

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

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Education

University of Virginia <i>Ph.D. Candidate – Atomic, Molecular, & Optical Physics</i> <i>M.A. Physics</i>	Charlottesville, Virginia <i>Expected Graduation: 2020</i> 2018
Old Dominion University – Governor’s Technology Award, Honors College <i>B.S. Physics with Mathematics Minor</i> <i>B.S. Electrical Engineering</i>	Norfolk, Virginia 2014

Employment & Research Experience

Smartec, LLC <i>Owner, Technology Consulting Firm</i> - Lead & manage team of engineers, researchers, and experts to solve specialized problems & implement technologies for clients - Design & implement aerospace/defense embedded systems – satellite & GPS communication - Hardware, software, firmware/driver, OS, USB, webserver, machine learning development - Enterprise network system administration, web & database design, audio/video solutions	Williamsburg, Virginia 2014–Present
University of Virginia <i>Researcher, Bose-Einstein Condensate Atom Interferometry & High Angular Momentum Rydberg States</i> Collaborations: International Space Station Cold Atom Laboratory DARPA/Northrop Grumman/ColdQuanta Precision Cold Atom Inertial Sensor <i>Supervisor, Physics Laboratory Graduate Teaching Assistants</i>	Charlottesville, Virginia 2015–Present
Space Systems/Loral <i>Systems Engineer, Satellite Communications ITAR, EAR, & Export Compliance Trained</i> Engineering & Design of Eutelsat 65 West A Payload and Repeater Subsystem	Palo Alto, California 2014–2015
Governor’s School for Science and Technology <i>Mentor & Instructor, Computer Vision Research Project</i> <i>Professor, Research Methodology & Engineering Ethics</i>	Hampton, Virginia 2017–2018 2014–2015
Christopher Newport University <i>Assistant Tennis Coach, NCAA Men’s Tennis</i>	Newport News, Virginia 2014–2015
Stony Brook University <i>Physics Researcher – Metcalf Group, Optical Forces from Adiabatic Rapid Passage and Bichromatic Light</i>	Stony Brook, New York 2013
Old Dominion University & Jefferson Laboratory <i>Atomic Physics Research, Quantum Information & Quantum Memory</i> <i>Nuclear Physics Research, Cosmic Ray Detection & Tracking, Nuclear Magnetic Resonance</i> <i>Electrical Engineering, Multicharged Ion Transport Line and Diagnostic System</i> Microelectronics Semiconductor Device Design & Fabrication	Norfolk, Virginia 2010–2014 2013–2014
National Aeronautics and Space Administration (NASA) <i>Data Science, National Lightning Detection Network Data Processing</i> <i>Systems Engineering, Infrasonic Sensor Array Measurement System,</i> <i>Chemical Engineering, Soluble Imide Polymer Materials Processing</i>	Hampton, Virginia 2008 - 2012

Qualifications & Skills

Research, Development, Prototyping, Quality Assurance, Manufacturing, & Business:

Radio Frequency (RF) Systems: Design, Analysis, Simulations, & Testing
Laser, Optical, & High Vacuum Systems: Diode & Dye Lasers, Opto-Electronics, Photodetectors, Optical Fiber
Advancement & Commercialization: Budget & Cost Analysis, ROI Projections, & Management
Effective Verbal & Written Communication: Technical Writing, Design Review, and Strong Collaborative Skills

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: 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:

Rb Rydberg State RF Spectroscopy Measurements for Core Polarizability SESAPS 2017, DAMOP 2018-19, Phys. Rev A Pending
Correcting for Time-Dependent Field Inhomogeneities in a Time Orbiting Potential Magnetic Trap DAMOP 2017
High-precision Measurements of the ⁸⁷Rb 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