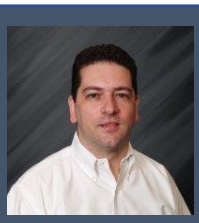

Pantelis Monogioudis, Ph.D

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Profile

Recognized industry leader with a track record of helping R&D teams develop new ideas from inception to proof of concept and products. I love to code and have a diverse skillset that includes Machine Learning, Cloud Computing, Robotics / Self-Driving Cars, Wireless Communications and Software Architecture. I like helping young people and give back to the community by teaching and mentoring.

Publications (25)

Google Scholar Results
h-index: 23
citations: 2054

Patents (42)

Google Patents Results

Programming and Skills

Python, Matlab, C++, Tensorflow, Spark, JIRA, Lean/Scrum.

Memberships

Acumos AI Project
Technical Steering Committee
2018-2019
https://www.acumos.org

Linux Foundation AI
Technical Advisory Board 2018 -
https://lfai.foundation

Awards

Two times recipient of the Bell Labs President's award for outstanding research.

Work Experience (last 10 years)

Adjunct Professor NJIT and NYU

2019 – Present

At NJIT, I teach both graduate and undergraduate level classes on Data Mining for Structured and Unstructured Data. At NYU I will be teaching starting in Spring 2020, a graduate level Artificial Intelligence course.

Head of Applied Machine Learning Research, Bell Labs

2018 – Present

Leading departments in US and Europe (15 engineers) that apply new machine learning methods to multisensory streaming data met in industrial automation and machine-human interaction. We work primarily on real-time scene understanding from infrastructure and mobile robotic camera streams, on gesture recognition from Electromyography (EMG) signals and general perception and localization algorithms. I have the final responsibility for the research backlog, for delivering the PoCs into products such as Scene Analytics and demonstrating **real-time deep learning algorithms** processing video and other streams to customers in FutureX - a dedicated space in Murray Hill, NJ hosting tens of network cameras and mobile robots connected via a plethora of 5G network technologies to edge GPUs. We contribute some of our learnings to the open source communities under the Linux Foundation and adopt open platforms such as Kubeflow and World Wide Streams (WWS) to help realize our vision of cloud-native fully automated ML application orchestration.

Squad Group Leader, Architecture & Technology, Nokia

2015 – 2018

Lead squads in US, France, Poland, Germany and China (100+ engineers) in the area of Artificial Intelligence (AI) and performance simulation. Developed algorithms and simulation platforms that power the resource management of millimeter wave 5G networks and embedded machine learning and optimal control algorithms to make them autonomous. We worked with Linux Foundation communities such as ONAP to contribute applications that demonstrate the advances in operational efficiency that our ML and optimization algorithms can offer. I had overall responsibility for delivering simulation results for 5G mmwave to the product, research backlog responsibility for advanced features and overall responsibility of developing and operating the **Simulation as a Service (SIMaaS)** platform, a web service that helped internal teams and customers validate the algorithms in real world 5G deployments, much ahead of the actual deployment of 5G equipment in the field.

Director, Wireless CTO, Nokia
2009 – 2015

Lead the **Self Organizing Network as a Service (SONaaS)** prototype development effort that demonstrates data mining and autonomous self-optimization network algorithms exposed as services in operator clouds. The team delivered the solution from concept and algorithm research all the way to customer trials in live networks. Several apps were developed: (a) Machine Learning apps that help parameter optimization algorithms in LTE networks based on mining the so called measurement reports. (b) traffic intensity prediction algorithms, (c) optimal placement policies of small cells in urban areas and many others. Technologies that we used include Apache Spark and Cassandra.

Distinguished Member of Technical Staff, Alcatel-Lucent
2009 – 2015

Delegation lead to the 3GPP2 standards development team. Lead role in developing and standardizing a proposal covering all aspects of a new air-interface from physical layer to radio resource management. Developed C++ system simulation software for supporting the proposal during the UMB standardization effort and inserted many technologies we had IPR on in the UMB specifications.

Education

Self-Driving Car Engineer (online)
Udacity, Online (2018)
Year-long degree program teaching all aspects of self-driving car engineering and algorothms from perception systems to optimal control / planning. The ROS-based car CARLA was used to showcase the results of our capstone project.

Selected Courses (online)
Columbia University, NY (2012)
Machine Learning, Optimization Techniques for Financial Engineers, Corporate Finance, Yield Management

Ph.D. in Communications Theory
University of Surrey, UK (1994)
Signal Processing for Interference Rejection

M.Sc in Telematics
University of Surrey, UK (1991)

B.Eng in Electronics
(with Highest Honors)
Technological Education Institute of Athens (1990)

Publications

BOOK CHAPTERS

"HTN Mobility Management", Chapter in "Heterogeneous Cellular Networks", Wiley, 2013.

JOURNALS

(this paper has tens of citations)

S. Deb, P. Monogioudis, *"Learning Based Uplink Interference Management in 4G LTE Cellular Systems",* IEEE Transactions on Networking, April 2015

(this paper has hundreds of citations)

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P. Monogioudis, "*Wide Area Mobility*", Mobile Europe, January 1996, Vol. 6, Number 1, Page(s): 20 – 23

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Monogioudis, P.N., Tafazolli, R., Evans, B.G., "*Performance of adaptive nonlinear NEFAR CDMA receiver architecture*", Electronics Letters Volume: 30 3, 3 Feb. 1994, Page(s): 192 -193

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	Networks", 2019 International Conference on Computing, Networking and Communications (ICNC) Capdevielle, Veronique, Monogioudis, Pantelis, Weaver, Carl, Pugeat, Jean-Michel and Myers, Steve, *"Learning based spectral clustering for LTE downlink CoMP systems"*, 14th IEEE Annual Consumer Communications & Networking Conference (CCNC 2017)
(this paper has tens of citations)	Avik Ray, Supratim Deb, Pantelis Monogioudis, "Localization of LTE measurement records with missing information", IEEE INFOCOM 2016-The 35th Annual IEEE International Conference on Computer Communications S. Nagaraj, P. Monogioudis, "*Interference Cancellation DFT-Precode CDMA in Next Generation OFDMA Communications*", Globecom 2007. S. Nagaraj, P. Monogioudis, "*Antenna Verification for Closed Loop Transmit Diversity in UMTS*", Vehicular Technology Conference (VTC) 2004. A. Moustakas, P. Monogioudis, "*Phase Sweep Transmit Diversity for Shared Data Channels - A Critical Analysis*", Globecom 2003, Vol. 4, Page(s):2192-2197, Dec. 2003. Monogioudis, P., Tafazolli, R., Evans, B.G., Edmonds, M., "*Multirate 3rd generation CDMA systems*", Communications, 1993. ICC '93 Geneva. Technical Program, Conference Record, IEEE International Conference on, Volume: 1, 1993, Page(s): 151 -155 vol.1 Monogioudis, P., Tafazolli, R., Evans, B.G., "*LFSE interference cancellation in CDMA systems*", Communications, 1994. ICC '94, Conference Record, Page(s): 1160 -1163 vol.2 Monogioudis, P., Tafazolli, R., Evans, B.G., "*Autonomous CDMA multipath diversity receiver"*, Spread Spectrum Techniques and Applications, 1994. IEEE ISSSTA '94, IEEE Third International Symposium on Spread Spectrum Techniques and Applications, 1994, Page(s): 430 -434 vol.2 Monogioudis, P.N., Tafazolli, R., Evans, B.G., "*Multimedia advanced CDMA system"*, Fourth IEE Conference on Telecommunications (Conf. Publ. No. 371), 1993, Page(s): 11 -16

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US15837621	P. Monogioudis, T. Sanam, Dandan Wang, Autonomous localization in wireless networks, Application Published 6/2019
9,326,163	S. Deb, P. Monogioudis, "Methods and systems for reducing interference in networks", Granted 2016
8,787,351	Monogioudis, P., "Method and apparatus for scheduling transmissions in a communication network", Granted 2014

8,630,652	Monogioudis P., "*Method And Apparatus For Optimizing The Location Of Heterogeneous Underlaid Evolved Node-Bs*", Granted, 2014
8,649,269	Monogioudis P., "*Method of Controlling Resource Usage in Communication Networks*", Granted, 2010
8,559,917	S. Deb, P. Monogioudis, "*Method, apparatus and computer readable medium for associating user equipment with a cell*", Granted, 2013
8,442,442	Monogioudis P., Vasudevan Subramanian, "Method of Assigning Scrambling Codes and Reducing Interference", Granted 2013.
8,159,974	Monogioudis P., "*Method of Configuring Interfaces Between a Plurality of Communication Nodes*", Issued 2012
7,894,402	Monogioudis P., Gollamudi S., Soni A., "*High Rate Packet Data Spatial Division Multiple Access (SDMA)*", Filed 2005.
7,787,530	Gollamudi S. and Monogioudis P., "*Multi-channel Adaptive Quality Control Loop for Link Rate Adaptation in Packet Data Communications*", Published 2003.
7,558,151	Monogioudis P., Nagaraj S., Viswanathan H., "*Method Of OFDM Communication Using Superposition Coding*", Issued 2009.
7,515,927	Monogioudis P., Viswanathan H. "*Method Of Reverse Link Dynamic Power Control In A Wireless Communication System Using Per-Flow Quality Feedback For Multi-Flow Data Traffic*", Issued 2009.
7,453,933	Jeske D., Monogioudis P., Rege K., Sampath A., "*Method of estimating a signal-to-interference ratio (SINR) using data samples*" , Filed 2002.
7,430,237	Monogioudis P., Rege K., "*Decoder-less bit-error-rate estimation for convolutional encoded transmissions in wireless systems*", Issued Sept 2008.
7,406,335	Benning R., Kogiantis A., Monogioudis P., Moustakas A.,Ozarow L., Simon S., "*Multiple Antenna Transmissions with Deterministic Phase Differences*", Published 2004.
7,169,956	Gollamudi S. and Monogioudis P., "*Adaptive Quality Control Loop for Link Rate Adaptation in Packet Data Communications*", Published 2002.
7,158,484	Ahmed W., Doshi B., Jiang H., Monogioudis P., Rege K., "Methods and apparatus for topology sensing in networks with mobile nodes", Granted, 2007.
7,076,015	Bhatoolaul D. and Monogioudis P., "*Preamble Detection for a CDMA Receiver*", Issued July 2006.
7,065,159	Monogioudis P., Rege K., "*Compensation based bit-error-rate estimation for convolutional encoded transmissions in wireless systems*", Issued June 2006.
7,009,949	Gopalakrishnan N., Kogiantis A., Khan F., Monogioudis P., Sampath A. "*Asymmetric rate feedback and adjustment system for wireless communications*", Issued Mar 2006.
7,006,841	Monogioudis P., Rege K., "*Method to control base station transmit power drift during soft handoffs*", Issued Feb 2006.
7,006,464	Gopalakrishnan N., Khan F., Monogioudis P., Sampath A. "*Downlink and Uplink Channel Structures for Downlink Shared Channel System*", Issued Feb 2006.
7,006,453	Ahmed W., Doshi B., Jiang H., Monogioudis P., Rege K., "*Location Based Routing for Mobile Ad-Hoc Networks*", Issued Feb 2006.

6,965,780	Monogioudis P., Rege K., Sampath A., "*Reverse link Outer-loop Power Control with Adaptive Compensation*", Issued Nov 2005.
6,952,561	Kumar S., Monogioudis P., Rege K., Sampath A. "*An Enhanced Metric for Bit Detection on Fading Channels with Unknown Statistics*", Issued Nov 2005.
6,915,477	Gollamudi S. and Monogioudis P., "*Delay Sensitive Adaptive Quality Control Loop for Rate Adaptation*", Issued Sept 2005. This patent is fundamental in the design of HSDPA schedulers.
6,765,896	Ahmed W., Doshi B., Jiang H., Monogioudis P., Rege K., "*Address option for use in an internet protocol-based multimedia mobile network*", Issued July 2004
6,735,202	Ahmed W., Doshi B., Jiang H., Monogioudis P., Rege K., "*Mobility management techniques for use in an internet protocol-based multimedia mobile network*", Issued May 2004.
6,690,659	Walid A., Doshi B., Hong J., Monogioudis P., Rege K., "*Addressing techniques for use in an internet protocol-based multimedia mobile network*", Issued Feb 2004.
6,647,005	Cao Q., Monogioudis P., Lin, J., "*Transmission power control for packet switched communications systems*", Issued Nov. 2003. This patent was judged as *fundamental* for the UMTS Release 6 radio interface (fractional DPCH channel).
5,550,810	Monogioudis P., Edmonds M., "*Direct sequence code division multiple access (DS-CDMA) communication system and a receiver for use in such a system*", Issued Aug. 1996. One of the earliest patents in the field, it is referenced by tens of other patent applications in the area the interference cancellation.
US Application	Monogioudis P. "*Wireless Communications System Employing OFDMA and CDMA Techniques*", Filed 2006. This patent application reads into the text of Revision-C 3GPP2 specifications.
US Application	Monogioudis P., Venkatesan S., "*System and Method of Joint Beamforming*", Filed 2008.
US Application	Monogioudis P., "*Dynamic Spectrum Access System and Method*", Filed 2010
US Application	Braun V., Monogioudis P., "*User Admission, Power, Rate and Mobility Control for Relay Communication Systems*", Filed 2011.
US Application	Monogioudis P., Ilya Korich, R. Soni, "*System and Method for Circular Antenna Array (CAA) Precoding*", Published 2013

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Can be provided upon request recommendation letters from colleagues at Nokia, Verizon, AT&T, NJIT and other organizations.