William L. **Van Besien**

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Summary

Experienced software engineer who is well-versed in both R&D and startup environments. Offers broad expertise including aerospace flight software, cyber security, web applications, and embedded systems. Possesses strong understanding in computer science fundamentals with aptitude for formal modeling. Applies and encourages best practices to develop robust software systems with steady progress and in line with customer requirements. Effectively communicates technical challenges and solutions to a variety of audiences. Excels in formal presentation, technical papers, and innovation projects.

Professional Experience

Nextility, Inc *09/2013 – Present (Part-time)*
DC-based energy services startup providing analytics and cost-savings service for small business.
Software Engineer: *Technology Group*

- Designed and implemented the SCADA system to centrally monitor, control, and diagnose faults for solar-energy installations.
- Introduced a scalable architecture supporting flexible deployments and enabled rapid support of new sensors, controllers, and other solar-power hardware as requested by operations team.
- Scaled to monitor dozens of photovoltaic and solar-thermal installation generating hundreds of MWh daily throughout the US.

Johns Hopkins University Applied Physics Laboratory *2008 – Present*
University-affiliated research center serving as a technical resource for NASA and other agencies.
Associate Professional Staff: *Embedded Application Group, Space Exploration Sector*

- Technical lead for the fault-management subsystem on a DARPA-sponsored effort to safely test cooperative, multi-agent UAV autonomy. Responsible for the concept of the model-based reasoning engine and its implementation within the overall remediation architecture.
- Architected and integrated a candidate model-based, formally verifiable fault management system for a NASA deep-space mission.
- Performed penetration tests on spacecraft testbeds, devised countermeasures using in-situ spacecraft resources, and pursued spinoff involving analysis of cyber attack and defense strategies.
- Served as a flight controller during the integration & testing, launch, and post-launch commissioning phases of the NASA Van Allen Probes mission.
- Contributed to flight software R&D efforts: aggregated and developed baseline flight software infrastructure for all future group IR&Ds going forward, and contributed to an experimental branch of the open source NASA CFE flight software framework to support multicore systems.

NASA Goddard Space Flight Center *05/2007 – 08/2007*
Research Associate: *Instrument Electronics Development Branch*

- Member of the NASA Summer Internship Program. Designed hardware communication component for sensor node network in VHDL. Also assisted in producing the documentation for all electrical components on the LOLA instrument for the NASA LRO mission.

Universität Mainz Institut für Kernphysik (Nuclear Physics) *05/2006 – 08/2006*
NSF Undergraduate Intern

- Developed application to maintain calibration data for particle collider. Advised in software development techniques for physics students.

Publications and Achievements

- Recipient with team of a 2014 APL Ignition Grant Award for Technical Innovation for work on **"SpaceDrone: Bringing Spacecraft Flight Software Closer to Earth"**
- Recipient with team of a 2013 APL Hart Prize for Development on **"Organic Persistent Intelligence, Surveillance and Reconnaissance (OPISR)"**
- Reviewer, **"Penetration Testing with Raspberry Pi"**, Muniz, J., Lakhani A. (2015). Packt Publishing
- Presenter, "**Investigating Model-Based Autonomy for Solar Probe Plus"**, 2013 Workshop on Spacecraft Flight Software, California Institute of Technology, Pasadena, CA. 2013
- Session Chair, SpaceOps 2013: Session on Space Cyber Security, JHU/APL. Laurel, MD. 2013
- Author/Presenter, **"Protecting Against DNS Cache Poisoning Attacks",** Trostle, J., Van Besien, W., Pujari, A. (2010). 6th IEEE ICNP Workshop on Secure Network Protocols, Kyoto, Japan. 2010
- Author/Presenter, **"Dynamic, Non-Interactive Key Management for the Bundle Protocol"**, Van Besien, W. (2010). 5th ACM MobiCom Workshop on Challenged Networks, Chicago, IL. 2010
- Recipient of a 2008 NSF Cyber Corps fellowship; full scholarship with stipend 2008-2010.

Education

M.Sc. and **B.Sc. , Computer Science.** Concentration in cyber security.
George Washington University, 2009, 2010.

Interests: Cryptography, disruption-tolerant network architectures, complex systems, functional languages and paradigms.

Technical Proficiencies

- Most extensive experience with Python and C in a Linux environment. Prior experience with Java, C++, and Scala.
- Very knowledgeable of TCP/IP, Space Network, Delay-Tolerant Networking (DTN), serial, and SCADA networking and communication stacks.
- Experienced with the Atlassian suite for project management, code review, and CI. Amazon cloud services, Puppet, and Fabric for infrastructure and deployment.
- Experienced with database systems (Postgres, Mongo, SQLite) and middlewares (cFE, AMQP, ZeroMQ).