Vijayanand C. Kowtha
8009 Craddock Road
Greenbelt, MD 20770
Tel: (301) 552-5405
kowtha@ieee.org

**Education:**

Ph. D. (1989) Biomedical Engineering, Rutgers University, New Brunswick, NJ
Theoretical Modelling Approaches for Investigating Mechanisms of Cardiac Arrhythmias
M. S. (1985) Bioengineering, Polytechnic University, Brooklyn, NY
Hodgkin-Huxley Implementation for Excitable Cells
B. S. (1983) Applied Mathematics, New York University/CIMS, New York, NY
H. S. (1980) Franklin Delano Roosevelt High School, Brooklyn NY

**Professional Experience:**

08/06- Present: Electronics Engineer: NRL, Washington DC 20375
K-20 STEM Coordinator, Branch Consultant

11/03- 08/06: Associate Director for Information Technology C4ISR, ONRGlobal London UK
Edison House Joint Service Support for Information Technology

10/98- 11/03: Electronics Engineer: NRL, Washington, DC 20375
Project Title: Advanced algorithms for emitter identification

07/95-09/98: Research Biologist: NRL, Washington, DC 20375
Project: Interpretation of signals from neuronal cells

06/93-07/95: Postdoctoral Fellow: American Soc. Eng. Ed. (ASEE), Washington, DC
Project Title: Function-based biosensor.

10/92-06/93: Scientist III: Geo-Centers, Inc. Newton Center, MA 02159

10/89-09/92: Research Associate: National Research Council, Washington, DC
Project Title: Analysis of complex cardiac dynamics: An approach to chaos.

07/87-09/89: Amer. Heart. Assn. Research Fellow: Rutgers Univ., Piscataway, NJ
Project Title: Theoretical studies in cardiac arrhythmias.

10/85-07/87: Teaching Assistant: Dept. Electrical Engineering, Rutgers Univ.,

01/84-10/85: Research Assistant: Cardiac EP Group, VA Medical Center, Brooklyn

02/82-06/83: Student Aide: Department of Mathematics, New York University

**International Awards**:

1. March 2000: Alan Berman Research Publication Award: Enhanced Emitter ID Using Scaled Conventional Pulse and Intrapulse Parameters.
2. March 1997: Alan Berman Research Publication Award: SEI Using Massively Parallel Implementations of Neural Networks.

3. Toastmasters International International Speech Contest Winner
4. NINDS/NIH Equal Employment Opportunity Award
5. State of Maryland Volunteer of the Year 2006, 2007, 2009
6. Reviewer: Knowledge Systems for Coalition Operations (KSCO), Organizer of KSCO-07

NRL Patent Disclosure: Kowtha V.C. et al (1996): Detection of metabolic poisons and cholinesterase inhibitors by determination of automaticity in tumor derived neural cells.

**Society Membership:**.

1. President NRL Thomas Edison Sigma Xi Chapter
2. Chairman: IEEE Engineering in Medicine & Biology Society (EMBS) New York
3. Society for Neuroscience, Washington, DC, Full member
4. IEEE, Piscataway NJ, Full Member
5. FASEB, Bethesda MD, Biophysical Society Member
6. Sigma Xi Research Triangle Park, NC Full Member

**Invited talks:**

1. FASEB summer conference (1986)
2. Woods Hole Marine Biological Laboratory (1987)
3. University of Pennsylvania (1988)
4. NIDDK/NIH (1989)
5. JACC Chicago (1990)
6. Tata Institute for Fundamental Research (1991)
7. NRL (1992)
8. George Mason University (1993)
9. NIH Research Festival (1994)
10. American Chemical Society (1995)
11. Pasteur Institute, Paris (1996)
12. USAF, Rome Labs (1997)
13. USAF, WPAFB Dayton OH (1998)
14. DREO Ottawa CA (2001)
15. NAVSEA Dahlgren VA (2002)
16. NRL Monterey (2003)
17. CITMO Sofia Bulgaria (2004)
18. Coast Guard MDA Workshop (2005)
19. UMD College Park (2006)
20. Orlando FL (2007)
21. KSCO Boston (2008)
22. NDEP Honolulu Hawaii (2010)
23. USA Science Festival (2011)
24. Navy SERB Washington DC (2012)
25. Washington Academy of Sciences (2013)

**Publications:**

ElSherif, N., Gough, W. B., Hariman, R Restivo, M., & Kowtha, V. (1984 ). Role of site of stimulation for termination of reentrant ventricular tachycardia. In Circ (Vol. 70, No. 4, p . 346).

ElSherif, N., Gough, W. B., Hariman, R., Zeiler, R., Restivo, M., & Kowtha, V. (1984, January). Mechanisms of termination or acceleration of reentrant tachycardia by burst pacing. In Circulation (Vol. 70, No. 4, pp 91).

Restivo, M., Gough, W. B., Kowtha, V., & ELSHERIF, N. (1985). Mechanism by which dual pacing prevents reentrant ventricular arrhythmias. JACC Vol. 5, No. 2, 394

ElSherif, N., Gough, W., Restivo, M., Kowtha, V. (1985). The mechanism by which abrupt changes in cycle length facilitates the induction of reentrant rhythms. In Circulation (Vol. 72, # 4)

Gough, W. B., Restivo, M., Kowtha, V., Assadi, M. A., & ElSherif, N. (1986). The dependence of reentry on the site of stimulation in the ischemic canine ventricle. JACC Vol. 7, No. 2, p166).

Kowtha, V., Restivo, M., Li, J. K. J., & El-Sherif, N. (1987). Role of slow conduction in cardiac arrhythmias. In Proceedings of 13th NE bioengineering conference (pp. 63-4).

Kowtha, V., & Li, J. J. (1989, March). Post-repolarization refractoriness in the ventricular muscle. In Bioengineering Conference, 1989., Proceedings of the 1989 Fifteenth Annual Northeast (p. 7-8).

Restivo, M., Kowtha, V., Boutjdir, M., Craelius, W., & El-Sherif, N. (1990). Mechanism of early atter depolarization formation induced by delayed sodium inactivation. Journal of Molecular and Cellular Cardiology, 22, S13..

Kowtha, V. C., Restivo, M. (1990 ). Entrainment In Cardiac Purkinie Fibers. In Engineering in Medicine and Biology Society, 1990., Proceedings of the Twelfth Annual International Conference of the IEEE (p. 626-627)

Kowtha, V. C., Quong, J. N., Bryant, H. J., and Stenger, D. A., "Comparative Electrophysiological Properties of Ng108-15 Cells in Serum-Containing and Serum-Free Media", Neuroscience Letters, 164 (1-2) 129-133 (1993).

Kowtha V, Boutjdir, M, Caref, E, El-Sherif N, Restivo M (1993): Complex and chaotic dynamics of early afterdepolarizations in simulated purkinje fibers. In Biophys J

Shewry, M. J., Tatham, A. S., Kowtha, V. C., Kunysz, A., Clay, J. R., Glass, L., ... & Saraste, M. Gap Junctional Communication in Excitable Tissues; The Heart as a Paradigm--WC De Mello. Hormones (1994).

Clay, J R., Kristof, A S., Shenasa, J., Brochu, RM., Shrier, A. etal (1994). A review of the effects of three cardioactive agents on the electrical activity from embryonic chick heart cell aggregates: TTX, ACh, and E-4031. Progress in biophysics and molecular biology, 62(3), 185-202.

Hickman, J. J., Foster, K. E., Kowtha, V., Bey, P., and Stenger, D. A., "Whole-Cell Based Biosensors", Abstracts of Papers of the American Chemical Society, 207 76-BTEC (1994).

Kowtha, V. C., Kunysz, A., Clay, J. R., Glass, L., and Shrier, A., "Ionic Mechanisms and Nonlinear Dynamics of Embryonic Chick Heart Cell Aggregates", Progress in Biophysics & Molecular Biology, 61 (3) 255-281 (1994).

Kowtha, V., Satyanarayana, P., Granger, R., and Stenger, D., "Learning and Classification in a Noisy Environment by a Simulated Cortical Network", in Neurobiology of Computation -Proceedings of the Third Annual Computation and Neural Systems Conference, held inMonterey, CA, 21-26 JUL, 1994, Dordrecht, Netherlands: Kluwer Academic Publishers, 245-250 (1995)

Kowtha, V. C., Bryant, H. J., Krauthamer, V., Iwasa, K. H., and Stenger, D. A., "Spontaneous Firing of NG108-15 Cells Induced by Transient Exposure to Ammonium Chloride", Cellular and Molecular Neurobiology, 16 (1) 1-9 (1996).

Sciortino, J. C., Barrows, G. L., Kowtha, V. C., and Stenger, D. A., "Towards Highly Accurate Emitter Identification", in National Fire Control Symposium 1997, held in Colorado Springs, Colorado, 4-7 August 1997, 1997: II 469-88 (1997)

Ma, W., Pancrazio, J. J., Coulombe, M., Dumm, J., Sathanoori, R. S., Barker, J. L., Kowtha, V. C., Stenger, D. A., and Hickman, J. J., "Neuronal and Glial Epitopes and Transmitter-Synthesizing Enzymes Appear in Parallel With Membrane Excitability During Neuroblastoma X Glioma Hybrid Differentiation", Developmental Brain Research, 106 (1-2) 155-163 (1998).

Kowtha, V. C., Bryant, H. J., Pancrazio, J. J., and Stenger, D. A., "Influence of Extracellular Matrix Proteins on Membrane Potentials and Excitability in NG108-15 Cells", Neuroscience Letters, 246 (1) 9-12 (1998).

Sciortino, J. C., Yang, S., Thompson, M. J., Barrows, G. L., Stenger, D. A., and Kowtha, V. C., "Highly Accurate Autonomous ESM Surveillance Technology for System Applications (U)", in 44th Annual Joint Electronic Warfare Conference, held in Pensacola, FL, 26-29 April 1999, (1999)

Yang, S. A., Kowtha, V. C., Barrows, G. L., Sciortino, J. C., and Stenger, D. A., "Enhanced Emitter Identification Using Scaled Conventional Pulse and Intrapulse Parameters.", NRL-FR-9912; NRL/FR/5720-99-9912, (1999).

Kowtha, V. C., Ford, B., Thompson, M. J., and Sciortino, J. C., "Emitter Classification with CANEWS 2", in 45th Joint EW Conference, held in Monterey, CA, 1-4 May 2000, (2000)

Kowtha, V. C., Ford, B., Thompson, M. J., and Sciortino, J. C., "Emitter Classification with CANEWS 2", in 46th Joint EW Conference, held in Monterey, CA, 30 APR-3 MAY 2001, (2001)

Kamgar-Parsi, B., Kamgar-Parsi, B., Sciortino, J., Kowtha, V., Dayhoff, J., and Thompson, M., "High Accuracy Deinterleaving of Emitters via Cellular Network Classifiers", in 47th Joint EW Conference, held in San Antonio, TX, 6-9 May 2002, (2002)

Kowtha, V. C., Thompson, M. J., Reynolds, T. N., Connell, J. R., Spezio, A. E., and Sciortino, J. C., "Signal Sorter For Advanced Multifunction Radio Frequency Concept (AMRF-C) Using Neural Networks and Advanced Statistical Techniques", NRL Review 2002 146-149 (2002).

Sciortino, J. C., Kowtha, V. C., Mittu, R., and Segaria, F., "Mission and Situational Awareness Management for Airborne Platforms", in 48th Joint Electronic Warfare Conference, held in Monterey, CA, 6-8 MAY 2003, (2003)

Sciortino, J. C., Kowtha, V. C., Mittu, R., and Segaria, F., "Mission and Situational Awareness Management for Airborne Platforms", in Joint Advanced Weapon Systems Sensors, Simulation, and Support Symposium, held in Monterey, CA, 14-17 JUL 2003, (2003)

Sciortino, J. C., Wu, A. S., Yu, H., McQuay, B., Yilmaz, S., and Kowtha, V. C., "ISR Team Formation for Unattended Ground ES Sensor Networks Using Evolutionary Algorithms", in 48th Joint Electronic Warfare Conference, held in Monterey, CA, 6-8 MAY 2003, (2003)

Justh, E. W. and Kowtha, V., "Biologically inspired models for swarming", in Conference on Evolutionary and Bio-Inspired Computation - Theory and Applications, held in Orlando, FL, 2007
Mittu, R., Abramson, M., Sjoberg, B., Kowtha, V., Will, I., Ridder, J., ... & Naley, B. (2009). Optimization of ISR Platforms for Improved Collection in Maritime Environments.

Runco, S. K., Pickard, H., Kowtha, V., & Jackson, D. (2011). ISS Has an Attitude! Determining ISS Attitude at the ISS Window Observational Research Facility (WORF) Using Landmarks.

Kowtha, V (2012): HAGRISS. Use of ISS for Observational Utility. NAVY SERB