

Bradley Douglas Taylor

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Gaithersburg, MD 20882

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EDUCATION

The George Washington University: Doctor of Science, Computer Science	2015
The George Washington University: Master of Science, Computer Science	2003
U. S. Naval Nuclear Power Graduate Training	1982
U. S. Naval Academy: Bachelor of Science, Systems Engineering	1980

SUMMARY

Highly innovative educator, engineer and scientist, with experience in the design, development, installation, programming, operation, troubleshooting and repair of informational, mechanical, electrical, electronic, and hydraulic systems for diverse market applications. Recognized for ability to effectively manage and develop high performance teams to optimize efficiency and meet requirements/specifications.

EXPERIENCE

THE CATHOLIC UNIVERSITY OF AMERICA, Washington, DC 2017-Present

Graduate & Undergraduate institution providing diverse instruction, basic and applied research.

Clinical Assistant Professor, Electrical Engineering & Computer Science Dept.

- Teach and mentor students in foundational programming languages, data structures, software engineering, computer graphics, simulation, knowledge management, secure computing, logic design, computer organization and architecture through various participatory techniques of presentation, experimentation and analysis.
- Research and Service: mentor graduate and undergraduate students through derivative and innovative works, demonstrated in two graduating doctoral students, several journal papers, many University Research Day and conference submissions; launching Virtual Common Ground Lab; participation in Optical Underwater Communications Research Group, interdisciplinary university AI & Ethics Research Group; departmental faculty secretary (Fall 2017); and recruitment support.
- Extended teaching development pursued with online and physical off campus visits, including Hong Kong Universities and Newport News Shipyard partners' varied topics, such as industrial control system cyber security and software development.

UNIVERSITY OF THE DISTRICT OF COLUMBIA, Washington, DC 2015-2016

Graduate & Undergraduate institution providing diverse instruction, research and service to the District.

Visiting Associate Professor, Computer Science & Information Technology Dept.

- Taught and mentored students in foundational and applied algorithms, structures, digital logic, programming languages, web development, computing organization and theory, and digital forensic investigations.
- Researched complex systems facets regarding automation of semantic resolution between organizations in sharing work; cyber security of distributed, embedded sensing, computing and control systems; forensic examination of messages' origin.
- Served departmental, school and national STEM-focused groups pedagogically directed towards deepening and broadening the pool of students understanding current fundamental technology concepts.
- Introduced microservice utility component methods for security and monitoring as 2016 Office of Naval Research (ONR) Summer Faculty Research Fellow into I³ Capability Packages at SPAWAR Systems Center Pacific Philadelphia.

NAVAL SURFACE WARFARE CENTER, Indian Head, MD 2007-2015

Defense energetic systems research center.

Scientist, RDT & E and Systems Engineering Departments

- Led teams modernizing dozens of sophisticated energetic systems laboratory research instrumentation computer systems and supporting laboratory information management system (LIMS), addressing myriad networked cyber-attack vulnerabilities.
- Developed hardware, software and network architecture solutions for remotely controllable target simulator of aircraft engines and unique infrared moving image signatures for prospective sensor testing; applying data compression, combustion, pulse width modulation and embedded computing algorithms to COTS NASA technology, team awarded 2014 Outstanding Patent.
- Developed network database, parser and transformation methodology using forensic data mining on firewall logs and predicative complex environment interaction test proposals for autonomous naval vehicles and critical networked infrastructure.

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THE GEORGE WASHINGTON UNIVERSITY, Washington, DC 2003-2015
Graduate & Undergraduate institution providing diverse instruction, basic and applied research.

Adjunct Professor, Teaching & Research Assistant, Computer Science Department

- Taught students variety of programming language, algorithm, compiler instrumentation, operating system, software engineering principle and software testing and quality improvement courses while and after completing graduate studies.
- Researched distributed algorithm development for complex system middleware applied to mobile ad hoc networks and language development for supercomputer systems.

SETECS, INC., Silver Spring, MD 2005-2006
Internet security technologies.

Computer Security Specialist

- Independently tested security product suite architecture and recommended enhancements; integrated system with suppliers' and users' environments; and presented findings and recommendations to a national CIO leadership briefing.

U. S. NAVAL ACADEMY, Annapolis, MD 1997-2002
Undergraduate institution providing engineering and technical instruction.

Master Instructor, Weapons & Systems Engineering Department

- Recalled to active duty as Commander to instruct midshipmen (senior year undergraduates) in engineering courses surveying control systems design methods and embedded microprocessor applications, contributing new methods and material.
- Challenged students' creativity and dedication in numerous roles inside and outside the classroom, including academic advisor for 42 students and "Advanced Shipboard Control Systems" Trident Scholar Advisor for a student.
- Department Financial Manager; Faculty Senate member and Secretary; USNA Director of Forensics; Co-Chair, Military Faculty Teaching Excellence Committee; and member, research funding, ethics and student relations committees.
- Graduate Student and GTA, Computer Science Department, GWU. Graduate Information Systems, Parallel and Distributed Computing, and Computer Security courses completed while teaching undergraduate courses.

TAYLOR DEVELOPMENT RESOURCES, New Britain, CT 1997
Consulting firm specializing in industrial and process automation.

Owner/ Consultant

- Designed, specified, modified and tested various advanced PLC controlled, touchscreen operator interface systems for several water utility sites, including both digital and analog applications.
- Developed state of art operator interface screens and logic for machinery vendor resale to federal government laboratory.

TODD COMBUSTION, INC., Shelton, CT 1993-1996
International combustion systems manufacturer specializing in Low NO_x burners.

***Manager, Electrical & Controls Engineering
Utility Projects Electrical I & C Engineer***

- Managed \$2.5 MM department, 8 engineers and designers, and 3 fabrication shops in producing 80 burner management and combustion control systems annually for industrial and utility boiler applications worldwide starting May, 1995.
- Optimized department work flow, trained engineers on advanced programming, and improved testing methods: expanded capacity and flexibility economically when needed quickly and developed product standards, reducing project costs 40%.
- Engineered, programmed, simulated, started up, and troubleshot 2000-point control systems using PLC-based systems including SCADA/MMI stations and single loop controllers for large multiple burner (200-400 MW) utility boilers.
- Provided on-site technical support to assist in securing a \$500K contract in Bulgaria for burners and control systems despite language and cultural differences which opened the door to future Central European business.

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JET ENGINEERING, Southington, CT 1992-1993

Consulting firm specializing in controls, instrumentation, mechanical and electrical engineering.

Senior Control Systems Engineer

- Engineering design and specification; design review and shop drawing review; and operating and maintenance manual production for clients' equipment and facilities being constructed and overhauled.
- Engineering evaluation, programming, testing, and acceptance of remote pump station controls, hydraulic characteristics, emergency generator, and telemetry system software and electronic components.

USS PENNSYLVANIA, Groton, CT & Kings Bay, GA 1988-1991

Nuclear Ballistic Missile Submarine Construction and Atlantic Operations.

Manager, Navigation and Operations Departments; Training Manager

- Managed departments' 4 line supervisors, 27 men; advanced inertial feedback controlled navigation system; fully integrated communications transceiver system; conventional navigation and electronic instruments.
- Planned and coordinated initial at-sea testing and shakedown operations. Initiated and managed 8 training and drill programs, resulting in crew's outstanding, award-winning performance. Directed 43 technicians and mechanics in tactical employment of nuclear submarine. Integrated acoustic, optical and electronic sensor use with weapon and reactor support systems. All missions, including missile and torpedo launch, successfully completed.
- Supervised all in-port shipboard evolutions, construction, and repairs to ship by 50+ personnel and civilians. Systems included mechanical, fluid, electrical, hydraulic, atmospheric, pneumatic, HVAC and refrigeration.

SUBMARINE SQUADRON 11 HEADQUARTERS, San Diego, CA 1986-1987

Submarine Pacific Operations and Training Supervision.

Operations and Plans Manager

- Created Operations department to manage new 3000-person submarine squadron including communications and training staff.
- Developed employment schedules & coordinated logistical support for all 12 assigned units, briefing squadron commander.
- Planned, coordinated, and executed multiple-submarine exercises for deployment certification and tactical examination.

SUBMARINE GROUP 5 HEADQUARTERS, San Diego, CA 1985-1986

Submarine Pacific Operations and Refit Supervision.

Project Engineer

- Assisted in management of 2-3 \$600,000 submarine upkeeps each month (coordinating submarine, tender, shipyard, contractor, and other engineers and technicians) for 7200 person submarine group.
- Managed several multi-million dollar nuclear plant repairs: completed under budget, ahead of time.
- Formulated and implemented safety policies, at forefront of submarine fleet, to ensure safe and healthy working environment.

USS HADDOCK, San Diego & Vallejo, CA 1982-1985

Nuclear Attack Submarine Pacific Operations and Overhaul.

Division Manager, Nuclear Engineering

- **Certified Engineer, 1985, Department of Energy, Naval Reactors.**
- Supervised 12 technicians and mechanics in the safe operation, maintenance and testing of a nuclear reactor plant.
- Directly responsible for reactor instrumentation and control; steam plant and turbine operation; mechanical gearing and fluid pumps, valves and control systems; chemistry and radiological practices; high voltage electrical generation and distribution; an advanced sonar system using analog and digital sensor signal processing and conversion.
- Revamped management to correct underlying problems in QA and Refit programs, saving \$250,000 as Program Manager.
- Conducted incisive nuclear plant audits and training.

USS DOLPHIN, *Operations Officer*, Research Submarine 1980

USS BEN FRANKLIN, *Communications Officer*, Nuclear Missile Submarine 1979

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DESIGN

Automated IOWFSR Mediation Specifications; Infrared video display and combustion control algorithms; Programmable Logic Controller, Single Loop Controller, Distributed Control System, Microprocessor, Solid State, discrete control systems', and SCADA/MMI operator interface systems' software logic and applications.

PUBLICATIONS

Alharbi, T., A. Aljuhani & B. Taylor, "A Collaborative SYN Flooding Detection Approach using NFV" *International Journal of Computer Engineering and Information Technology* (September 2019), vol 11, issue 9, p. 186-196.

Aljuhani, A., T. Alharbi & B. Taylor, "Mitigation of Application Layer DDoS Flood Attack Against Web Servers" *Journal of Information Security and Cybercrimes Research (JISCR)* (June 2019), vol 1, issue 2, p. 21-38.

Khawaji, K., I. Almubark, A. Almalki & B. Taylor, "Similarity Matching for Workflows in Medical Domain Using Topic Modeling" *IEEE World Congress on Services* (2018), 2 p.

Taylor, B., "Towards Automating Inter-Organizational Workflow Semantic Resolution" *GWU* (2015) 132 pp.

Taylor, B. & S. Rotenstreich, "Towards Automating Inter-Organizational Workflow Semantic Resolution" *International Conf. on Services Computing (IEEE/SCC)* (2015) p. 777-781.

Taylor, B., "Variable Validation at Time of Compilation" *GWU* (2003) 117 pp.

Taylor, B. & S. Muftic, "Remote Method Security in a Distributed Processing Architecture Supporting Generic Security Objects" *Proceedings of Instrumentation, Systems & Automation in the Power Industry San Diego, CA, ISA* (2002), vol. 45, CD, 15 pp.

Taylor, B., "Research and Design Project: Optimization of Pollution Abatement Costs and Benefits" *USNA* (1980) 153 pp.

PATENTS

D. Eaton, R. Daily, Y. Torres, J. Dulcey & B. Taylor, 8,564,879 B1 "Multispectral Infrared Simulation Target Array" Issued October 22, 2013. Inventors corrected June 25, 2019. US Patent and Trademark Office.

PRESENTATIONS

Taylor, B. (April 2018). "SMART Manufacturing & Cyber Security: Foundational ISA/IEC 62443 Standards Evolving with Learning Machines" Invited US Keynote for SMART Manufacturing breakout at U.S.-German Standards Panel 2018, Washington, DC.

Taylor, B. (June 2015). "Towards Automating Inter-Organizational Workflow Semantic Resolution" Paper presented at IEEE 2015 SERVICES / Big Data Congress / CLOUD / ICWS / SCC / MS Conference, New York, NY.

Taylor, B. (October 2002). "A Vision For The Future - Remote Method Security in a Distributed Processing Architecture Supporting Generic Security Objects" Invited paper & panel member, 2002 ISA technical conference, Chicago, IL.

Taylor, B. (June 2002). "Remote Method Security in a Distributed Processing Architecture Supporting Generic Security Objects" Paper presented at annual conference of Power Industry Division, ISA, San Diego, CA.

CONFERENCES ORGANIZED

ISA99 Industrial Automation & Control System Cyber Security Standards Annual Meeting (June 2018). Plenary & breakout sessions; 3 days, 55 global participants. Hosted at The Catholic University of America, Washington, DC.

CONFERENCE SESSIONS CHAIRED

Plenary, Afternoon Session (August 2019) at IEEE Cloud Computing Summit, Washington, DC.

"IEEE Services Symposium on Services Computing Concise Papers Session 2" (July 2019) at 2019 IEEE World Congress on Services, Milan, IT.

"Work in Progress Papers Session 1" (July 2018) at IEEE Big Data Congress 2018, San Francisco, CA.

"IEEE Services Concise Session 3" (July 2018) at IEEE World Congress on Services, San Francisco, CA.

Plenary. Korzma, R. (February 2016). "Big Data Challenges in Large-Scale Networks – From Brains to Stars" at 2016 IEEE Computational Intelligence Society Winter School, Washington, DC.

COMPUTERS

Proficient: Java, C/C++, Python, MATLAB, Fortran, Basic/VB, YAWL, XML, XSL, Ada, Topic Modeling, LDAWN, NLTK, JCOupling, Protégé, LabView, various PLC and MMI/SCADA programming packages, spreadsheets, word processors, CAD, macros, operating systems, database/SQL, networks, processing, IO and sensing hardware.

ASSOCIATIONS

International Society of Automation (Past President, Connecticut Valley Section), ISA99 (Voting Member), Institute of Electrical and Electronics Engineers, Naval Submarine League, Sigma Xi, National Space Society.