**DR. SUBBARAO V. WUNNAVA Ph.D.,P.E.,**

Professor (Retired)  Electrical and Computer Engineering

(at  Florida International University, a State University of Florida in Miami)

Mailing:  10425 S.W 143 Court, Miami, Florida 33186, USA

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## EDUCATION:

Ph.D. Nuclear Instrumentation Major  and Electronics Minor, Andhra University, India 1966.

M S. in Electronics - Electrical Engineering, North Dakota State University, (USA) 1970.

MS in Nuclear Physics - Electronics, Andhra University, India, 1961.

BS Physics, Mathematics. Chemistry; Hindu College, India1959.

PE (Professional Engineer) License, State of Florida, August 1979.

## PROFESSIONAL EXPERIENCE:  (As of  July 20, 2010)

Emeritus Professor, ECE Department, College of Engineering & Computing, July 2010…

Professor of  Electrical & Computer Engineering (September 1977 - to  August 2008)

    Graduate Advisor  (1982 – 1996)

    Associate Chair, ECE Department (1996-2001)

    Undergraduate Advisor, Program Coordinator 1977-1982

Florida International University,.

10555 W. Flagler Street, Miami, Florida 33174

Supervisors:  Dr. James Story, Dr. Malcom Heimer, Dr. Gus Roig, Dr. Malek Adjouadi, Dr. Kang Yen

**My responsibilities and activities:**

1. Organizing the course material and teaching electrical engineering students in the areas of solid state devices. electronics, digital systems and microprocessors.
2. Implementing electronics. digital & microcomputer laboratories to supplement. classroom instruction
3. Researches, on current and future potential topics, which are of use to students and local industry.
4. Counseling students regarding their course work and graduation.
5. Partaking in committees and meetings, which are of importance to our department and students
6. Restructuring laboratory activities in electronics, digital and computer systems and communications
7. Initiating student oriented projects and research proposals.
8. Counseling and guiding graduate students in their course and thesis work

In recognition of my service, I have been awarded Teaching Award. plaques by EE students in 1978, 1980,

and 1990; Teaching Awards by the University 1984, 1994, 1995, 1997, & 1998.

Also FIU and State of Florida granted me PEP (Professorial Excellence Program) award as a

distinguished professor in 1997.

## Courses Developed and Taught at Florida International University:

### Undergraduate Courses

| | | |
|---|---|---|
| Engineering Orientation | Software & Programming | Engineering Circuit Analysis |
| Circuits I, | Circuits II; | Logic Design I, Logic Design II |
| Electronics I, | Electronics II; | Computer Design |
| Filter Design | Digital Filters | Hardware Description Languages (HDL) |
| Microprocessors 1 | Microprocessors 2; | Integrated Circuits |
| Communications | Senior Design 1& 2 | Digital Signal Processing (DSP) |
| Digital Electronics | Control Systems | |

### Graduate Courses

| | |
|---|---|
| Digital Systems Engineering I | Digital Systems Engineering II |
| Data Communication | Micro Operating Systems |
| Computer Communications | Advanced Microprocessors |
| Intelligent Machine Design | Advanced Special Topics |
| ISDN & ATM structures | High Speed Networks |
| Network Security | VLSI Design |
| Advanced   VLSI Design | Micros for Software Engineers |
| Fiber Optic Systems | Satellite Communications |

### OTHER PROFESSIONAL EXPERIENCE

**Consulting Engineer**:
Bellcore (Bell Communications Research), New Jersey: Summers 1993-1998:
 Research in the areas of ISDN (Integrated Digital Services Network Distance Learning,
Internet Interface Schemes and Network Monitoring schemes, Interactive audio and video and data
communications; Evaluation schemes for ISDN protocols and routing equipment; ISDN application
guide development; TCP/IP protocol schemes on Ethernet and evaluations.
**Consulting Engineer: Dow Coming- Theretek, Miami, Florida**, 1991- 93

Development of Fault Tolerant Value Detector Systems and evaluations;

Software development for system failure predictions and detections;

**Consulting Engineer Cordis Corporation, Miami, Florida**, 1983 to 1986.

 Development of  automation  schemes.

Development of testing schemes for processors and memories.

Development of PLA based micro coded controllers.

Development of microcomputer modules and evaluations.

Active design and participant in the Cardiac defibrillator development team.

Development of low power activation schemes for microprocessors and systems.

Automatic testing and failure methodology extractions;

**Consulting Engineer: ATT Information Systems and Bell Laboratories, New Jersey**

 **(Summers:1985 through 1988)** :

Development of microprocessor based architectures for voice data communication systems.

Parallel processing schemes, digital signal processing schemes.

Development of software modeling. Evaluation of busing protocols and distributed processing methods.

Evaluation of micro busing schemes such as VME, Multi Bus It. SCCI. and IBM Micro Channel.

Evaluation of Bell Laboratories Internal Micro Busing Architecture (APACHE) for multi processing.

Design analysis of flow control such as MNP in serial data communications.

Design analysis of synchronous auto dialing and data communications between computer systems.

Analysis of SADL HDLG, SDLC protocols for synchronous data communications.

**Consulting Professor Motorola Corporation, 1986 to 1990**:

Organizing, delivering microprocessor seminars on behalf of FIU and Motorola on advanced

microprocessors such as 68000/68010/68020 16/32 bit microprocessors and developing applications.

VME Busing Schemes and Applications: DSP Interface schemes and Applications.

Dynamic Memory interface schemes to Microprocessors with fault tolerance and masking;

**Visiting professor to Kuwait Institute of Technolog**y, **Govt of Kuwait (Summers 83 &84)**

Delivering lecturers on the microprocessors and microcomputers.

Helping Government of Kuwait in program *planning* on microcomputers and applications.

Development of their microprocessor based courses labs and CAD.

**Visiting Consultant to India**, **Summers 1980 and 1983, 1989, and 1991**.

Delivering seminars on microprocessors and applications. Delivering consultation on multilingual typewriter system. Conducting research investigations on radiation measurement and computerized data acquisition and use of microprocessors and networks.

**Consulting Engineer, Burroughs Corporation**, **1977 to 1983**:

Florida Design review and interaction of digital and microprocessor based electronic systems.

Applications of integrated circuits and new technologies such as fiber optics and VLSI. Digital data entry mechanism development. Fiber Optic busing schemes. Advanced technology evaluations. & Optical keyboards. Responsible for *initiating* and setting up engineering operations at Jacksonville (1982/83).

**Project &Staff Engineer Burroughs Corporation**, **Computer Systems, 1974 -1977**. **New Jersey**

Design and model development of semiconductor memory systems using MOS, IIL. BUBBLE, etc.

Design and model development of high speed integrated circuits for computer system hardware.

Design and development of switching regulators. Development and standardization of test philosophy for digital system electronics. Investigations regarding the maturity and applicability of new technologies such as optical transmission. magnetic bubbles, CCDs, etc. for usage in Burroughs systems. Several technical reports have been brought out for Burroughs internal circulation, on all the above mentioned activities.

**Assistant Professor, 1970 to 1974, and instructor, 1968 to 1970, North Dakota State University Fargo, North Dakota Electrical and Electronics Engineering Department**.
Organized and taught several undergraduate courses with reference to the BS. and MS. programs

in Electrical and Electronics Engineering, covering the following areas:

Semiconductor Physics and Integrated Circuits: Solid State Devices and Applications
Digital, Analog and Communication Electronics; Industrial Controls and Systems

Conducted researches in the areas of:

Electronic Data Acquisition System for Bio-medical applications (NSF Grant)

Electronic Sound Generation of Insects (Themis Grant)

Electronic Repulsion of Animals (Ilhemis Grant); Analog/Digital Instrumentation (University
Grant) DC to DC Conversion Techniques and Switching Regulators

**I obtained "Prime Mover Award. for five years (1969-1974) for teaching and professional
excellence at the North Dakota State University.**

**RECOGNITION, HONORS AND AWARDS**

TIP (Teaching Incentive Program) Award:  FIU/State of Florida 1999

PEP (Professorial Excellence Program) award, FIU/State of Florida as distinguished professor: 1997

Florida International University Presidential Teaching Recognition award: 1997

Florida International University Foundation, Teaching Award, 1995

TIP (Teaching Incentive Program) Award FIU/State of Florida, November 1994

Research Award, State University System and FIU, October, 1990

Performance Award, Motorola Corporation, June, 1990
Outstanding Performance Award FIU - Student Branch 1990

American Heart Association Outstanding Mentor Award, 1988

Ryder s Teaching Excellence Award Granted by FIU. and Ryder Systems: 1984

Teaching Appreciation Award: Student body, College of Bahamas: 1982/83

Performing Award: Granted twice by the F.I.U. Electrical Engineering for professional and

teaching excellence Department 1978 & 1980

Faculty Development Award: Awarded by F1U. Development Committee to initiate research.

1978/79 Prime Mover Award: For five consecutive years at North Dakota State University for

teaching and  professional excellence: 1969-1974

Scholastic Awards: Secured several cash and fee waiver awards and scholarships throughout my

scholastic career

**PUBLICATIONS & OTHER RELATED ACTIVITIES**:

Subbarao Wunnava has close to 200 publications in Journals, Conferences and Workshops. Also he has close to 50 technical reports and monographs. In addition he has 3 text books, 3 solution manuals, and several Application guides, and several short courses:

**TEXT BOOKS AND ASSOCIATED PUBLICATIONS:**

1. Microprocessors, Hardware, Software and Design Applications.

   Reston & Prentice Hall Publishing House, 1984.

2. Solution and Lab Manual for above, October, 1985.

3. 16/32 Bit Microprocessors: 68000/68010/68020/68030 Software, Hardware, and System Applications

   Merrill & Prentice Hall Publishing,    1991/92.

   4. Solution Manual for above: Coauthored with Mrs. Luam Ruiz, 1992/93.

5. 8086 Family of Microprocessors, Software. Hardware and System Applications
   Delmer publishing, 1993/94.

6. Applications Manual for 8086 Family of Processors: Co- authored with Mr. Hamid Ghassemi
   Delmar Publishing, 1994/95.

7. Solution Manual for 8086 Family of Processors: Co-authored with Mr. Peter Hoo
   Delmar Publishing, 1994/95.

8 .Supplemental material for Dr. Umera's Book on "Introduction to VLSI Circuits and
   Systems"  2006

   9. Operational website   vlsilab.fiu.edu  for the student benefit 2006-2008 and on going

**Author of short courses**:

1. 16/32 bit microprocessors: Electro International, Newvork 1991;

2. Computer Communications and Networking: Half day tutorial at Southcou92

3. ISDN, what is it? where is it going? Half day tutorial at NIST, MD, 1993&1994

4.. Data Communications & Local Area Networks: Half day tutorial at Southeastcon95

**MS & Ph.D. THES DISSERTATIONS SUBBARAO V. WUNNAVA AS PRINCIPAL ADVISOR**

During last 20 years, about 80 students obtained Masters degree with Subbarao Wunnava as the Major professor. Nine students have Ph.D. They are listed as follows:

**MS THESIS DISSERTATIONS SUBBARAO V. WUNNAVA AS PRINCIPAL ADVISOR**

l."Pseudo Expert System for Signal Recognition", by Laum Ruiz, 1987/1988.

2."Intelligent Encoded Busing Schemes", by Jorge Salinger, 1988.

3."Computerized Numerical Control System (CNC)- for Motion Control", by Armando Barreto, 1989.

4."Real Time Operating System Environment", by Mauricio Salines, 1989/1990.

5."Expert System concepts in production environment" by Oscal Resler, 1989.

6."Signature verification Schemes: by Fernandez, 1989/90.

7."Microcomputer Based System for Study ofRespiratory Problems ", by Nelson Claure, 1989/1990.

8. "Prediction of Component/System Failure with Multi Phase Simulation", by Vince Ordax, 1989/1990.

9"1/O Computer System Development", by David Lopez DeQuinmna, 1990-91.

10. "LEED Image Processing System", by Fijeu Wu, 1991.

11. "Complex Signal Generation for Computerized Testing", by Vo Thaung, 1991.

12. "Radiation Monitoring System" by Injun Yu, 1991.

l3. "Bio Monitoring System for spacity..." by Jeff Hochberg, 1991/92.

14. " Signature Verification System" by Fernado Gonzalez, 1991/92.

15. "Traffic control system model................." by Jorge Ladron, 1992/93.

16. "PC based security system development.." by Jorge Besada, 1992/93.

17. "GPSS based simulation system..............." by Pablo Perez, 1993.

18. "Fault Tolerant Token Ring System........" by Tom Gilbar, 93.

19. "GPSS based emulation concepts..........." by Oscar Rios, 93/94.

20. "Automatic Toll collection system simulation " by Carol Levay, 1994.

21. "ISDN based Retail Network" by Mark Williams, 1994.

22. "Medical Network development.................... " by Humid Ghassemi, 94/95.

23. "Design for testability.................................. " by Abel Seirra, 1994/95.

24. "Micro controllers and RISC ....................... " by Monica Beltran, 1994/95.

25. "Data Security in transactions...................... " by Juan Penagas, 1995.

26. "Network based data transfers...................... " by Kent W reder, 1995.

27. "VHDL based designs for ISDN Terminal Adapters" by Ramana Malnedi, 1995.

28. "Virtual Design Centers ............................... " by Miguel Rosario 1995/96.

29. "Virtual Visual System Development…….." byKishorGandam, 1995/96.

30. "ISDN based security network....... ............." by Isidro Alverez, 1996.

31. "Remote Instrumentation and Control ........" by Peter Hoo, 1996.

32. "VHDL based ATM model development " by Vijaya Pati.

33. "VHDL based space allocation system model " by Margeret Dabdoub, 1996.

34. "Control System Simulations and remote access" by Carlos Laras, 1997

35. "Multi point Video Conferencing" by Krishna Mallampati, 1997

36. "Design of ECG feedback system.." by German Estavitz  1997.

37. "Web Based Electronic Commerce" by Mike Woon Choy, 1998.

38. " Interactive Multi media on Internet " by Tim Williams, 1998.

39. " Multi Media conferencing using Networks" by Manej Monga, 1998.

40. " Remotely controlled dynamic automation" by Rizwan Hanif, 1998.

41. " Remote Learning an Laboratory Center.." by Sanjay Patel, 1998 1 I or PrA-fh-c0

42. "Adaptable Digital System Design" By Inti Sanchez (1999)

43. "Network Based Interactive Multimedia" By Sridevi Ranga (1999)

44. "Dynamic and Secure Information Transfers" By Ajay Sishoda (1999)

45. "Web Based Public Information Network" By Madhu Reddy (1999/2000)

46.   "Remote Interactive Laboratory" By Boris Lino(1999/2000)

47.   "Adaptive and Secure Network Communications" By Amit Kapasi (2000)

48.   "Web Based Emergency and Security Alerting System" By Poorna Gundupalli (2000)

49.   Multi Lingual Interactive Multimedia Based Electronic Commerce (2000) By Amil Chobe

50.   "Tele-Network Based Interactive Education": By Kalpana Tummala (2000)

51.   "Distributed and Individual Security Implementation Foe networks" By Ed Lule (2000)

52.   "Multi Level Data Compression Techniques" By Craig Chin (2001)

53.   Network Based Robotic Control and Vision" By Kunal Rupani (2001)

54.   "Predictive Performance Modeling" By Garth Crosby (2001)

55.   Data Security with MARS Methodology" By Ernesto Rassi (2001)

56.   "Dynamic and Wireless Information Monitoring" By Alberto Rodrigurz (2001)

57.  "Centrally Managed Distributed Network" By Yonas Hambissa (2001)

58.  "Interactive Multimedia over Internet" By Hetal Jasani (2001)

59.  "Dynamic Load Spreading in Private Networks" By Orlando Suero (2002)

60.  "Network Intrusion Detection System" By Richard Laboris (2002)

61.  Programmable Logic based Microcontroller" By Orlando Otero (2002)

62.  "VHDL and Verilog Based Micro Controller (2002) Jaime Montenegro (2002)

63.  "Simulation and Analysis of Network Traffic By Neelima Boppana (2002)

64.  "Network Monitoring and Fault Isolation" By Suresh Kondapalli (2002)

65.  "Remote Experimental Station for Engineering Education" By Maralli Doddapaneni (2002)

66.  "Real Time Intrusion Detector System" by Rag Sundarvadan (2003)

67.  "Distributed and Secure Network Based Design Environment" By Bhargavi Kodiparthi (2003)

68.  "Performance Evaluation of VOIP" By Anil Saka (2003)

69.  "Security Issues in Active Networks" By Edwin Lobina (2003)

70. "Data and Network Security using Stenography" By Richard Zavaleta (2003)

71. "Remote Surveillance using distributed sensors" by Arun Varadan (2003)

72. "Distributed sensing, characterization and networking" by Amid Deshpande (2003)

73. "VLSI implementation of linear image soothing" by Neelima Muralidharan (2004)

74. "Microcontroller realization with VLSI designs" by Amir Noel (2004)

75. "VLSI implementation of adaptable Serial/Parallel interface" by Vivek Jayaram (2004)

76. "VLSI based Modular Design implementations" by Pavani Punnugoti (2004)

77. "Study of SystemC capabilities for VLSI (MS project)"by Junfang Yao (2005)

78. "High Frequency capabilities for VLSI systems (MS project)" by Chandra Kadiala (2006)

79. "Mixed mode VLSI design implementations (MS project)" by Cuthbert Allen (2006)

80. "Integrating Analog and Digital system designs for VLSI (MS project) by Tem Marcus (2006)

81. "Mixed Mode design concepts with Design Architect (MS project) by Mahita Aithiraju (2007)

82. "Access Networks and implementation schemes" by Carlos Marino (2007)

83. "VLSI mixed mode optimizations (MS project) by Sirisha Konda (2008)

84. "Furthering the optimization capabilities for mixed mode designs" by Krishna Tatta(2008)

85. "FPGA implementation of EIF systems for environmental data" by Hilda Palencia (2008)

86. "Neural Network implementation for signature identification" by Rafael Romero (2008)

## Ph.D THESIS DISSERTATIONS SUBBARAO V. WUNNAVA AS PRINCIPAL ADVISOR

1. "Data Encryption Schemes for ISDN based data transfers.." by Inna Fernandez 1994.

2. "ASIC Microcontroller designs…….." by Injung Yu, 1995.

3. Non Linear Dynamics and Chaos Simulation" By Pablo Perez (1999)

4. "Multi Purpose Monitoring System for Environmental, Industrial and Bio Applications" By Abel Sierra   (2000)

4. "Data and Network Security Schemes, Analysis and Characterization" by Shamila Makki (2006)

5. "VLSI system design for Segmental Body Impedance Analysis" by Jaime Montenegro (2007)

6. "IPTV Controller design and VLSI implementation" by Vivek Jayaram (2007)

7. "Visual Driver Support System for Traffic Signs and Control" by Richard Zavaleta (2007)

9." "Micro Electro Mechanical (MEM) sensor interface implementation" Junfang Yao (2007)

**In addition, Dr. Subbarao Wunnava has served as committee member for nearly 100 MS and PhD students from the Engineering, Computer Science and other related disciplines**

**RESEARCH EXPERIENCE AND FUNDING DURING LAST 10 YEARS:**

Principal Investigator in several funded projects: $400,000/-during last 10 years.

Co-Investigator in funded projects (with others): S1,000,000/- during last 10 years.

Microprocessor Architectures, Integrated Services Digital Network and ATM.

Virtualal Design and Visual Systems with interactive audio, video and data transfers.

VHDL based digital system designs, simulations, and synthesis.

Active Co-PI with CATE (Center for Advanced Technology and Engineering) at FIU.

Collaboration with Mechanical Engineering Faculty on hybrid packaging and Multiclip Modules.

In-kind grant from Mentor Graphics for $1.47 Million Dollars (2004-2007)

FDOT funded project on Travel time estimation ($200,000) (2005-2007)

**Other Professional Activities & Affiliations**

Senior Member IEEE.

Member IEEE Computer Society.

Member Florida Engineering Society.

Member American Society of Engineering Education.

Organizing Member of Computer Architecture & Pattern Recognition" Convention. Miami., FL

November 1985.

Editorial Member of International Journal of Mini-Micro Computers", 1985 to

present. American Heart Association, Research Mentor, 1987-1988.

Science Judge, Dade County Science Fair, 1983 to 1988.

Coordinator, Community Lab Research Program, Dade County, Florida, 1983 to present.
Session Organizer, Session Chair for Engineering in Medicine and Biology (EMBS) Seattle, 1989.

Session Organizer, Session Chair for International Conference on Expert Systems. Ft. Lauderdale,

1989. Session Organizer, Session Chair International Conference :Mini Micro Computers, Los

Angeles, 1989.

Visiting Professor to Beihang University, China  2004-2007 for teaching VLSI systems;

**Author:  Education related book  with Amazon Corporation (2010)**  www.amazon.com

Entitled:  "Life and Career of a Professor (LCP)"

Upgraded version of the above book with modifications with Amazon Corporation

Entitled: "Making an Academic Career (MAC)"

## "Making an Academic Career (MAC)"
### "Life and Career of a Professor (LCP)"
Subbarao Venkata Wunnava  February 18, 2010

Published by Amazon (www.amazon.com)

"Making an Academic Career (MAC)"[1] and "Life and  Career of a Professor (LCP)"[2] books deal with experiences in real life of a professor (author: Dr. Subbarao Venkata Wunnava) during his 45 years in the academic life. Specifically it addresses the requirements, expectations, and challenges of making an academic career.  Particular emphasis is placed on: building teaching and research credentials; obtaining and sustaining research grants; developing and enhancing industrial collaborations; obtaining tenure, promotion, and other recognitions; writing text books, other  creditable publications, and conducting workshops and seminars; supporting and graduating undergraduate  and graduate students;  participation in self governance activities of the colleges and the universities; developing and maintaining cordial interactions with colleagues, students, administrators, and peers; and making the academic career extremely pleasant, fulfilling, gratifying and, rewarding.  Also, in the present day globalized educational environment, especially in Science and Engineering, the needed interaction of the college and university faculty with the international peers and institutions has been presented.  The foundation for any college and university education really lies at the high school and earlier stages for the students.  As such, the interaction with the regional and county educational systems, overseeing the high school and earlier educational activities, has also been presented.  The ups and downs in the academic life, mounting challenges, and possible solutions to build a successful and enjoyable academic career, to make it service oriented towards the students, colleagues, communities, and the country, have been presented with real case studies.  Experiences of the author, as a Science, Mathematics, and Engineering student himself, have been included to provide a practical vision for the student community, to progress through their respective disciplines.

*(1.MAC book is the upgraded color version of the LCP book  2. LCP is the original black and white version)*

### Authors Biography

Dr. Subbarao Venkata Wunnava holds PhD in Physics and Instrumentation, and Masters in Electrical and Electronics Engineering, and Bachelors in Physics, Mathematics, and Chemistry; and also holds a PE (Professional Engineering) license from State of Florida, USA.  He retired as a distinguished professor of Engineering from Florida International University (FIU), a State University of Florida in Miami, after a total of more than 40 years of academic career.   He also worked as consulting and staff engineer for AT&T Information Systems, Bell Communication Laboratories, Burroughs, Intel, Motorola, Cordis, and Theretek Corporations.  He has authored 3 text books, close to 10 Monograms and more than 200 journal and conference publications.  He has graduated more than 85 Masters and 9 PhD students in Electrical and Computer Engineering disciplines, as major professor.  He also served as committee member for another 100 graduate students in Engineering, Computer Science, and other disciplines.  His passion has been teaching, research, and interacting with students, peers, and the academic communities.  Currently he is involved in On-line teaching, educational reforms,  and related research activities.