Georgios I. Orfanidis

Curriculum Vitae

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My Webpage
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Research Interests

My research interests are in the areas of signal processing, artificial intelligence, and machine learning, with an emphasis on data series analysis (collected across time or space) in non-stationary environments with applications to autonomous system operations.

Education

2021–present **Ph.D., Computer Science**, *Florida Atlantic University*, Boca Raton, FL, USA.
Cumulative GPA: 4.0/4.0

2021–2023 **M.Sc., Artificial Intelligence**, *Florida Atlantic University*, Boca Raton, FL, USA.
Cumulative GPA: 4.0/4.0

2017–2021 **B.Sc., Computer Science with a minor in Mathematics**, *Winthrop University*, Rock Hill, SC, USA.
Cumulative GPA: 3.931/4.0
Computer Science GPA: 3.948/4.0
Mathematics GPA: 4.0/4.0

Publications

Conference papers

[1] S. Mazokha, S. Naderi, **G. I. Orfanidis**, G. Sklivanitis, D. A. Pados, and J. O. Hallstrom, "Single-Sample Direction-of-Arrival Estimation for Fast and Robust 3D Localization with Real Measurements from a Massive MIMO system", to appear in *Proc. IEEE International Conf. on Accoustics, Speech, and Signal Processing, Rhodes Island, Greece, Jun. 2023*.

[2] **G. I. Orfanidis**, D. A. Pados, G. Sklivanitis, E. S. Bentley, Joseph Suprenant, M. J. Medley, "Single-Sample Direction-of-Arrival Estimation by Hankel-matrix Decompositions", in *Proc. IEEE Asilomar Conf. Signals, Syst. Comput., Pacific Grove, CA, Oct. 2022*.

[3] **G. I. Orfanidis**, D. A. Pados, G. Sklivanitis, "Time-series analysis with small and faulty data: L1-norm decompositions of Hankel Matrices", in *Proc. SPIE Defense + Commercial Sensing on Big Data IV: Learning, Analytics, and Applications*, Orlando, FL, April 2022.

Journal articles

[1] **G. I. Orfanidis**, D. A. Pados, G. Sklivanitis, E. S. Bentley, Joseph Suprenant, M. J. Medley, "Better than ML Direction-of-Arrival Estimation with One-Sample from a Small Antenna Array," in preparation.

[2] **G. I. Orfanidis**, S. Naderi, D. A. Pados, G. Sklivanitis, E. S. Bentley, Joseph Suprenant, M. J. Medley, "Signal Direction Estimation with Hankel Pre-filtered Data: Method and Illustrations on POWDER Testbed Measurements," in preparation.

[3] **G. I. Orfanidis**, D. A. Pados, G. Sklivanitis, E. S. Bentley, Joseph Suprenant, M. J. Medley, "Streaming Robust Time-Series Analysis: Edge AI L1-norm Decomposition of Hankel Matrices," in preparation.

Research Experience

Florida Atlantic University, Center for Connected Autonomy and AI (CA-AI)

2023-present **Singular Value Decomposition (SVD) by Unsupervised Deep-Neural-Network means**.

2023-present **IQ-sample Level Compression by Singular Value Decompositions of Page Matrices**.

2022-present **Single-Sample Direction-of-Arrival Estimation with Real Data from a Massive MIMO Base-Station by Hankel-matrix Decompositions**.

2022-present **Single-Sample Direction-of-Arrival Estimation by L1-norm Hankel-matrix Decompositions**.

2021-present **Streaming Robust Time-Series Analysis: Edge AI L1-norm Decomposition of Hankel Matrices**.

2021-2022 **Forecasting Floats in Turbulence (FFT) challenge by the Defense Advanced Research Projects Agency (DARPA)**, a prize competition designed to promote the development of algorithms to predict the exact location of 90 free-drifting floats in the Atlantic Ocean. The proposed forecasting framework based on Hankel-matrix decompositions was accepted amongst many submissions from around the world to compete against twenty others.

Advisors: Dimitris A. Pados, *Schmidt Eminent Scholar Professor, Director of Center for Connected Autonomy and AI, Department of Electrical Engineering and Computer Science, Florida Atlantic University* and Dr. George Sklivanitis, *Schmidt Assistant Research Professor, Department of Electrical Engineering and Computer Science, Florida Atlantic University*.

Cornell University

2020-2021 **Fact Checking for Scientific Papers using Bidirectional Encoder Representations from Transformers (BERT)**.

Advisor: Dr. Immanuel Trummer, *Assistant Professor, Department of Computer Science, Cornell University*.

North Carolina State University

2020-2021 **Effective Identification and Engagement of Transportation Stakeholders Using Geospatial Analytics and Online Advertising**.

The work was presented at the North Carolina Department of Transportation (NCDOT) Committee, the North Carolina Department of Transportation (NCDOT) Research & Innovation Summit, the North Carolina State University (NCSU) Internal Symposium and at the National Computer, and Information Science and Engineering (CISE) Symposium.

Advisor: Dr. Okan Pala, *Research Associate, Department of Computer Science & Center of Geo-spatial Analytics, North Carolina State University*.

Academic Enrichment

2022 **Attended NSF CyberTraining in Workforce Development for Future Smart Energy Systems**.

Students got exposed to key research areas related to the security and resilience in cyber-physical energy systems such as artificial intelligence, data analytics, communication, network security, IoT, real-time learning, multi-level decisions making, and smart grid applications.
Florida Atlantic University

2020 **Attended the Cornell, Maryland, Max Planck Pre-doctoral School 2020 (CMMRS 2020)**.

The world's most qualified undergraduate and graduate students were selected to participate in the program exclusively. Students had the opportunity to get exposed to cutting-edge computer science research and individually interact with leading scientists. (`https://cmmrs.mpi-sws.org/`).
Cornell University, University of Maryland, and Max Planck Institute for Software Systems

2019 **Certification, Effective Problem-Solving and Decision-Making**.
University of Irvine

Academic Distinctions

2021-present **Graduate Research Assistant Fellowship**.
Florida Atlantic University

2022-2023 **Wireless History Foundation Scholarhip**.
Wireless History Foundation (WHF)

2022-2023 **Graduate Fellowship for Academic Excellence Award**.
Florida Atlantic University

2022-2023 **Research Contribution Award**.
Division of Research, Florida Atlantic University

2021 **Best Computer Science Graduate as selected by the faculty**.
Winthrop University

2020-2021 **President of UPSILON PI EPSILON, the international honor society for the computing and information disciplines**.
Winthrop University

2018-2021 **Big South (NCAA Division 1 Athletic Conference) Presidential Academic Honor Award**.
Winthrop University

Professional Activities

2021-present **Graduate Student Member of the IEEE Signal Processing and Young Professionals Societies**.

2023 **Reviewer for the 2023 IEEE Asilomar Conference on Signals, Systems, and Computers**.

Computer skills

Programming Languages	MATLAB, Python, R, JAVA, C, C++,
Machine Learning	Keras, TensorFlow, NLTK, NumPy, Pandas, Scikit-learn
Web Technologies	HTML 5, PHP, Javascript, CSS
Database	SQL, MySQL, MongoDB
Other	LaTex
OS	Ubuntu, Windows, macOS

Extracurricular Distinctions

My engagement in youth competitive team sports and later university sports helped me develop strong communication, time management and leadership skills as well as the ability to strategize, identify the details that make the difference, set goals and execute while at the same time listen to constructive criticism and adjust accordingly.

2017-2021 **Received full athletic scholarship to play NCAA Division 1 Soccer at Winthrop University**.

2015-2017 **Member of Olympiacos F.C.(Junior Team)**.
Leading Greek professional soccer team with multiple appearances in UEFA Champions League.

2017 **Selected in the fifty most talented Under 20 soccer players in Europe by Metro.co.uk**.
Metro.co.uk is one of the most popular athletic newspaper and website, England.

2013-2015 **Member of the youth Greek National Soccer Team**.

Referees

Dr. Dimitris A. Pados, *Schmidt Eminent Scholar Professor, Director of Center for Connected Autonomy and AI, Department of Electrical Engineering and Computer Science, Florida Atlantic University.*
✉ dpados@fau.edu

Dr. George Sklivanitis, *Schmidt Assistant Research Professor, Department of Electrical Engineering and Computer Science, Florida Atlantic University*
✉ gsklivanitis@fau.edu