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Professional Profile

Dr. Sorini is a computer scientist with expertise in software, security, forensics, and consumer electronics. He has extensive industry experience working for clients from startups to Fortune 500 companies on matters involving architecture, implementation, and analysis related to software, firmware, and computer hardware.

Dr. Sorini has worked on computer control software for systems ranging from micro-mobility to call centers. He also has experience with other topics in applied computer science including diverse aspects of cybersecurity such as medical device security, network security, ransomware/malware investigations, reverse engineering, and digital forensics of servers, personal computers, laptops, and smartphones.

Dr. Sorini has also worked as a technical consultant for intellectual property matters including trade secret, patent, and copyright matters. He has testified as an expert at trials, arbitrations, and depositions.

Dr. Sorini has a background in computational physics and numerical modelling. While at Stanford and then at Lawrence Livermore National Laboratory, Dr. Sorini implemented massively-parallel sparse-matrix computer software to determine physical properties of electronic systems. Dr. Sorini has experience with a number of computer programming languages including C, FORTRAN, C++, C#, Java, PHP, Python, and JavaScript. He also has experience working with very large scale source code databases, source code repositories, and other software development artifacts, both as a software developer and as a technical consultant and expert.

Academic Credentials & Professional Honors

Ph.D., Physics, University of Washington, 2008

M.S., Physics, University of Washington, 2003

B.S., Physics, University of Michigan, Ann Arbor, 2001

Licenses and Certifications

Cellebrite Certified Operator (CCO)

Cellebrite Certified Physical Analyst (CCPA)

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Prior Experience

Postdoctoral Researcher, Lawrence Livermore National Laboratory, 2011-2012

Postdoctoral Researcher, Stanford Institute for Materials and Energy Science, 2009-2011

Research Assistant, University of Washington, 2005-2008

Teaching Assistant, University of Washington, 2002-2005

Professional Affiliations

IEEE Senior Member

Publications

Sorini A, Chen C, and Phan S. Malware Analysis: A Look At Static and Dynamic Analysis Techniques. Software Engineering: Artificial Intelligence, Compliance, and Security. D'Andrade B (ed). Nova Science Publishers Inc., 2021.

Scott G., Sorini A., "PyLocky Ransomware Source Code Analysis." IEEE Symposium on Product Compliance Engineering Proceedings. Portland, OR (Virtual). November, 2020.

Sorini A and Burns D. Forensic Investigations of Alleged Data Exfiltration. Presented at Insider Threat Summit 4. March 19, 2018.

D'Andrade B, Sorini A, and Lochner Z. Digital Evidence. Presented at NJDA 51st Annual Convention. June 23, 2017.

Sorini A, and Staroswiecki E. Cybersecurity for the smart grid. The Power Grid: Smart, Secure, Green, and Reliable. D'Andrade B (ed). Elsevier Ltd., 2017, 233-252.

Sorini A, Jagannathan S. Self-authentication in medical device software: An approach to include cybersecurity in legacy medical devices. IEEE Symposium on Product Compliance Engineering Proceedings (ISPCE), San Jose, CA, May, 2016.

Jagannathan S, Sorini A. A cybersecurity risk assessment methodology for medical devices. Proceedings, IEEE Symposium on Product Compliance Engineering, May 2015.

Sorini A, Jagannathan S. Forensic analysis of digital time. Exponent Electrical Engineering & Computer Science Newsletter, Volume 1, 2015.

Sorini A, Jagannathan S, McGoran B. Medical device cybersecurity: Preliminary hazard analysis. Exponent Electrical Engineering & Computer Science Newsletter, Volume 1, 2015.

Sorini A, Jagannathan S. Forensic analysis of digital time. MDTC e-letter, Volume 5, No. 2, December 2014.

Huang R, Sorini A, McNulty J. Quantitative solder inspection with computed tomography. Proceedings, IEEE Symposium on Product Compliance Engineering, May 2014.

Lee JJ, Moritz B, Lee WS, Yi M, Jia CJ, Sorini AP, Kudo K, Koike Y, Zhou KJ, Monney C, Strocov V, Patthey L, Schmitt T, Devereaux TP, Shen ZX. Charge-orbital-lattice coupling effects in the dd excitation profile of one-dimensional cuprates. Physical Review B 2014; 89:041104(R).

Chuang YD, Lee WS, Kung YF, Sorini AP, Moritz B, Moore RG, Patthey L, Trigo M, Lu DH, Kirchmann PS, Yi M, Krupin O, Langner M, Zhu Y, Zhou SY, Reis DA, Huse N, Robinson JS, Kaindl RA, Schoenlein RW, Johnson SL, Forst M, Doering D, Denes P, Schlotter WF, Turner JJ, Sasagawa T, Hussain Z, Shen ZX, Devereaux, TP. Real-time manifestation of strongly coupled spin and charge order parameters in stripe-ordered nickelate crystals using time-resolved resonant X-ray diffraction. Physical Review Letters 2013; 110:127404.

Kung YF, Lee W-S, Chen C-C, Kemper AF, Sorini AP, Moritz B, Devereaux TP. Time-dependent charge-order and spin-order recovery in striped systems. Physical Review B 2013; 88:125114.

Lipp MJ, Sorini AP, Bradley J, Maddox B, Moore KT, Cynn H, Devereaux TP, Xiao Y, Chow P, Evans WJ. X-ray emission spectroscopy of cerium across the gamma-alpha volume collapse transition. Physical Review Letters 2012.;109:195705.

Lee WS, Sorini AP, Yi M, Chuang YD, Moritz B, Yang WL, Chu JH, Kuo HH, Gonzalez A, Fisher IR, Hussain Z, Devereaux TP, Shen ZX. Resonant enhancement of charge density wave diffraction in the rare-earth tritellurides. Physical Review B 2012; 85:155142.

Chuang Y-D, Moore R, Zhu Y, Patthey L, Trigo M, Lu D-H, Kirchmann P, Krupin O, Yi M, Langner M, Huse N, Robinson J, Chen Y, Zhou S, Coslovich G, Huber B, Reis D, Kaindl R, Schoenlein R, Doering D, Denes P, Schlotter W, Turner J, Johnson S, Forst M, Sasagawa T, Kung Y, Sorini A, Kemper A, Moritz B, Devereaux T, Lee D-H, Shen Z-X, Hussain Z. Phase fluctuations and the absence of topological defects in photo-excited charge ordered nickelate. Nature Communications 2012; 3:838.

Johnston S, Sorini AP, Moritz B, Devereaux TP, Scalapino DJ. Coincidence between energy gaps and Kohn anomalies in conventional super-conductors. Physical Review B 2011; 84:174523.

Kim YJ, Sorini AP, Stock CS, Perring TG, Van den Brink J, Devereaux TP. Probing high-energy electronic excitations using inelastic neutron scattering. Physical Review B 2011; 84:085132.

Yi M, Lu DH, Chu JH, Analytis JG, Sorini AP, Kemper AF, Mo SK, Moore RG, Hussain Z, Devereaux TP, Fisher IR, Shen Z-X. Symmetry breaking orbital anisotropy on detwinned Ba(Fe1−xCox)2As2 above the spin density wave transition. Proceedings, the National Academy of Sciences 2011; 108:6878.

Wang S, Mao WL, Sorini AP, Chen CC, Devereaux TP, Ding Y, Xiao Y, Chow P, Hiraoka N, Ishii H, Cai YQ, Kao CC. High pressure evolution of Fe2O3 electronic structure revealed by x-ray absorption. Physical Review B 2012; 82:144428.

Chen CC, Moritz B, Jia CJ, Johnston S, Sorini AP, Lee LQ, Ko K, Devereux TP. Numerical studies of photon-based spectroscopies on high-Tc superconductors. Computer Physics Communications 2010; 182:106.

Bradley JA, Seidler GT, Cooper G, Vos M, Hitchcock AP, Sorini AP, Schlimmer C, Nagle KP. Comparative study of the valence electronic excitations of N2 by inelastic x-ray and electron scattering. Physical Review Letters 2010; 105:053202.

Chen CC, Maciejko J, Sorini AP, Moritz B, Singh RRP, Devereaux TP. Orbital order and spontaneous orthorhombicity in iron pnictides. Physical Review B 2010; 82:100504(R). Editor's Choice.

Yang WL, Sorini AP, Chen CC, Moritz B, Lee WS, Vernay F, Olalde-Velasco P, Denlinger JD, Delley B, Chu JH, Analytis JG, Fisher IR, Ren ZA, Yang J, Lu W, Zhao ZX, Van den Brink J, Hussain Z, Shen Z-X, Devereaux TP. Evidence for weak electronic correlations in iron pnictides. Physical Review B 2009; 80:014508. Editor's Choice and Physics Viewpoint article.

Yang WL, Sorini AP, Chen CC, Moritz B, Lee WS, Vernay F, P. Olalde-Velasco, Denlinger JD, Delley B, Chu JH, Analytis JG, Fisher IR, Ren ZA, Yang J, Lu W, Zhao ZX, Van den Brink J, Hussain Z, Shen Z-X,

DeVereaux TP. Research highlight: Evidence for weak electronic correlations in the iron pnictides. CMSN Newsletter 2009; 5:4.

Stern EA, Yacoby Y, Seidler GT, Nagle KP, Prange MP, Sorini AP, Rehr JJ, Joachimiak A. Reducing radiation damage in macromolecular crystals at synchrotron sources. Acta Crystallographica 2009; D65:366.

Rehr JJ, Kas JJ, Prange MP, Sorini AP, Takimoto Y, Vila F. Ab initio theory and calculations of x-ray spectra. C.R. Physique 2009; 10:548.

Sorini AP. The passage of fast electrons through matter. Ph.D. dissertation, University of Washington, 2008.

Sorini AP, Rehr JJ, Levine ZH. Magic angle in electron energy loss spectra: relativistic and dielectric corrections. Physical Review 2008; B 77:115126.

Sorini AP, Rehr JJ, Jorissen K. Ab initio real space calculations of electron energy loss spectra. Proceedings, AIP Conference 2008; 999:47.

Kas JJ, Sorini AP, Prange MP, Campbell LW, Soininen JA, Rehr JJ. Many pole model of inelastic losses in x-ray absorption spectra. Physical Review B 2007; 76:195116.

Rehr JJ, Kas JJ, Prange MP, Sorini AP, Campbell LW, Vila FD. Inelastic losses and multi-electron excitations in x-ray spectra. Proceedings, AIP Conference 2007; 882:85.

Sorini AP, Kas JJ, Rehr JJ, Prange MP, Levine ZH. Ab Initio calculations of mean free paths and stopping powers. Physical Review B 2006; 74:165111.

Selected Speaking Engagements

A. Sorini, Quantum Evolution and Preparation. FBI San Francisco - Cyber and Counterintelligence Academy. September 10, 2026.

A. Sorini, P. Ocola. Quantum Computing Overview and Recent Developments. San Francisco Infragard: Future-Proofing Cybersecurity. July 29, 2026.

Sorini A, Masters S, Foltermann K, Foster J. When a cyber hit stops the job: contracts, delays, and getting paid. Associated Builders and Contractors 2nd Annual Construction Summit, Round Rock, TX, June 2026.

Sorini A. What is a Quantum Computer. San Francisco Infragard: Future-Proofing Cybersecurity, Menlo Park, April 3, 2025.

Griffin, S., Hughes, R., Sorini, A. "How to Effectively Communicate After a Cyber Attack" FDCC 2023 Annual Meeting July 25, 2023

Sorini A, Wales, J, Sharma S. Cryptocurrency: What Is It and Why We Need to Know About It. 2022 FDCC Winter Meeting. March 8, 2022.

Martens J, Sinenian N, Sorini A, Lochner Z, Batara N. Targeted Hacking & Ransomware: How Perpetrators Get In and Out and How You Can Protect Yourself. Ohio Association of Civil Trial Attorneys (OACTA) Webinar. March 9, 2021.

Scott G., Sorini A., "PyLocky Ransomware: Exploiting Implementation Errors." IEEE Symposium on Product Compliance Engineering Proceedings. Portland, OR (Virtual). November, 2020.

Martens J, Sinenian N, Sorini A, Lochner Z, Batara N. Targeted Hacking & Ransomware: How Perpetrators Get In and Out and How You Can Protect Yourself. Exponent Live Webinar. October 27, 2020.

Lochner Z, Batara N, Sorini A. Seen a Thing or Two: Experience and Trends in Cyber Insurance Claims. ISC^2 National Chapter Meeting. Sept 10, 2019.

Sorini A. Artificial Intelligence Risks and Rewards. Product Liability Advisory Council (PLAC) webinar. Feb 8, 2019

Sorini A, Davis G, Frese D, and Karutz P. Cybersecurity Panel/Workshop. Missouri Organization of Defense Lawyer 32nd Annual Meeting. June 2, 2017.

Sorini A. Security-by-design for IoT devices. Arizona Technology Council Internet of Things Committee meeting, Feb 8, 2017.

Sorini A. Self-authentication in medical device software: An approach to include cybersecurity in legacy medical devices. IEEE Symposium on Product Compliance Engineering Proceedings (ISPCE), San Jose, CA, May, 2016.

Jagannathan S, Sorini A. A cybersecurity risk analysis methodology for medical devices. IEEE Symposium on Product Compliance Engineering. Chicago, IL. May 2015.

Sorini A, Huang R, McNulty J. Quantitative solder inspection with computer tomography. IEEE Symposium on Product Compliance Engineering. San Jose, CA. 2014.

Sorini A, Bradley J, Lipp M, Devereaux T. Pressure dependent x-ray emission satellites in rare-earth metals. Lawrence Livermore National Laboratory, Livermore, CA, September 2011.

Sorini A, Chen C-C, Wang S, Mao W, Devereaux T. Theoretical x-ray spectroscopy for strongly correlated materials at high pressure. APS March Meeting, Dallas, TX, March 2011.

Sorini A, Yang W, Chen C-C, Moritz B, Lee W-S, Vernay F, Olalde-Velasco P, Denlinger J, Delley B, Chu J-H, Analytis J, Fisher I, Ren Z, Yang J, Lu W, Zhao Z-X, Van den Brink J, Hussain Z, Shen Z-X, Devereaux T. Evidence for weak electronic correlations in Fe Pnictides. APS March Meeting, Portland, OR, March 2010.

Sorini A, Yang W, Chen C-C, Moritz B, Lee W-S, Vernay F, Olalde-Velasco P, Denlinger J, Delley B, Chu J-H, Analytis J, Fisher I, Ren Z, Yang J, Lu W, Zhao Z-X, Van den Brink J, Hussain Z, Shen Z-X, Devereaux T. Iron pnictides: Evidence of weak correlations. SLAC IXS Workshop, Menlo Park, CA, August 2009.

Sorini A, Rehr J, Levine Z. Magic angle in EELS: Relativistic and dielectric corrections. Lawrence Livermore National Laboratory, Livermore, CA, August 2008.

Sorini A, Rehr J, Levine Z. Magic angle in EELS: Relativistic and dielectric corrections. Geballe Laboratory for Advanced Materials, Stanford University, Stanford, CA, June 2008.

Sorini A, Rehr J, Levine Z. Magic angle in EELS: Relativistic and dielectric corrections. National Institute of Standards and Technology, Gaithersburg, MD, April 2008.

Sorini A, Rehr J, Levine Z. Effect of dielectric response on the magic angle mystery in EELS. APS March Meeting, New Orleans, LA, March 2008.