-300, Feb. 2001.

1. G. N. Karystinos and D. A. Pados, "On overfitting, generalization, and randomly expanded training sets," *IEEE Transactions on Neural Networks*, vol. 11, pp. 1050-1057, Sept. 2000 (Outstanding Paper Award).

Conference Papers

58. M. Ouroutzoglou, A. Bletsas, and G. N. Karystinos, "Intelligent noncoherent sequence equals coherent detection: Experimental proof in industrial RFID," in *Proc. IEEE MOCAST 2018 - International Conference on Modern Circuits and System Technologies for Electronics and Communications*, Thessaloniki, Greece, May 2018 (Best Paper Award).

57. P. P. Markopoulos, D. A. Pados, G. N. Karystinos, and M. Langberg, "L1-norm principal-component analysis in L2-norm-reduced-rank data subspaces," in *Proc. SPIE Compressive Sensing VI: From Diverse Modalities to Big Data Analytics*, Anaheim, CA, Apr. 2017, vol. 10211, pp. 1-10.

56. P. P. Markopoulos, N. Tsagkarakis, D. A. Pados, and G. N. Karystinos, "Direction-of-arrival estimation by L1-norm principal components," in *Proc. IEEE PHASED ARRAY 2016 - International Symposium on Phased Array Systems and Technology (PAST)*, Boston, MA, Oct. 2016.

55. M. Gkizeli and G. N. Karystinos, "Polynomial-complexity GLRT-optimal noncoherent PNC," in *Proc. IEEE ISWCS 2016 - International Symposium on Wireless Communication Systems*, Poznan, Poland, Sept. 2016, pp. 258-264.

54. Y. Fountzoulas, D. Chachlakis, G. N. Karystinos, and A. Bletsas, "GLRT-optimal blind MSK detection with log-linear complexity," in *Proc. IEEE ICT 2016 - International Conference on Telecommunications*, Thessaloniki, Greece, May 2016.

53. Y. Fountzoulas, A. Kosta, and G. N. Karystinos, "Polar-code-based security on the BSC-modeled HARQ in fading," in *Proc. IEEE ICT 2016 - International Conference on Telecommunications*, Thessaloniki, Greece, May 2016.

52. Y. Fountzoulas and G. N. Karystinos, "Optimal blind APSK detection in polynomial time," in *Proc. IEEE VTC 2015 Fall - Vehicular Technology Conference*, Boston, MA, Sept. 2015.

51. G. N. Karystinos and A. Bletsas, "Cubic-complexity optimal noncoherent OOK sequence detection in flat fading," in *Proc. IEEE ICC 2015 - International Conference on Communications*, London, UK, June 2015, pp. 2721-2726.

50. P. N. Alevizos, Y. Fountzoulas, G. N. Karystinos, and A. Bletsas, "Noncoherent sequence detection of orthogonally modulated signals in flat fading with log-linear complexity," in *Proc. IEEE ICASSP 2015 - Intern. Conf. Acoust., Speech and Signal Proc.*, Brisbane, Australia, Apr. 2015, pp. 2974-2978 (Best Paper Award).

49. P. P. Markopoulos, N. Tsagkarakis, D. A. Pados, and G. N. Karystinos, "Direction finding with L1-norm subspaces," in *Proc. SPIE Compressive Sensing Conference, SPIE Defense, Security, and Sensing (DSS 2014)*, Baltimore, MD, May 2014.

48. P. P. Markopoulos, G. N. Karystinos, and D. A. Pados, "Some options for L_1-subspace signal processing," in *Proc. IEEE ISWCS 2013 - International Symposium on Wireless Communication Systems*, Ilmenau, Germany, Aug. 2013, pp. 622-626 (Best Paper Award).

47. M. Gkizeli and G. N. Karystinos, "Maximum-SNR transmit antenna selection with two receive antennas is polynomially solvable," in *Proc. IEEE ICASSP 2013 - Intern. Conf. Acoust., Speech and Signal Proc.*, Vancouver, BC, May 2013, pp. 4749-4753.

46. P. P. Markopoulos and G. N. Karystinos, "Novel full-rate noncoherent Alamouti encoding that allows polynomial-complexity optimal decoding," in *Proc. IEEE ICASSP 2013 - Intern. Conf. Acoust., Speech and Signal Proc.*, Vancouver, BC, May 2013, pp. 5075-5079.

45. D. Koupatsiaris and G. N. Karystinos, "Efficient DOA, DOD, and target estimation for bistatic MIMO SONAR," in *Proc. IEEE ICASSP 2013 - Intern. Conf. Acoust., Speech and Signal Proc.*, Vancouver, BC, May 2013, pp. 5155-5159.

44. M. Gkizeli and G. N. Karystinos, "Maximum-SNR transmit antenna selection with unimodular beamforming and two receive antennas," in *Proc. 2013 Conference on Information Sciences and Systems (CISS)*, Baltimore, MD, Mar. 2013.

43. D. S. Papailiopoulos, G. Abou Elkheir, and G. N. Karystinos, "Maximum-likelihood blind PAM detection," in *Proc. IEEE ICC 2012 - International Conference on Communications*, Ottawa, ON, June 2012, pp. 2283-2287.

42. J. Kimionis, A. Bletsas, A. G. Dimitriou, and G. N. Karystinos, "Inventory time reduction in Gen2 with single-antenna separation of FM0 RFID signals," in *Proc. IEEE RFID-TA 2011 - Intern. Conf. RFID-Tech. Applic.*, Sitges, Spain, Sept. 2011, pp. 494-501 (Second Best Student Paper Award).

41. M. Asteris, D. S. Papailiopoulos, and G. N. Karystinos, "Sparse principal component of a rank-deficient matrix," in *Proc. IEEE ISIT 2011 - Intern. Symp. Inform. Theory*, Saint Petersburg, Russia, Aug. 2011, pp. 673-677.

40. K. R. Dalbey and G. N. Karystinos, "Fast generation of nested space-filling Latin hypercube sample designs," presentation in *Proc. 11th U.S. National Congress on Computational Mechanics*, Minneapolis, MN, July 2011.

39. A. T. Kyrillidis and G. N. Karystinos, "Rank-deficient quadratic-form maximization over M-phase alphabet: Polynomial-complexity solvability and algorithmic developments," in *Proc. IEEE ICASSP 2011 - Intern. Conf. Acoust., Speech and Signal Proc.*, Prague, Czech Republic, May 2011, pp. 3856-3859.

38. K. R. Dalbey and G. N. Karystinos, "Fast generation of nested space-filling Latin hypercube sample designs," presentation in *2011 SIAM Conference on Computational Science and Engineering*, Reno, NV, Mar. 2011.

37. K. R. Dalbey and G. N. Karystinos, "Fast generation of low discrepancy spacefilling Latin hypercube sample designs," presentation in *SEM IMAC XXIX Conference and Exposition on Structural Dynamics*, Jacksonville, FL, Feb. 2011.

36. K. R. Dalbey and G. N. Karystinos, "Fast generation of space-filling Latin hypercube sample designs," in *Proc. 13th AIAA/ISSMO Multidisciplinary Analysis and Optimization Conference*, Fort Worth, TX, Sept. 2010, vol. 1, pp. 473-496.

35. D. S. Papailiopoulos and G. N. Karystinos, "Optimal OSTBC sequence detection over unknown correlated fading channels," in *Proc. 2009 Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2009, pp. 1441-1445.

34. M. Gkizeli and G. N. Karystinos, "Noncoherent detection in amplify-and-forward relay systems," in *Proc. IEEE GLOBECOM 2008*, Comm. Theory Symp., New Orleans, LA, Dec. 2008.

33. D. S. Papailiopoulos and G. N. Karystinos, "Efficient maximum-likelihood noncoherent orthogonal STBC detection," in *Proc. 2008 Allerton Conference on Communication, Control, and Computing*, Allerton House, Monticello, IL, Sept. 2008, pp. 294-300.

32. G. N. Karystinos and A. P. Liavas, "Quadratic form maximization over the binary field with polynomial complexity," in *Proc. IEEE ISIT 2008 - Intern. Symp. Inform. Theory*, Toronto, ON, July 2008, pp. 2449-2453.

31. G. N. Karystinos, D. A. Pados, S. N. Batalama, and J. D. Matyjas, "Auxiliary-vector detection on measured radar data," in *Proc. 2008 IEEE Radar Conference*, Rome, Italy, May 2008, pp. 1134-1138.

30. A. P. Liavas and G. N. Karystinos, "Outage capacity of a noncoherent cooperative scheme with binary input and a simple relay," in *Proc. IEEE ISWPC 2008 - Intern. Symp. Wireless Pervasive Computing*, Santorini, Greece, May 2008, pp. 661-664.

29. G. N. Karystinos and A. P. Liavas, "Efficient computation of the binary vector that maximizes a rank-deficient quadratic form," in *Proc. IEEE ICASSP 2008 - Intern. Conf. Acoust., Speech and Signal Proc.*, Las Vegas, NV, Apr. 2008, pp. 3577-3580.

28. G. N. Karystinos and A. P. Liavas, "Outage capacity of a cooperative scheme with binary input and a simple relay," in *Proc. IEEE ICASSP 2008 - Intern. Conf. Acoust., Speech and Signal Proc.*, Las Vegas, NV, Apr. 2008, pp. 3221-3224.

27. D. S. Papailiopoulos and G. N. Karystinos, "Polynomial-complexity maximum-likelihood block noncoherent MPSK detection," in *Proc. IEEE ICASSP 2008 - Intern. Conf. Acoust., Speech and Signal Proc.*, Las Vegas, NV, Apr. 2008, pp. 2681-2684.

26. D. S. Papailiopoulos and G. N. Karystinos, "Efficient computation of the M-phase vector that maximizes a rank-deficient quadratic form," in *Proc. 2008 Conf. on Inform. Sc. and Syst. (CISS 2008)*, Princeton University, Princeton, NJ, Mar. 2008, pp. 1086-1090.

25. D. A. Pados, G. N. Karystinos, S. N. Batalama, and J. D. Matyjas, "Auxiliary-vector RADAR on MCARM data," (invited paper) in *Proc. 2007 Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2007, pp. 2028-2032.

24. D. S. Papailiopoulos and G. N. Karystinos, "Near ML detection of nonlinearly distorted OFDM signals," in *Proc. 2007 Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2007, pp. 1756-1760.

23. H. Ganapathy, D. A. Pados, and G. N. Karystinos, "New bounds on the aperiodic total squared correlation of binary signature sets and optimal designs," in *Proc. IEEE ICC 2007 - International Conference on Communications*, Glasgow, UK, June 2007, pp. 914-919.

22. D. A. Pados, G. N. Karystinos, S. N. Batalama, and J. D. Matyjas, "Short-data-record adaptive detection," in *Proc. 2007 IEEE Radar Conference*, Waltham, MA, Apr. 2007, pp. 357-361.

21. G. N. Karystinos and A. P. Liavas, "Efficient computation of the binary vector that maximizes a rank-3 quadratic form," in *Proc. 2006 Allerton Conference on Communication, Control, and Computing*, Allerton House, Monticello, IL, Sept. 2006, pp. 1286-1291.

20. G. N. Karystinos and D. A. Pados, "Bit-error-rate and maximum-SINR performance of the odd-length minimum-TSC binary signature sets," in *Proc. IEEE ICT 2006 - International Conference on Telecommunications*, Madeira Island, Portugal, May 2006.

19. G. N. Karystinos and D. A. Pados, "On the design of maximum-SINR binary spreading codes," in *Proc. IEEE ICT 2006 - International Conference on Telecommunications*, Madeira Island, Portugal, May 2006.

18. G. N. Karystinos and D. A. Pados, "Code division multiplexing properties of the odd-length minimum-TSC binary signature sets," in *Proc. 2006 Conference on Information Sciences and Systems (CISS)*, Princeton University, Princeton, NJ, Mar. 2006, pp. 1540-1545.

17. G. N. Karystinos and D. A. Pados, "Rank-2-optimal binary spreading codes," in *Proc. 2006 Conference on Information Sciences and Systems (CISS)*, Princeton University, Princeton, NJ, Mar. 2006, pp. 1534-1539.

16. A. O. Nasif and G. N. Karystinos, "Binary transmissions over additive Gaussian noise: A closed-form expression for the channel capacity," in *Proc. 2005 Conference on Information Sciences and Systems (CISS)*, Baltimore, MD, Mar. 2005.

15. G. N. Karystinos and D. A. Pados, "Code division multiplexing performance of minimum total-squared-correlation binary signature sets," in *Proc. IEEE GLOBECOM 2003*, Communication Theory Symposium, San Francisco, CA, Dec. 2003, vol. 4, pp. 1862-1866.

14. G. N. Karystinos and D. A. Pados, "Binary CDMA signature sets with concurrently minimum total-squared-correlation and maximum-squared-correlation," in *Proc. IEEE ICC 2003 - International Conference on Communications*, Anchorage, AK, May 2003, vol. 4, pp. 2500-2503.

13. G. N. Karystinos and D. A. Pados, "Performance analysis of doubly optimal CDMA spreading codes with odd length," in *Proc. SPIE's 17th Annual International Symposium, Digital Wireless Communication Conference*, Orlando, FL, Apr. 2003, vol. 5100, pp. 215-226.

12. G. N. Karystinos and D. A. Pados, "Fundamental code division multiplexing properties of minimum total-squared-correlation binary signature sets," in *Proc. 2003 Conference on Information Sciences and Systems (CISS)*, Baltimore, MD, Mar. 2003.

11. G. N. Karystinos, H. Qian, M. J. Medley, and S. N. Batalama, "Short-data-record adaptive filtering: The auxiliary-vector algorithm," in *Proc. 2001/2002 Workshop on Defense Applications of Signal Processing*, Adelaide, Australia, June 2002.

10. J. D. Matyjas, G. N. Karystinos, and S. N. Batalama, "On the training of DS-CDMA neural-network receivers," in *Proc. IEEE ICASSP 2002 - International Conference on Acoustics, Speech and Signal Processing*, Orlando, FL, May 2002, vol. I, pp. 1017-1020.

9. G. N. Karystinos and D. A. Pados, "Minimum total-squared-correlation design of DS-CDMA binary signature sets," in *Proc. IEEE GLOBECOM 2001*, Communication Theory Symposium, San Antonio, TX, Nov. 2001, vol. 2, pp. 801-805.

8. G. N. Karystinos and D. A. Pados, "New bounds on the total-squared-correlation and optimum design of DS-CDMA binary signature sets," in *Proc. IEEE ICT 2001 - International Conference on Telecommunications*, Bucharest, Romania, June 2001, vol. 3, pp. 260-265 (Paper Award).

7. G. N. Karystinos and D. A. Pados, "Adaptive assignment of binary user spreading codes in DS-CDMA systems," in *Proc. SPIE's 15th Annual International Symposium, Digital Wireless Communication Conference*, Orlando, FL, Apr. 2001, vol. 4395, pp. 137-144.

6. D. A. Pados and G. N. Karystinos, "Short-data-record estimators of the MVDR/MMSE filter," in *Proc. IEEE ICASSP 2000 - International Conference on Acoustics, Speech and Signal Processing*, Istanbul, Turkey, June 2000, vol. I, pp. 384-387.

5. G. N. Karystinos and D. A. Pados, "Recovering the phase of blind space-time DS/CDMA channel estimates," in *Proc. IEEE ICT 2000 - International Conference on Telecommunications*, Acapulco, Mexico, May 2000, vol. 2, pp. 1010-1014.

4. D. A. Pados and G. N. Karystinos, "A sequence of MVDR filter estimators," in *Proc. IEEE ICT 2000 - International Conference on Telecommunications*, Acapulco, Mexico, May 2000, vol. 2, pp. 790-794.

3. G. N. Karystinos and D. A. Pados, "Multiuser differential-PSK demodulators for DS/CDMA signals," in *Proc. SPIE's 14th Annual International Symposium, Digital Wireless Communication Conference*, Orlando, FL, Apr. 2000, vol. 4045, pp. 155-166.

2. G. N. Karystinos and D. A. Pados, "Supervised phase correction of blind space-time DS/CDMA channel estimates," in *Proc. 2000 Conference on Information Sciences and Systems (CISS)*, Princeton University, Princeton, NJ, Mar. 2000, vol. I, pp. TA8a.5-TA8a.10.

1. G. N. Karystinos and D. A. Pados, "On DPSK demodulation of DS/CDMA signals," in *Proc. IEEE GLOBECOM 1999*, Communication Theory Symposium, Rio de Janeiro, Brazil, Dec. 1999, vol. 5, pp. 2487-2492.

PROFESSIONAL ACTIVITIES AND SERVICE

- Technical Program Committee Member:
  - IEEE Wireless Communications and Networking Conference (WCNC) - PHY Track: 2013-2018.
  - IEEE International Conference on Communications (ICC) - Wireless Communications Symposium: 2007, 2010, 2012, 2015, and 2018.
  - IEEE International Conference on Communications (ICC) - Communication Theory Symposium: 2009.
  - IEEE INFOCOM Workshop on Wireless Communications and Networking in Extreme Environments (WCNEE): 2017, 2018.
  - IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC) - PHY Track: 2018.
  - IEEE 5G World Forum (5GWF) 2018
  - IEEE GLOBECOM Workshop on Low Power Wide Area Networking Technologies for Emerging Internet of Things (LPWA4IoT) 2017.
  - IEEE International Symposium on Computer and Communications (ISCC) 2017.
  - IEEE International Conference on Telecommunications (ICT): 2016.
  - International Conference on Signal Processing & Data Mining (ICSPDM) 2015.
  - IEEE International Symposium on Wireless Communication Systems (ISWCS): 2010, 2013.
  - IEEE GLOBECOM - Communication Theory Symposium: 2007.
- Reviewer for Journals:
  - IEEE Transactions on Information Theory
  - IEEE Transactions on Communications

  - IEEE Transactions on Wireless Communications
  - IEEE Journal on Selected Areas in Communications
  - IEEE Transactions on Signal Processing
  - IEEE Transactions on Neural Networks
  - IEEE Transactions on Vehicular Technology
  - Journal of Computational Mathematics
  - Digital Signal Processing
  - IEEE Communications Letters
  - IEEE Signal Processing Letters
  - Wireless Commnunications and Mobile Computing
  - International Journal of Communication Systems

- Research and Education Administration:
  - *National Representative*, Marie Skłodowska-Curie Actions (MSCA) Programme Committee, European Commission's Horizon-Europe Framework Programme, 2021 - present.
  - *Member of the Research Committee*, Technical University of Crete, 2017 - present.
  - *Member of the Board of Directors*, Property Development and Management Company, Technical University of Crete, 2015 - present.
  - *Programme Committee Expert*, European Research Council (ERC), Future and Emerging Technologies (FET), and Marie Skłodowska-Curie Actions (MSCA) Programme Committee, European Commission's Horizon2020 Framework Programme, 2019 - 2020.
  - *Director of Graduate Studies*, School of Electrical and Computer Engineering, Technical University of Crete, 2016 - 2017.
  - *Member of the Graduate Studies Committee*, School of Electrical and Computer Engineering, Technical University of Crete, 2006 - 2011.
  - *Organizer of the Telecommunications Division Annual Seminar Series*, School of Electrical and Computer Engineering, Technical University of Crete, 2006 - 2010.
  - *Member of the University Senate*, Technical University of Crete, 2008 - 2009.
  - *DSP/Wireless Subcommittee*, Dept. of Electrical Engineering, Wright State University, 2003 - 2005.
  - *Mark Diamond Research Fund Review Committee*, State University of New York at Buffalo, 2002 - 2003.

- Faculty and Student Association:
  - *Member of the Executive Secretariat and Treasurer*, Hellenic Federation of University Teachers' Associations (POSDEP), 2019 - 2021.
  - *Member of the Management Committee*, Hellenic Federation of University Teachers' Associations (POSDEP), 2017 - 2019.
  - *President of the Union of Professors of the Technical University of Crete (UPTUC)*, 2014 - 2021.
  - *Graduate Student Association Finance Committee*, State University of New York at Buffalo, 2002 - 2003.
  - President of *Hellenic Graduate Student Association*, State University of New York at Buffalo, 2000 - 2001.

- Memberships:
  - *IEEE Communications*, *Information Theory*, *Signal Processing*, and *Computational Intelligence* Societies.
  - *Eta Kappa Nu*.

GRADUATE STUDENT ADVISING

- Yannis Fountzoulas, Ph.D. student, Technical University of Crete.
- Dimitris Koupatsiaris, Ph.D. student, Technical University of Crete.
- Ioannis Grypiotis, Ph.D. student, Technical University of Crete.
- Yannis Fountzoulas, M.Sc., Technical University of Crete, Oct. 2014.
  Thesis title: "Optimal blind detection of APSK in polynomial time."
- Panagiotis P. Markopoulos, M.Sc., Technical University of Crete, Aug. 2012.
  Thesis title: "Full-rate differential MPSK Alamouti modulation with polynomial-complexity maximum-likelihood noncoherent detection."
- Georgina Abou-Elkheir, M.Sc., Technical University of Crete, Dec. 2011.
  Thesis title: "Maximum-likelihood noncoherent PAM detection."
- Anastasios Kyrillidis, M.Sc., Technical University of Crete, Aug. 2010.
  Thesis title: "Polynomial-complexity computation of the M-phase vector that maximizes a rank-deficient quadratic form."
- Dimitris S. Papailiopoulos, M.Sc., Technical University of Crete, July 2009.
  Thesis title: "Maximum-likelihood noncoherent OSTBC detection with polynomial complexity."
- Qian Huang, M.Sc., Wright State University, Mar. 2005.
  Thesis title: "Adaptive design of polyphase sequences."
- Ahmed O. Nasif, M.Sc., Wright State University, Mar. 2005.
  Thesis title: "Binary and quadrature transmissions over additive Gaussian noise: The exact channel capacity."

UNDERGRADUATE STUDENT ADVISING

- Emmanouil Logothetis, Diploma, Technical University of Crete, Oct. 2021.
  Thesis title: "Efficient WLAN link simulations by means of EESM."
- Alkiviadis Vasilopoulos, Diploma, Technical University of Crete, Feb. 2020.
  Thesis title: "MIMObit-assisted antenna selection."
- Andreas Sgourakis, Diploma, Technical University of Crete, Mar. 2019.
  Thesis title: "MIMO capacity estimation using MIMObit."
- Athanasios Tazes, Diploma, Technical University of Crete, Feb. 2019.
  Thesis title: "Time and frequency estimation in guitar signals."
- Georgios Delis, Diploma, Technical University of Crete, Jan. 2019.
  Thesis title: "Turbo coding."
- Odysseas Zafeiriou, Diploma, Technical University of Crete, Jan. 2019.
  Thesis title: "Music signal processing techniques."
- Dimitrios Papaioannou, Diploma, Technical University of Crete, Dec. 2018.
  Thesis title: "Antenna selection techniques for large-scale MIMO."

- Ioannis Grypiotis, Diploma, Technical University of Crete, Oct. 2018.
  Thesis title: "Reed-Solomon burst error decoding."
- Eleni Antoniou, Diploma, Technical University of Crete, May 2018.
  Thesis title: "Polar coding for the binary erasure channel."
- Konstantinos Bountrogiannis, Diploma, Technical University of Crete, Apr. 2018.
  Thesis title: "Information bit selection in polar coding for the binary symmetric channel."
- Magda Amiridi, Diploma, Technical University of Crete, Jan. 2018.
  Thesis title: "Polar-code construction and decoding techniques."
- Georgios Tsitsikas, Diploma, Technical University of Crete, Aug. 2017.
  Thesis title: "Wireless channel modeling using MIMObit."
- Konstantinos M. Konstantinidis, Diploma, Technical University of Crete, Dec. 2016.
  Thesis title: "Fast synchronization of FSK signals."
- Ioannis Papoutsidakis, Diploma, Technical University of Crete, July 2016.
  Thesis title: "Pascal-matrix polar coding for prime-input channels."
- Dimitris Chachlakis, Diploma, Technical University of Crete, July 2016.
  Thesis title: "Optimal noncoherent trellis decoding."
- Manos Fountoulakis, Diploma, Technical University of Crete, July 2016.
  Thesis title: "Subspace tracking for nested arrays."
- Angela Kosta, Diploma, Technical University of Crete, Jan. 2015.
  Thesis title: "Coding for the wiretap channel."
- Alexandros Sklikas, Diploma, Technical University of Crete, July 2014.
  Thesis title: "An algorithm with complexity $O(N^3 \log N)$ for rank-4 quadratic form maximization with a binary vector."
- Yannis Fountzoulas, Diploma, Technical University of Crete, Aug. 2012.
  Thesis title: "Selection of subsets of orientations for high-dimensional space-filling Latin hypercube sampling."
- Nikolaos Tsagkarakis, Diploma, Technical University of Crete, July 2011.
  Thesis title: "Design and decoding of polar codes."
- Panagiotis Markopoulos, Diploma, Technical University of Crete, Oct. 2010.
  Thesis title: "Maximum-likelihood noncoherent OSTBC MPSK detection."
- Megasthenis Asteris, Diploma, Technical University of Crete, July 2010.
  Thesis title: "Sparse rank-deficient variance maximization."
- Nikolaos Kolomvakis, Diploma, Technical University of Crete, July 2010.
  Thesis title: "Zero-error varying-length distributed source coding."
- Anastasia Barkalaki, Diploma, Technical University of Crete, Nov. 2009.
  Thesis title: "Rank-deficient quadratic form maximization with a binary vector: Parallelization and implementation in C."
- Dimitris S. Papailiopoulos, Diploma, Technical University of Crete, Oct. 2007.
  Thesis title: "Efficient maximum-likelihood block noncoherent MPSK detection in SIMO wireless systems."
- Anthony J. Halley, B.Sc., Wright State University, July 2005.
  Research in signal processing for communications.

OTHER EDUCATION AND INTERESTS

- **Graduate courses on Piano**, Department of Music, State University of New York at Buffalo, Class of Stephen Manes, Buffalo, NY, Jan. 2001 - June 2002.
- **Diploma, Piano (Grade: Excellent, with Distinction)**, National Conservatory of Athens, Class of Myrto Mavrikou, Athens, Greece, June 1997 (two-year program).
- **Bachelor's, Piano (Grade: Excellent, with Distinction)**, National Conservatory of Athens, Class of Aleka Damira, Athens, Greece, June 1995 (twelve-year program).