Jay Jay Billings

Oak Ridge National Laboratory
PO Box 2008, MS 6016
Oak Ridge, TN 37831-6016

Phone: 865-241-6308
Fax: 865-576-5491
Email: billingsjj@ornl.gov
Web: http://www.jayjaybillings.org
YouTube: https://goo.gl/0oM8Jf

Summary

Experienced computational physicist, computer scientist and software architect within a broad set of areas including astrophysics, materials science, nuclear energy, quantum information and high-performance modeling and simulation. (Co-)author of thirteen peer reviewed publications, seventeen invited talks, eighteen reports, four software releases and nineteen other presentations. Contributor to sixteen successful competitively and funded and in-kind activities with a total of more than $20M of funding since 2010. Leader of two Eclipse projects and member of the Eclipse Architecture Council.

Work Experience

Oak Ridge National Laboratory, Computer Science Research Group

Research Staff **03/2016-Present**

Responsible for multiple Scientific Software Development projects within the Computer Science and Mathematics Division.

Leader, Scientific Software Initiative **08/2015-Present**

Team Lead, Scientific Software Development **09/2009-Present**

Research Associate **12/2012-03/2016**

U.S. Dept. of Energy (DOE) Office of Nuclear Energy (NE) Advanced Modeling and Simulation Office (AMSO) **09/2009-10/2016**

Select Peer-Reviewed Publications

Haidar, Azzam, Benjamin Brock, Stanimire Tomov, Michael Guidry, Jay Billings, Daniel Shyles, and Jack Dongarra. Performance Analysis and Acceleration of Explicit Integration for Large Kinetic Networks Using Batched GPU Computations. In Proceedings of the 2016 IEEE High Performance Extreme Computing Conference (HPEC'16). 13 September 2016. ORNL PTS 68170.

Brooks, Christopher, and Jay Jay Billings. Introducing Triquetrum, A Possible Future for Kepler and Ptolemy II. In Proceedings of the 2016 International Conference of Computational Science. San Diego CA, 2016. ORNL PTS 61297.

Ben Brock, Andrew Belt, Jay Jay Billings and Mike Guidry. Explicit Integration with GPU Acceleration for Large Kinetic Network. Journal of Computational Physics. 20 September 2015. ORNL PTS 51261.

Jay Jay Billings et. al. A domain-specific analysis system for examining nuclear reactor simulation data for light-water and sodium-cooled fast reactors. Annals of Nuclear Energy. 2 July 2015. ORNL PTS 49421.

S. Pannala et al. Multiscale modeling and characterization for performance and safety of lithium-ion batteries. Journal of Applied Physics. 118, 072017 (2015). ORNL PTS 53679.

Ted Haberman, Jay Jay Billings, et. al. The Hierarchical Data Format (HDF): A Foundation for Sustainable Data and Software. 2nd Workshop on Sustainable Software for Science: Practice and Experiences. New Orleans, LA. 16 November 2014. ORNL PTS 51841.

Travis Humble, Jay Jay Billings et. al. An Integrated Development Environment for Adiabatic Quantum Programming. Computational Science and Discovery 7 015006 2013. ORNL PTS 45422.

Neeti Pokhriyal, Jay Jay Billings et. al. Anomaly Detection for High Fidelity Core Simulators. American Nuclear Society: 2013 Annual Meeting. Atlanta, GA. 16 June 2013. ORNL PTS 41067.

Neeti Pokhriyal, Jay Jay Billings et. al. Knowledge Discovery from Nuclear Reactor Simulation Data. 2nd International Workshop on Analytics for Cyber-Physical Systems. Austin, TX. 2 May 2013. ORNL PTS 41203.

William David Pointer, Jay Jay Billings et. al. Developing a Comprehensive Software Suite for Advanced Reactor Performance and Safety Analysis. 2013 IAEA Conference on Fast Reactors. Paris, France. 4 March 2013. ORNL PTS 41060.

M. W. Guidry, Jay Jay Billings et. al. Explicit integration of extremely stiff reaction networks: asymptotic methods. Computational Science and Discovery. 6.1 (2013). ORNL PTS 33860.

M. W. Guidry, Jay Jay Billings et. al. Explicit integration of extremely stiff reaction networks: partial equilibrium methods. Computational Science and Discovery. 6.1 (2013). ORNL PTS 33856.

J. J. Billings et al. Designing a Component-Based Architecture for the Modeling and Simulation of Nuclear Fuels and Reactors. CompFrame 2009, Portland, OR, 15-16 November 2009