

## **CURRICULUM VITAE**

### **Konstantinos C. Zikidis, Ph.D.**

Lieutenant Colonel (Hellenic Air Force, Electronics Engineer)

#### **Résumé**

Konstantinos C. Zikidis graduated in 1993 from the Hellenic Air Force (HAF) Academy, as Telecommunications – Electronics Engineer. His first assignment was at 114 Combat Wing (Mirage F1 / M2000 aircraft), where he served until 2001. Then, he was transferred to the HAF General Staff. From 2004 to 2007 he served in Paris, France, as Liaison Officer between HAF and the French companies, following the Mirage 2000-5 programme implementation. After his return from France, he served in several posts at the HAF Support Command, the General Staff and the Military Office of the Minister of National Defence, while from Aug. 13 to Feb. 15 he was appointed as Support Director at the Calibration Agency.

In 2002 he received his Ph.D. degree from the National Technical University of Athens, School of Electrical and Computer Engineering, Division of Signals, Control and Robotics. His research was focused on neuro-fuzzy function approximation, mobile robotics and reinforcement learning. His interests now include avionics, radar systems, stealth and anti-stealth technologies. He is a lecturer at the HAF Academy and the HAF Technical NCO Academy. He has published more than 25 papers in journals, books and conferences, receiving several citations.

#### **Contact Info**

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#### **Studies**

- 1989 – 1993: Hellenic Air Force Academy, Aeronautical Engineering Department, as Telecommunications – Electronics Engineer (September 1989 – June 1993).

1993: Final year thesis "Construction of a novel Neural Network".

- 1994 – 2002: National Technical University of Athens, post graduate program (School of Electrical and Computer Engineering, Division of Signals, Control and Robotics, supervisor: S. G. Tzafestas).

2002: Submission of PhD Dissertation “New techniques in neural learning and neurofuzzy reasoning: application to robotics and automatic control”.

### **Military Career**

- 1993-2001: 114 Combat Wing (Tanagra Air Force Base), as Engineering Officer, working on Mirage F1 and Mirage 2000 aircraft. In 1997-98, he attended the integration programme of the Aerospatiale AM-39 EXOCET Block II air-to-sea missile, on the M2000 aircraft.
- 2001-2004: Hellenic Air Force General Staff (HAFGS), Telecomms – Electronics Directorate. 2002-04: Member of the "In Flight Evaluation Programme Group", following the flight test campaign of the Mirage 2000-5 aircraft (in flight evaluation of the RDY-2 radar and ICMS Mk3 countermeasures system).
- 2004-2007: Paris, France, following the HAF M2000-5 programme, as Liaison Officer between HAF and Dassault Aviation, Thales Airborne Systems, SNECMA - Group Safran, MBDA and DGA.
- 2007-2010: Hellenic Air Support Command (Elefsis Air Force Base), Support of M2000/-5 Avionics.
- 2010-2012: HAFGS, Telecommunications Directorate, head of Avionics Section (2011-2012).
- 2012: HAFGS, Weapon Systems Directorate, Program Manager for the M2000-5 programme.
- 2012-2013: HAFGS, Human Resources Directorate.
- 2013-2015: Calibration Agency (YPHD), as Support Director.
- 2015-2016: Military Office of the Minister of National Defence.

### **Military Schools**

- 1994: Electronic Warfare School at Air Tactics Center of the Hellenic Tactical Air Force (3 weeks).
- 2000: School of Computer Programmers of the Hellenic Army General Staff (6 months).
- 2010: Air Force Command and Staff College of the Air Force Training Command (5 months).

### **Teaching Experience**

- Teaching of the course "Aviation Electronics Systems (Avionics)" at the Hellenic Air Force Academy, to Air Cadets IV, Aeronautical Engineers, since 2008. Also, to Pilot Air Cadets II and III since 2010.
- Teaching of the course "Radar systems - Sensors" at the Hellenic Air Force Academy, to Pilot Air Cadets II, since 2013-4.
- Teaching of the course: "Principles of Automatic Control Systems" at the Non-Commissioned Officer Academy (STYA), to Cadets II,

Telecommunications – Electronics Technicians, since 2011, and also to Cadets II, Armament Technicians (2014, 2015).

- Presentation of Avionics and Fly-By-Wire aircraft systems at 2LT Engineers and NCO Technicians, at the 128<sup>th</sup> Telecommunications – Electronics Training Group (128 SETH), since 2012.

### **Supervision of Final Year Theses at the HAF Academy**

2011-12	Countering low observable aircraft – Analysis, application to the F-35 stealth aircraft. Construction of a remote-controlled electric vehicle, for the surveillance of military bases.
2012-13	Radar Cross Section Estimation using computational methods.
2013-14	Aircraft modelling allowing the Radar Cross Section estimation using computational methods. Autonomy of a remotely piloted electric vehicle for the surveillance of Military Bases.
2014-15	Presentation – feasibility study of Passive Radars. Position estimation of a remotely piloted electric vehicle for the surveillance of Military Bases.
2015-16	Modern air-to-air and air-to-ground Electro-Optical Systems – upgrade perspectives for HAF fighters. Study of electromagnetic pulse action and feasibility study of a suitable microwave generator. Robotic vehicle augmentation with the application of artificial intelligence.

### **Publications in Journals – Chapters**

1. K. C. Zikidis, A. V. Vasilakos, “A.S.A.F.E.S.2: A novel, neuro-fuzzy architecture for fuzzy computing, based on functional reasoning”, Fuzzy Sets and Systems, vol. 83, no. 1, pp. 63-84, Oct. 1996.
2. S. G. Tzafestas and K. C. Zikidis, “An on-line self constructing fuzzy modeling architecture based on neural and fuzzy concepts and techniques”, in S. G. Tzafestas, ed., Soft Computing in Systems and Control Technology, pp.119-168, World Scientific Series in Robotics and Intelligent Systems - Vol. 18, Singapore, 1999.
3. S. G. Tzafestas and K. C. Zikidis, “NeuroFAST: On-line Neuro-Fuzzy ART-based structure and parameter learning TSK model”, IEEE Trans. on Syst., Man, and Cybern, Part B: Cybernetics, vol. 31, no. 5, pp. 797-802, October 2001.
4. K. C. Zikidis and S. G. Tzafestas, “Adaptive neuro-fuzzy modeling applied to policy gradient reinforcement learning”, HERMIS- $\mu\pi$  Int. Journal, LEA Press, vol.3, pp.173-180, 2002.
5. P. Fofilos, K.-I. Xanthopoulos, E.-A. Romanos, K. Zikidis and N. Kanellopoulos, “KERVEROS I: An Unmanned Ground Vehicle for Remote-Controlled Surveillance”, Journal of Computations & Modelling, Scienpress Ltd, vol.4, no.1, 2014, 223-236.

6. K. Zikidis, A. Skondras and C. Tokas, "Low Observable Principles, Stealth Aircraft and Anti-Stealth Technologies", Journal of Comp. & Modelling, Scienpress Ltd, vol.4, no.1, 2014, 129-165.
7. P. Touzopoulos, D. Boviatsis and K. C. Zikidis, "Constructing a 3D model of a complex object from 2D images, for the purpose of estimating its Radar Cross Section (RCS)", submitted for publication to the Journal of Comp. & Modelling, Scienpress Ltd, in Dec 15.

### **Publications in conference proceedings**

1. A. V. Vasilakos, N. H. Loukas and K. C. Zikidis, "A.N.A.S.A. II : A novel, real-valued, reinforcement algorithm for neural unit / network", in proc. of Int. Joint Conf. on Neural Networks (IJCNN '93), pp. 1417-1420, vol. 2, Nagoya, Japan, Oct. 1993.
2. A. V. Vasilakos, K. C. Zikidis, "A.S.A.F.E.S.: Adaptive Stochastic Algorithm for Fuzzy computing / function ESTimation", 3rd IEEE Int. Conf. on Fuzzy Systems (FUZZ-IEEE '94), pp. 1087-1092, vol. 2, Orlando, Florida, USA, July 1994.
3. Αθ. Β. Βασιλάκος, Ν. Η. Λουκάς και Κ. Χ. Ζηκίδης: "Α.Ν.Α.Σ.Α. ΙΙ. Μία νέα αρχιτεκτονική για νευρωνική μονάδα / νευρωνικό δίκτυο", 4ο Πανελλήνιο Συνέδριο Πληροφορικής, σελ. 393 – 401, Πάτρα, Δεκ. 94.
4. A. V. Vasilakos, K. C. Zikidis, "A.S.A.F.E.S.2: A novel, neuro-fuzzy architecture for fuzzy computing, based on functional reasoning", 4th IEEE Int. Conf. on Fuzzy Systems (FUZZ-IEEE/IFES '95), pp. 671-678, vol. 2, Yokohama, Japan, March 1995.
5. A. V. Vasilakos, K. C. Zikidis, "A.S.A.F.E.S.2: A novel, neuro-fuzzy architecture for fuzzy computing, based on functional reasoning", EUFIT'95, Aachen, August 1995.
6. A. V. Vasilakos, K. C. Zikidis: "A.S.A.F.E.S.2: a reinforcement neuro-fuzzy architecture for fuzzy computing, based on functional reasoning", 5th Hellenic Conference on Informatics, Athens, Greece, December 1995.
7. S. Tzafestas, K. Zikidis, G. Stamou, "A reinforcement learning fuzzy logic controller for the mobile robot local path finding problem", Int. Symp. on Soft Computing (SOCO '96), Reading, UK, Mar 26-28, 1996.
8. S. G. Tzafestas and K. C. Zikidis, "A mobile robot guidance system based on three neural network modules", 2nd ECPD Conf. on Adv. Robotics, Intell. Autom. and Active Systems, Vienna, Austria, 1996.
9. S. G. Tzafestas and K. C. Zikidis, "An on-line learning, neuro-fuzzy architecture, based on functional reasoning and fuzzy ARTMAP", 2nd Int. ICSC Symp. on Fuzzy Logic and Applications (ISFL '97), Zurich, Switzerland, 1997.

10. S. G. Tzafestas and K. C. Zikidis, "Complete mobile-robot navigation via neural and neurofuzzy control", 1st MOBINET Symp., pp. 205 – 217, Athens, Greece, May 1997.
11. S. G. Tzafestas and K. C. Zikidis, "A three-level neuro-fuzzy autonomous robot navigation system", European Control Conf. (ECC '97), Brussels, Belgium, July 1997.
12. S. G. Tzafestas and K. C. Zikidis, "An new on-line structure and parameter learning architecture for fuzzy modeling, based on neural and fuzzy techniques", in Angel Pasqual del Pobil, José Mira and Moonis Ali, eds., Lecture Notes in Computer Science, vol. 1416, 1998, "Tasks and Methods in Applied Artificial Intelligence", 11th Int. Conf. on Industrial and Engineering Applications of AI and Expert Systems IEA-98-AIE Benicàssim, Castellón, Spain, June 1998, Proceedings, Vol. II, pp. 375-382.
13. S. G. Tzafestas and K. C. Zikidis, "Mobile robot localisation using ultrasonic sensor signatures and fuzzy ARTMAP clustering", in Proceedings of the 6th Int. Symp. on Intelligent Robotic Systems (SIRS'98) – 2nd Mobinet Symp., University of Edinburgh, Edinburgh, Scotland, UK, 21-23 July 1998.
14. S. G. Tzafestas and K. C. Zikidis, "Mobile Robot Localisation Using Ultrasonic Sensor Signatures and Fuzzy ARTMAP Clustering", Computer Vision and Mobile Robotics Workshop (CVMR '98), Santorini, Greece, 17-18 September 1998.
15. K. C. Zikidis and S. G. Tzafestas, "Adaptive neuro-fuzzy modeling applied to policy gradient reinforcement learning", 5th Hellenic European Conference on Computer Mathematics & its Applications (HERCMA '01), Athens, Greece, September 2001.
16. S. G. Tzafestas and K. C. Zikidis, "NeuroFAST: High Accuracy Neuro – Fuzzy Modeling", 2002 IEEE Int. Conf. on Artificial Intelligence Systems (IEEE ICAIS'02), pp.228-235, Divnomorskoe, Russia, September 2002.
17. K. C. Zikidis and S. G. Tzafestas, "ART-Based Neuro-fuzzy Modelling Applied to Reinforcement Learning", in Vasile Palade, Robert J. Howlett, Lakhmi Jain (Eds.), Knowledge-Based Intelligent Information and Engineering Systems, 7th International Conference (KES 2003), Oxford, UK, September 2003, Proceedings Part II, Lecture Notes on AI 2774, pp. 22-29, 2003.

#### **Various Publications (in Greek)**

- Major (HAF) Konstantinos Zikidis, "AESA Fighter Aircraft Radar (Active Electronically Scanned Array)", Air Force Review magazine, issue 91-92, Apr. - Jun. 12, pp. 156-173.

- Major (HAF) Konstantinos Zikidis, Pilot Air Cadet IV Aleksios Skondras, Pilot Air Cadet IV Charisios Tokas, "Low observable aircraft (Stealth)", Air Force Review magazine, issue 95, Sep. 12, pp. 156-173.
- Major (HAF) Konstantinos Zikidis, 2LT Aleksios Skondras, 2LT Charisios Tokas, "Low observable aircraft (Stealth) – Part B: Countering": Air Force Review magazine, issue 96, Dec. 12, pp. 56-83.
- 2LT P. Nomikos, 2LT D. Economou, Maj G. Limnaios, Lt. Col. K. Zikidis, "Presentation and Feasibility Study of Passive Radars", submitted for publication to the Air Force Review mag., since Feb 16.

### **Attending International Conferences**

1. IEEE World Congress on Computational Intelligence (FUZZ-IEEE '94), Orlando, Florida, USA, 1994.
2. Int. Symposium on Intelligent Industrial Automation and Soft Computing (SOCO'96), Reading, UK, 1996.
3. 1st MOBINET Symposium, Athens, Greece, 1997.
4. European Control Conference (ECC'97), Brussels, Belgium, 1997.
5. 11th Int. Conf. on Industrial & Engineering Applications of Artificial Intelligence & Expert Systems (IEA-98-AIE), Castellon, Spain, 1998.
6. EURISCON '98 - SOFTCOM '98, Athens, Greece, 1998, as a part of the organizing committee.
7. 5th Hellenic European Conference on Computer Mathematics & its Applications (HERCMA 2001), Athens, Greece 2001.
8. 2nd Int'l Conf. on Applications of Mathematics and Informatics in Military Sciences (AMIMS), Hellenic Military Academy, April 11-12, 2013, Vari, Athens.
9. 3rd International Conference on Technology Trends and Scientific Applications in Artillery and other Military Science (TTSAAMS 2015), Hellenic Artillery School, May 5-6, 2015, Nea Peramos.

### **Member to various organizations**

- AFCEA (Armed Forces Communications and Electronics Association) International – Member
- The Institution of Engineering and Technology (IET) – Member (MIET)

### **Foreign Languages**

- English: Proficiency, University of Cambridge.
- French: DELF B1.

(last update: March 2016)