

Dr. Clyde A. Lettsome, Ph.D., P.E., M.E.M.

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Objective: To obtain contract, consulting, and research opportunities in the hardware, software, firmware, and management aspects of Electrical and Computer Engineering, especially in the areas of digital signal and image processing, digital communications, and computer networking and design.

Education: **Georgia Institute of Technology (Georgia Tech.),** Atlanta, GA
Ph.D. in Electrical and Computer Engineering
Technical Interest Area 1: Signal and Image Processing
Technical Interest Area 2: Communications
Minor: Business Management
Florida Institute of Technology, Melbourne, FL

- M.S. in Electrical and Computer Engineering
Focus: Systems and Information Processing
- M.S. in Engineering Management (M.E.M.)
Focus: Quality Management
- B.S. in Electrical and Computer Engineering

Licenses: Professional Engineer (P.E.) – Licensed by the Florida Board of Professional Engineers (No. 58671) and Georgia Board of Professional Engineers and Land Surveyors (No. PE037411)

Programming Languages: Intel 8051 Machine assembly, Motorola 68000 Machine assembly, Texas Instrument TMS320C DSP Machine Assembly, Analog Devices ADSP 2100 Machine Assembly, C/C++, Basic, VHDL, HTML, PHP, Latex

Operating Systems : MS-Windows, MS-DOS, Linux\Unix

Computer Programs: Orcad, Saber, View Draw, Matlab, AutoCad, Max Plus II, Code Composer Studio, FrontPage, Corel Draw, MS Office Suite, Quickbooks, Visio, Synplify, Actel Designer, ModelSim, Hyperlynx, MySQL, Apache Web Server, Dreamweaver

Relevant Employment Experience: **Physics Lab Coordinator** – Atlanta Metropolitan College
Maintain lab and lab equipment, perform demonstrations in physics labs, and supervise students during physics lab. *August 2011- Present*

Lecturer, Researcher, and Consultant – C.A. Lettsome Services LLC
Develop and conduct preparatory and continuing education classes as well as perform research and consulting in the area of Electrical Engineering and Engineering Management. *Jan. 2011 – Present*

Post-Doctoral Researcher – Georgia Institute of Technology
Perform research on pavement distress images and to develop new software to automatically detect and segment pavement distress. *June 2009- August 2011*

President/Lead Hardware and Research Engineer - Calabrix Corporation
Configure, secure, and test private branch exchanges (PBX) telecommunication network, web servers, mail servers, FTP servers, and databases. Design web pages, and web based/web portion of iPhone Apps. *Jun. 2005 – November 2010*

Updated: 12/20/2012

Clyde A. Lettsome, Ph.D., P.E., M.E.M.

Research Assistant – Georgia Institute of Technology

Lead and perform cutting edge research in the area of image compression, video, and image interpolation (digital zooming). *Aug. 2006-March 2009*

Teaching Assistant/Lab Instructor – Georgia Institute of Technology

Teach students the basics of DSP and assist with DSP labs that include DSP applications and concepts in Matlab for the class ECE2025. *May 2006-Aug.2006*

Graduate Student Course Instructor – Georgia Institute of Technology

Teach students the basics of electronics and demonstrate common applications in the classes ECE3710, ECE3741. *Aug.2001-May. 2006*

Electrical Engineer (Technical skill level 2) – Rockwell Collins

Design, test, and verify hardware and firmware designs especially digital and DSP designs used in avionic communication radios, navigation & landing units, and other systems for military and commercial avionics. *July 1999 – Aug. 2001*

Associate Electrical Engineer (Technical skill level 1) – Computer Sciences Raytheon

Assist in performing engineering assignments related to the research, design, development, and modification of telemetry communication systems and subsystems. *May 1998-June 1999*

Projects:

Calabrix Corporation, Atlanta, Georgia

- Participated in the development of web and web based iPhone Apps
- Designed website, which included ecommerce, and suggested measures to reduce the number of employees and reduce everyday operation cost.
- Configured and secured the company's Apache Web Server.
- Designed, installed, and secured the company's wire and wireless network.
- Configured, secured, and installed customers' Asterisk PBX Servers which helped customers to reduce communication cost and eliminate the need for additional employee for growing businesses.

Georgia Institute of Technology, Atlanta, Georgia

- Researched and developed a subband coding method called Fixed-Analysis Adaptive-Synthesis Filter Banks.
- Researched and developed a new method for performing digital image resizing that removes ringing distortion from edges throughout an image.

Rockwell Collins, Melbourne, Florida

- Designed of an FPGA to perform data processing and phase detection for communications avionics radio.
- Ported code for Mode-2 receive DSP firmware from VHF communication Radio (Analog Devices Signal Processor) to a VHF-Data Link (TI Signal Processor).
- Did a re-layout of the system processor board in a Collins HFS – 900D's avionics data radio to eliminate cuts, jumps, and stability problems in the previous layout.
- Lead a small team, designed, and integrated a Marker Beacon receiver for a new series of Global Navigation and Landing Units (GNLU). Design included choosing parts to allow the Marker Beacon to continue functioning in the unit if an aircraft is hit by lightning or if high intensity radio frequency (HIRF) is present.

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Computer Sciences Raytheon, Patrick Air Force Base, Florida

- Maintained and tested a telemetry communication system console used by the 45th Space Wing of the United States Air Force for rocket launches at Cape Canaveral Air Station.
- Assisted in the repaired of a telemetry communication system, at the Antigua Air Station in Antigua, West Indies, after it was damaged by hurricane Georges in October 1998.
- Wrote test procedures for telemetry communication systems that were used by the 45th Space Wing of the United States Air Force.

Senior Design / Capstone, Melbourne, Florida

Worked with and lead a group with the hardware design of a word recognizable and computer controllable wireless universal remote control.

Publications:

- Ying Chena, Clyde Lettsome, Mark Smith, and Edward Delp, "A Low Bit-rate Video Coding Approach Using Modified Adaptive Warping and Long-Term Spatial Memory" in *Visual Communications and Image Processing*. (VCIP'2007), San Jose, California, Jan. 2007.
- Clyde A. Lettsome, Mark J.T. Smith, and Russell Mersereau, "Fixed-Analysis Adaptive-Synthesis Filter Banks" in *SPIE Defense and Security Conference*., Orlando, Florida, March. 2008.
- Clyde A. Lettsome and Mark J.T. Smith, "Image Interpolation Exploiting Phase Diversity" in *IEEE DSP Workshop*, Marco Island, Florida, Jan. 2009.
- Clyde A. Lettsome, "Fixed-Analysis Adaptive-Synthesis Filter Banks" *Ph.D. Dissertation*, Georgia Institute of Technology, March. 2009.
- Clyde Lettsome and James Tsai, "An Automated Filter Bank-Based Pavement Crack Detection System Incorporating Standard Compression Coders," *International Journal of Pavement Research and Technology*, May 2012.
- Clyde A. Lettsome, Yi-Chang Tsai, and Vivek Kaul "Enhanced Adaptive Filter Bank Based Automated Pavement Crack Detection and Segmentation System" *Journal of Electronic Imaging*. 21 (4), 043008, October 15, 2012

Honors:

- Georgia Institute of Technology Tower Honor Award Recipient. 2009
- Outstanding Graduate Student Instructor at the Georgia Institute of Technology. 2003-2004
- Leader of the Year for the Florida Institute of Technology National Society of Black Engineers Chapter. 1996-1997
- Best Senior Design / Capstone Project at the Florida Institute of Technology. 1996

Awards:

- National Science Foundation (NSF) Facilitating Academic Careers in Engineering and Science Post-doc Fellow. June 2009–June 2010
- National Science Foundation (NSF) Facilitating Academic Careers in Engineering and Science Ph.D. Fellow. Jan. 2005 – May 2009
- National Science Foundation (NSF) Student Teacher Enhancement Program Fellow. May 2005–May 2006
- Georgia Institute of Technology Presidential Fellow. Aug. 2001 – May 2005
- IBM FOCUS Ph.D. Fellow. Aug. 2001 – May 2004

Professional Institute of Electrical & Electronic Engineers (IEEE) Senior Member
And Volunteer Eta Kappa Nu International Honor Society
Organizations: Big Brothers Big Sisters of Atlanta