Richard S. D'Ippolito, P.E., Ph.D.

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Education and Credentials

Ph.D. in Engineering (Design), Carnegie Mellon University, 1978 (QPA 4.0).

Master of Engineering (Design), Carnegie Mellon University, 1976.

B.S.E.E., Carnegie Institute of Technology, 1966.

Registered Professional Engineer (Electrical), Commonwealth of Pennsylvania, since 1973.

Professional Experience

Accel Software Engineering, Pittsburgh, PA, 1993 – present

Founder and Managing Partner.

Accel Software Engineering provides advanced software and systems technology for real-time defense and enterprise information systems. (See website listed above for details.)

Details

- Helped many organizations analyze their business processes and created reports based on a variety of client database technologies (Progress, Access, FoxPro, dBase) that enabled clients to better manage their business.
- Created a Progress-based Case Management System for a provider of counseling services to at-risk children for 25 users and over 500 clients.
- Created a Progress-based Methadone Clinic System to print barcoded photo IDs, manage client records, appointments, billings and receipts, medical orders, drug doses, and inventory.
- Architected and created machine control software for a network of four computers for a real-time multi-chamber vacuum film deposition system using Progress and Think&Do. This software presents a pictorial graphical interface to the machine operator and provides high-level recipe writing, recipe execution and control, data-logging, manual overrides, alarms, and safety interlocks.
- Created a Windows NT-based client/server sales Incentive Management System using Progress. This software accepts customer-generated incentive program, product, and participant data in electronic form, sends encrypted information to the bank to issue participant debit cards and transfer funds, and creates billing and status reports.
- Created a Windows NT-based client/server medical office application using Visual Basic, Access, and Crystal Reports to print barcoded photo ID's, manage client records, appointments, billings, and receipts, medical orders, drug dosages and inventory.
- Created custom reports and price sheets in Progress for FISERV's UNIFI PC financial package for a major mortgage company.
- Created a Sun Unix-based real-time software/hardware system in Progress and C for locating barcoded steel coils by tracking mill cranes using laser distance meters, scales,

Intermec RF networks, and hand-held computers. A production database is used to store floor map and location information.

- Created a Sun Unix-based EDI message processor using Progress to populate a client's business database with advanced ship notices, invoices, and status messages.
- Created Windows-based software package in Visual FoxPro and Visual Basic for collecting coating thickness data and generating color-coded contour surface maps and quality/performance reports.
- Created a real-time SCADA system in Basic and dBase to collect and digitize analog meter signals from an X-ray thickness gauge and transfer them to a Progress database.

Software Engineering Institute, Carnegie Mellon Univ., Pittsburgh, PA, 1986 – 1993

Project leader, technical leader, and mentor for a team of four researchers who have created and successfully transitioned a technology base and engineering practice for performing routine engineering of Ada software for real-time embedded systems, embedded and stand-alone training simulators, and design simulators. Established project goals, set standards of client selection, and set standards of performance for project members.

Over a six year period, the team served 8 major clients, producing over 100 technical publications and reports, created a 4-day training course in the technology and practice, had its technology adopted as a standard for training simulator design at the Aeronautical Systems Center (ASC) at Wright-Patterson AFB and for electronic combat system design by the Joint Modeling and Simulation System (J-MASS) Program. The team's technology has also been adopted by the Air Force Institute of Technology (AFIT) as the core of its revised curriculum for the Master of Software Engineering (MSE), resulting in 4 MSE theses and several papers within two years.

Details

- Developed a method for engineering software based on traditional engineering principles called Model-Based Software Engineering (MBSE).
- Created the Object-Connection-Update (OCU) architectural model which allows software developers to use the same package sets, interfaces, and control executive for all subsystems within an application – the basis for achieving modularity, design reuse, and incremental development by areas of domain expertise. Model templates were implemented in Ada83.
- Consulted with ASC at Wright-Patterson AFB and several contractors to develop Ada-based flight simulators based on the MBSE approach and OCU architectural models.
- Consulted with Coastal Systems Station on the development of an Ada-based embedded training simulator for a class of mine-hunter ships based on the MBSE approach and OCU architectural models.
- Consulted with the Joint Modeling and Simulation System (J-MASS) project on the application of the OCU architectural models to tri-service battle and engagement simulators.
- Consulted with the Air Force and created a design of the control software for the new millimeter-wave Maverick missile in Ada to replace the Jovial version.

- Consulted with DARPA to initiate the new Domain-Specific Software Architectures (DSSA) Program, and planned and led the kick-off conference.
- Mentored a project group of Master of Software Engineering students.

Other

- US Patent for an electric arc-furnace electrode positioning system.
- Eagle Scout.
- Numerous papers and presentations are available on request.

Additional Professional Experience

BBC Brown Boveri Inc. (now ABB), Pittsburgh, PA, 1980 – 1986

Senior Systems Engineer and Supervisor of Command Software. Supervised team of programmers. Designed data collection hardware and wrote software (Fortran, PDP-11, and microcomputer assembler) for Supervisory Control and Data Acquisition (SCADA) systems for electrical utilities and energy management. Performed system design, database design, and systems integration for building automation systems.

Dynatote Inc., Meadowlands, PA, 1979 – 1980

Director and Vice President of Systems Engineering for Dynatote, a new manufacturer of totalizator systems for parimutuel on-track wagering. Managed system software and hardware development groups. Wrote specifications for the infield board displays, reviewed proposals, and selected bidders. Coordinated field installation and trained customer operating and service crews.

Computer Engineering Division, Carnegie Mellon Institute of Research, Pittsburgh, PA, 1978–1979

Senior Research Engineer in Computer Architecture and Distributed Data-Processing Systems. Developed real-time computer architectures for newspaper bundling systems. Consultant to Hewlett Packard on microcomputer architectures for instrumentation. Performed research in high-level programming languages for real-time systems.

Carnegie Mellon University, Pittsburgh, PA, 1974 – 1978

Master and doctoral student of Engineering Design, Instructor of Electrical Engineering (1976-1978) and Research Associate. Taught courses in electrical engineering and interdisciplinary design at all levels. Performed research on modeling and simulating solar heating systems.

Robicon Corporation, Plum Boro, PA, 1968 – 1974

Senior Design Engineer with responsibility for complete life-cycle design of special control system products for industrial automation, including initial customer contact, pricing, design, drafting and manufacturing oversight, testing, manual writing, field startup, and maintenance. Supervised the work of new engineers. Designed solid-state and thyristor power conversion analog and digital control systems for industrial and commercial applications. Wrote computer program to produce plots corresponding to the Popov method of stabilizing non-linear control systems.

WABCO, Swissvale, PA, 1967 – 1968

Test Engineer. Designed test equipment to measure properties of transformer steel used in railroad signaling relays, and an automated digital tester to measure the properties of completed relay assemblies.

Jacob Engineering Corporation, Green Tree, PA, 1965 – 1968

Staff Engineer. Designed motor control, lighting, and power distribution systems for the heavy metals industry. Designed logic controls for metal working machines. Supervised electrical drafters.