

DERRICK KONG – Lead Scientist

Education

S.B. Physics MIT, 1992

PhD Physics University of Hawaii, 2000

Skills:

Languages: Perl, Python. Familiarity with C, Java.

Security: Secure system architecture and design, Internet and network routing (BGP, TCP/IP), cryptographic standards, network monitoring, traffic analysis, computer forensics.

Software: Snort, Matlab, Encase.

Systems: System administration experience with various UNIX platforms (Linux, BSD), MS Windows, MacOS.

Professional Positions

Dec. 2001 – present, Lead Scientist, Raytheon BBN Technologies, Cambridge, MA

Dec. 2000 – Dec. 2001, System Administrator, BBN Technologies, Cambridge, MA

Professional Responsibilities and Projects

- Dr. Kong is currently a Lead Scientist in the Cyber Security practice at Raytheon BBN. He has led several programs as Principal Investigator. His duties include system design and prototyping, technical and managerial leadership, and testing. Proposal and program highlights include:
 - In 2019, he led a BBN/Rockwell-Collins team on a submission as program integrator for the DARPA V-SPELLS program, which has been selected for funding, starting in 2020.
 - In 2018, he continued to lead the TC effort and also led BBN's contribution as a subcontractor on a proposal to US TRANSCOM for transition of the TC technology. He also contributed to the winning Luxor (proprietary) proposal. Finally, he submitted a white paper (project name: MirrorMind) to AFRL Rome which was approved for funding starting in 2019.
 - In 2015, he led the writing team for a successful proposal on the Transparent Computing (DARPA I2O) program and became Principal Investigator of that effort, which encompasses the role of system integrator for nine other performers. He also led the Cyber Security unit's portion of a proposal as a subcontractor to Charles River Associates on the CAUSE (IARPA) program and participated in a winning BBN proposal for the SCITE (IARPA) program. He also was the technical lead on the Enterprise-as-Code project. He also began day-to-day leadership of a group (3-6 individuals) of junior engineers, which continues to the present.
 - In 2014, he was Principal Investigator on the IDEAS (Maryland Procurement Office) program, aimed at producing a prototype system to provide formal verification of security properties by examination of network device configurations. He also was

primary author of a successful proposal, Enterprise-as-Code (DARPA I2O), which will create an initial prototype to automatically derive functional specifications from an enterprise network to allow rapid recovery and network analysis capabilities.

- In 2013, he was the Principal Investigator (PI) on the Sedona program (proprietary customer) and also participated as an individual contributor on the Real-Time Protocol Shepherds (RePS) (Department of Homeland Security) project and BBN's Crowd-Sourced Formal Verification (CSFV) program (DARPA I2O) project.
- In 2012, he participated in a number of proposal efforts including successful wins for the CSFV and Sedona projects and took on the role of individual technical contributor as well as Program Manager for the CSFV project.
- In 2011, he was the security lead for the BBN team working on the DARPA F6 program, overseeing the security architecture and design for the F6 communications system, a fractionated satellite system.
- From 2006 to the present, he has participated in design documentation and testing for the Internet Secure Routing PKI and was the original author of an Internet Draft for Route Origin Authentication entities (RFC 6482) in the Secure Routing PKI.
- He led the security design for sensor nodes as part of the DARPA Networked Embedded Systems Technology (NEST) project from 2002 to 2004 and became co-PI (later sole PI) of the project from 2004 to 2006.

References

Available upon request.

Publications With Primary/Major Authorship

Kent, S., Kong, D., Seo, K., *Template for a Certification Practice Statement (CPS) for the Resource PKI (RPKI)*, RFC 7382/BCP 173, April 2015.

Kong, D., et al., *Lightbulb: A Toolkit for Analysis of Security Policy Interactions*, The Fourteenth International Conference on Networks, April 2015.

Watro, R., et al., *Ghost Map: Proving Software Correctness using Games*, SECUREWARE 2014, November 2014.

Seo, K., Watro, R., Kong, D., and Kent, S., *Certificate Policy (CP) for the Resource Public Key Infrastructure (RPKI)*, RFC 6484/BCP 173, February 2012.

Lepinski, M., Kent, S., and Kong, D., *A Profile for Route Origin Authorizations (ROAs)*, RFC 6482, February 2012.

Ronald Watro, Derrick Kong, Sue fen Cuti, Charles Gardiner, Charles Lynn, and Peter Kruus, *TinyPK: Securing Sensor Networks with Public Key Technology*, in SASN '04: Proceedings of the 2nd ACM Workshop on Security of Ad Hoc and Sensor Networks, pages 59-64, October 2004.

Qi, X., et al., *R with Tau Mass Data*, High Energy Physics and Nuclear Physics, vol. 24, no. 7, 2000.

Bai, J.Z., et al., *Measurement of the Total Cross Section or Hadronic Production by e^+e^- Annihilation at Energies between 2.6-5 GeV*, Physical Review Letters, vol. 84, no. 4, pg. 594-597, 2000.

Qi, X. et al., *Study and Simulation of the Features of Hadronic Events in the BEPC Energy Region*, High Energy Physics and Nuclear Physics, vol. 23, no. 1, 1999.

Kong, D., *Measurement of R Between 2-5 GeV*, Proceedings of the 1999 Los Angeles Meeting of the Division of Particles and Fields of the American Physical Society (DPF99), <http://www.dpf99.library.ucla.edu>, January 1999.

Bai, J.Z., et al., *Measurement of the Mass of the τ Lepton*, Physical Review D, vol. 53, no. 1, pg. 20-34, 1996.

Fegley, B., and Kong, D., *Organic Compound Production on Early Mars: The Role of Large Impact*, EOS, vol. 70, no. 43, pg. 1173.

Fegley, B., and Kong, D., *Thermodynamic Models Of Trace Metal And Volatile Element Transport By Lunar Volcanism*, in Workshop on Lunar Volcanic Glasses: Scientific and Resource Potential, (J. W. Delano and G. H. Heiken, eds.), pp. 32-33. LPI Tech. Rpt. 90-02. Lunar and Planetary Institute, Houston.

Fegley, B., and Kong, D., *Lunar Volcanic Glasses: Further Modeling Results for the Transport of Trace Metals and Volatile Elements*, in Abstracts From the XXIIth Annual Lunar and Planetary Science Conference}, Lunar and Planetary Institute, Houston, TX, 1991.

Fegley, B., and Kong, D., *Mo and W Depletions in CAI's in Carbonaceous Chondrites: A Theoretical Study of the Effects of Nebular Total Pressure*, in Abstracts From the XXth Annual Lunar and Planetary Science Conference}, Lunar and Planetary Institute, Houston, TX, 1989.