

Seth J. Berl | Ph.D., M.A., B.S., B.S.E.E.

United States Citizen – Security Clearance Eligible

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Employment & Research

GovSmart, Inc. **Charlottesville, Virginia**

Chief Technology Officer

2020–Present

- Facilitate business, enterprise, and project success through technology, innovation & future strategic vision

Smartec, LLC **Williamsburg, Virginia**

Owner, Technology Consulting Firm

2014–2020

- Lead & manage team of engineers, researchers, and experts to solve problems & implement technologies for clients
- Design & implement aerospace/defense embedded systems – satellite & GPS communication
- Hardware, software, firmware/driver, OS, USB, webserver development, machine learning, NIST compliance
- Enterprise network engineering, architecture, system administration, web & database design, audio/video solutions

University of Virginia **Charlottesville, Virginia**

Researcher, Bose-Einstein Condensate Atom Interferometry & High Angular Momentum Rydberg States 2015–2020

Collaborations: International Space Station Cold Atom Laboratory

DARPA/Northrop Grumman/ColdQuanta Precision Cold Atom Inertial Sensor

Supervisor, Physics Laboratory Graduate Teaching Assistants

Space Systems/Loral **Palo Alto, California**

Systems Engineer, Satellite Communications | ITAR, EAR, & Export Compliance Trained

2014–2015

Engineering & Design of Eutelsat 65 West A Payload and Repeater Subsystem

Governor's School for Science and Technology **Hampton, Virginia**

Mentor & Instructor, Computer Vision Research Project

2017–2018

Professor, Research Methodology & Engineering Ethics

2014–2015

Christopher Newport University **Newport News, Virginia**

Assistant Tennis Coach, NCAA Men's Tennis

2014–2015

Stony Brook University **Stony Brook, New York**

Physics Researcher – Metcalf Group, Optical Forces from Adiabatic Rapid Passage and Bichromatic Light 2013

Old Dominion University & Jefferson Laboratory **Norfolk, Virginia**

Atomic Physics Research, Quantum Information & Quantum Memory

2010–2014

Nuclear Physics Research, Cosmic Ray Detection & Tracking, Nuclear Magnetic Resonance

Electrical Engineering, Multicharged Ion Transport Line and Diagnostic System

2013–2014

Microelectronics Semiconductor Device Design & Fabrication

National Aeronautics and Space Administration (NASA) **Hampton, Virginia**

Data Science, National Lightning Detection Network Data Processing

2008 - 2012

Systems Engineering, Infrasonic Sensor Array Measurement System,

Chemical Engineering, Soluble Imide Polymer Materials Processing

Education

University of Virginia **Charlottesville, Virginia**

Ph.D. – Atomic, Molecular, & Optical Physics

2020

M.A. Physics

2018

Old Dominion University – Governor's Technology Award, Honors College **Norfolk, Virginia**

B.S. Physics with Mathematics Minor

2014

B.S. Electrical Engineering

Qualifications & Skills

Business & Executive Management:

Leadership & Management: Direct sales teams, engineers, researchers, and experts to solve problems & implement technologies

Advancement & Commercialization: Budget & Cost Analysis, ROI Projections, & Business Planning

Effective Verbal & Written Communication: Technical Writing, Design Review, and Strong Collaborative Skills

Research & Development:

Radio Frequency (RF) Systems: Design, Analysis, Simulations, & Testing

Atomic, Optical, & Laser Systems: Diode & Dye Lasers, Opto-Electronics, Photodetectors, Optical Fiber

Data Acquisition, Laboratory Instrumentation, Tools, & High Vacuum Systems

Signal Processing, Data Analytics, Statistical & Probability Analysis

Computer Hardware, Software, Embedded/Firmware, & Networking Knowledge:

Operating Systems: Microsoft Windows, Linux & UNIX, Macintosh, VxWorks

Programming Languages: C(++), Python, Perl, LabVIEW, VHDL, HTML, PHP, Javascript, CSS, SQL, L^AT_EX

Architectures & Protocols: ARM, HTTP, USB, OHCI, SCSI, FAT, UART, SPI, I2C

Software: Matlab, Mathematica, AutoCAD & Inventor, Adobe Suite, Wireshark, IAR Embedded Workbench

Debugging: JTAG, J-Link, Oscilloscope, Logic Analyzer, Memory Management

Professional Organizations & Publications

Professional Organizations: American Physical Society (APS) – Division Atomic, Molecular, and Optical Physics (DAMOP) & Southeastern Section (SESAPS) • Optical Society of America (OSA) • Sigma Pi Sigma – Physics Honor Society • Institute of Electrical and Electronics Engineers (IEEE)

Conferences & Publications:

Quantum rotation sensing with dual Sagnac interferometers in an atom-optical waveguide	Phys. Rev Letters
Rb Rydberg State RF Spectroscopy Measurements for Core Polarizability	SESAPS, DAMOP, Phys. Rev A (Pending)
Correcting for Time-Dependent Field Inhomogeneities in a Time Orbiting Potential Magnetic Trap	DAMOP 2017
High-precision Measurements of the ⁸⁷ Rb Vector Polarizability	SESAPS 2016
Second Order Correlation Function for Quasi One-Dimensional Anderson Localization	OSA 2012

Athlete: NCAA Tennis Coach / Junior USTA Tennis National Ranking / Private Tennis Instructor

Musician: Guitar, Saxophone, Piano/Keyboard, & Drums – Instructor, Concert, and Marching Bands

Patent: Pool Skimmer Device – # 2004/0245,789