

Paul A. Blythe Sr.

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OBJECTIVE

To obtain a Scientific or Technical position focusing on Advanced Technology Development/Transfer in Electronics Manufacturing, Systems Engineering, Control Systems, and other applied research and technology development environments.

EDUCATION

Ph.D. Systems Science May 2005
Binghamton University – Watson School of Engineering
Dissertation: “*Biometric Authentication System for Secure Digital Cameras*”
Committee Chairperson: Dr. Jessica Fridrich, Electrical Engineering Department

M.S. Systems Science (Emphasis on Manufacturing Systems) May 2002
Binghamton University – Watson School of Engineering

B.S. Applied Social Science (Dual Emphasis Computers and Science) 1982
Binghamton University - School of General Studies

A.A.S., Business 1976
Broome Community College Binghamton, NY.

Electrical Engineering 1972
Springfield Technical Community College - Springfield, MA. Part Time

RESEARCH AND EMPLOYMENT EXPERIENCE

ELECTRICAL & PROCESS ENGINEER, CORNING Inc., Corning New York, 2008 – Present

- Employed as a Senior Research Scientist IV, by Adecco Inc., and on a 1 year contract to Corning Inc., as a Senior Research Scientist (IV)
- Main responsibility is transfer of automated ceramic manufacturing technology to other countries.
- Coordinate the ordering, building, testing, and installation/commissioning of specialized manufacturing and testing equipment used in highly sophisticated automated manufacturing lines.
- Successfully completed the 25 million dollar technology transfer project in Port Elizabeth, South Africa, December 2008; including the plant facilities design and commissioning of both plant and equipment.
- Traveled to Italy and Germany for electrical and control systems design review of a new Roller Hearth design.
- Specialty skills include implementation of Allen Bradley RS 5000 hardware and software, WIT Optical recognition Software, Frame grabber cards, lasers, Robotic Systems, Ceramic Saws, Laser Maskers and Ceramic Plugger machines, High pressure fog systems, Optical recognition inspection equipment, batch mix facilities, developing thermal profiles for periodic kilns and roller hearths, and Laser gauges.

RESEARCH ASSISTANT, LAB MANAGER, & ADJUNCT PROFESSOR (EE), Binghamton University, 2002-2008

- Taught Electrical Circuits and Labs for Electrical Engineering Department, Summer 2006 Session.
- Manage the Digital Data Embedding Lab for the Electrical and Computer Engineering Department, Project: *"New Generation Methods for Digital Security: Steganography, Steganalysis, and Authentication Watermarks"*, funded by the US Air Force Research Laboratory (AFRL) in Rome, NY
- Designed and successfully implemented a working prototype Secure Digital Camera that losslessly embeds a biometric water mark of the photographer's iris into a digital camera image for forensic applications.
- Designed the viewfinder iris capture system consisting of optical components, Near IR diode illuminations system, and hardware interfaces that met the rigid requirements for iris recognition systems.
- Conducted iris image acquisition experiments using a Kodak CMOS sensor/camera development system, National Instruments PCI-1442/4 Frame Grabber, and Calibre I2C Adapter hardware. They were software controlled by either the National Instruments (LabVIEW) IMAQ Vision Builder, or by custom scripts that controlled the camera development board's digital and analog signal-processing pipeline.

TEACHING ASSISTANT, Binghamton University, 1999-2002

- Managed a staff of 25 proctors for the Watson School of Engineering Microcomputer Lab.
- Responsible for hardware and engineering software installation, maintenance, operation, and configuration, of a 100 client, Windows 2000, multi-server LAN.
- Maintained the hardware and software Interface with the campus computing systems via LAN, WAN, and Wireless networks.
- Developed class lectures and supervised their related hands on labs for the ISE370 - Industrial Automation course, on subjects such as: Electronic Components Packaging, SMT Screen Printing, Component Testing and Placement, Reflow Ovens, Robotics, Machine Vision, LabVIEW and ProE software.

INDUSTRIAL EXPERIENCE

MANUFACTURING ENGINEER, U.S. Assemblies Inc. Hallstead, PA, 1996-1999

- Designed complete computer integrated PC board manufacturing processes to meet ICP-A -610B standards in an ISO 9002 environment, and supervised their successful implementation, from the initial customer design meeting to final shipment.
- Total responsibility for product yield and efficiency performance of SMT, Thru-Hole, Hand Assembly, Wave Solder, Reflow Ovens, and Final Test departments.
- Assisted customer design engineers on procedures for improving electrical designs and electrical component selection to optimize their automated manufacturing ability.

PRODUCTION & MAINTENANCE MANAGER, EMS Technologies Inc. - Binghamton, NY, 1995-1996

- Supervision of all aspects of contract electronics manufacturing using automated IMC processes for Thru-Hole and SMT automated assembly equipment.
- Total responsibility for Inventory control, hand assembly, the operation, programming, and maintenance of automated printed circuit board machines, final test procedures, and employee training.

PRESIDENT AND CEO, Blythe Truck Service Inc. – Homer, NY, 1987-1995

- Corporate management of a Volvo-White-GMC authorized heavy truck Service Dealer, providing heavy truck repair services and replacement parts sales.

- Implemented computer automation of inventory control, payroll and accounting systems utilizing **Paradox** data base software, in conjunction with **Quattro Pro**, in addition to **Peachtree** software.
- Developed new facilities for the manufacturing of hydraulic hoses, air brakes, and tachometer and speedometer cables, transmission ratio adapters, in addition to air valve re-manufacturing.

SENIOR SYSTEMS ENGINEER, Concurrent Computer Inc. – Honesdale, NJ, 1985-1987

- Engineered parallel-processor mainframe systems to customer specifications.
- Provided applications engineering support for customers and the sales organization using **C**, **FORTRAN**, and **COBOL** programming languages, in addition to **UNIX**.
- Assisted Research and Development engineers with power-fail management circuitry debug.
- Developed bids and quotations for commercial and government customers.
- Achieved customer issue resolutions by facilitating communications between customers and manufacturing product teams.

ELECTRICAL SYSTEMS ENG. III, Universal Instruments Inc. - Binghamton, NY, 1981-1985

- Overall responsibility for the electrical design, development, and manufacturing of new PC board assembly equipment for both thru hole, and SMT technologies.
- Acted as project director for multi-discipline corrective action and product development projects. (Electrical, Mechanical, Software Engineering).
- Designed the electrical system for the first of its kind, "In-Line Walking Beam" SMT (ceramic board) automated assembly line for Ford Motor Corporation.
- Designed initial proposals to meet customer requests for specialized automated insertion, inspection, test, and board handling machines. Developed the final proposals by coordinating with the customer, and our sales/marketing, engineering, service, and other product development groups.

FIELD SERVICE ENGINEER, Universal Instruments Inc. - Binghamton, NY, 1979-1981

- Advanced troubleshooter specializing in optical, electrical and electronics problems.
- Lead Field Service Engineer for the installation of the company's first fully automated PC board assembly system at the Zenith Corporation in Chicago, IL (Automated factory).
- Identified functional and performance problems in automated assembly equipment at customer installations. Worked with Electrical, Software and Mechanical Engineering to isolate the problem cause(s), and to implement and evaluate the solutions.

TECHNICAL INSTRUCTOR, Singer - Link Division Inc. - Hillcrest, NY, 1977-1979

- Instructed customers and corporate engineers in the theory and maintenance of operation of aircraft simulators.
- Designed the F-14 simulator "THOTS" (Technical Hands On Training System) for the U.S. Navy.

INTERNATIONAL ENGINEERING MANAGER, GAF - Inc. - Binghamton, NY, 1974 -1977

- Provided international technical support and training to corporate photo-technologists.
- Designed and developed specialized photographic electronic and optical test equipment.

TECHNICAL TRAINING AND PUBLICATIONS MANAGER, GAF Inc. - Vestal NY, 1972-1974

- Published 27 copyrighted technical training manuals, and related customer orientated publications.

GROUND RADIO COMMUNICATIONS EQUIPMENT REPAIR, United States Air Force – SAC, 1968 -1972

- Top Secret Crypto Security Clearance - NCOIC - SGT.

COMPUTER SKILLS

Operating Systems:	MSDOS, Windows 95/98/NT, Windows XP, UNIX, 3200MPS & OS/32.
Computer Languages:	C/C++, FORTRAN, COBOL, ADA, BASIC, Assembly languages.
Scientific Applications:	MATLAB/Simulink, Maple, LabVIEW/IMAQ, WIT, Scientific Workplace, SecureStego.
Technical Drawing:	AutoCAD, Pro/Engineer, PhotoShop.
Office Applications:	Microsoft PowerPoint, Access, Excel, Word, Lotus Notes.
Internet Development:	HTML, TCP/IP, PHP, Secure Shell.
Database:	Oracle, Microsoft Access, Reliance, Paradox.
PLC:	Rockwell Automation RS Logix 5000.

AWARDS

- Digital Forensic Research Workshop (DFRWS) 2004 - Plenary Speaker Award.

AFFILIATIONS

- Member of the Institute of Electrical and Electronics Engineers (IEEE).
- Member of the International Society for Optical Engineering (SPIE).
- Member of the International Council on Systems Engineering (INCOSE).
- Secure Member of InfraGard. The FBI's public/private strategic partnership for nation's security.

PUBLICATIONS AND PRESENTATIONS

- Blythe, P. and Fridrich, J.: "Secure Digital Camera", In: *Proc. of Digital Forensic Research Workshop (DFRWS)*, Linthicum, MD, August 17-19, 2004.

HIGHLIGHTS OF QUALIFICATIONS

- 3 years **Managing a Digital Data Embedding Research Laboratory** at Binghamton University.
- 1 Year **Adjunct Professor in Electrical Engineering** at Binghamton University.
- 2 years **Managing a Microcomputer Laboratory** at Binghamton University.
- 1 year as **Manufacturing Engineer** for a world class ISO 9002 certified contract manufacturer.
- 1 year as a **Production & Maintenance Manager** for a electronics manufacturing corporation.
- 7 years in **Corporate Management** of heavy truck service and parts sales corporation.
- 3 years as a **Systems Engineer** for a multiprocessor computer systems manufacturer.
- 5 years as an **Electrical Systems Engineer** for Universal Instruments Corporation.
- 2 years as a **Field Service Engineer** for Universal Instruments Corporation.
- 2 years as a **Technical Instructor** for Singer – Link.
- 3 years as a **International Engineering Manager**, for GAF Corporation.
- 2 years as a **Technical Training and Publications Manager** for GAF Corporation.
- 4 years as an **Electronics Technician**, as a Sergeant in the Unites States Air Force.
- Strong background in designing automated PC board assembly systems for the electronics packaging industry.

- Strong background in design of analog and digital circuits.
- Strong Technical Writing skills in engineering documentation and proposals.
- Excellent public speaking and communication skills, self-motivated team player.
- Strong background in optics, and electro-optical circuit design.
- Strong background in digital signal processing.
- Strong background in Digital Security: Steganography, Steganalysis, and Authentication Watermarks.

RELEVANT COURSES

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| <ul style="list-style-type: none"> • Processes for Electronic Manufacturing • Data Compression • Image Processing and Computer Vision • Computer Organization • Modeling and Simulation • Applied Soft Computing • Steganography & Digital Watermarking • Biometric Embedding • Systems Design & Human Interfaces • Systems Engineering Principles & Processes | <ul style="list-style-type: none"> • Logic Circuits • Production Management • Computational Tools • Applied Probability & Statistics • The Science of Manufacturing • Systems Design • Systems Optimization • Research Methods & Techniques • Operations Research • Introduction To Systems Science |
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Industry Sponsored Courses:

ADDITIONAL RELATIVE EDUCATION AND CORPORATE TRAINING

Perkin-Elmer/Concurrent Computer Training Division:

- 3200MPS parallel processor *Systems Programming* Course
- OS/32 parallel processor operating system *O/S Internals* Course
- Reliance *Relational Database Configuration and Application Programming* Course
- 3200MPS & OS/32 *Assembly Language Programming* Course
- 3200MPS & OS/32 *Advanced Assembly Language Programming* Course

Motorola Microprocessors Customer Training:

- MC68000 *Microprocessor Principles* Course
- MC68000 *Applications Programming* Course

REFERENCES

Available on Request