


Jana B. Thayer

Rsch Technical Mgr 3, LCLS - Linac Coherent Light Source

 NIH Biosketch available Online

Bio

BIO

Dr. Jana Thayer is the Division Director for the Linac Coherent Light Source (LCLS) Data Systems at the SLAC National Accelerator Laboratory, responsible for data acquisition, data management, data analysis framework, and computing for the LCLS facility and development of the next generation data system to support the LCLS-II upgrade. She is the PI for the Intelligent Learning for Light Source and Neutron Source User Measurements Including Navigation and Experiment Steering (ILLUMINE) project which facilitates rapid data analysis and autonomous experiment steering capabilities to support cutting-edge research tightly coupling high-throughput experiments, advanced computing architectures, and novel AI/ML algorithms to significantly reduce the time to science at the light and neutron sources. She is also the PI for the Actionable Information from Sensor to Data Center project to produce actionable information using AI/ML from instruments at the edge and provide the necessary computing workflows to train and retrain the models using HPC. Jana started at SLAC in 2004 working on the Fermi Gamma-Ray Space Telescope and led the Large Area Telescope Flight Software Team from 2006 - 2009. Jana has a Ph.D. in Elementary Particle Physics from The Ohio State University and has long nurtured an interest in data acquisition systems and high-performance software in the fields of HEP, astrophysics, and photon science.

CURRENT ROLE AT STANFORD

LCLS Experimental Data Systems Division Director

HONORS AND AWARDS

- 2023 SLAC Director's Award for the LCLS-II Data System, SLAC National Accelerator Laboratory (April 2024)
- NASA Public Service Group Achievement Award for the Flight Software for the LAT Instrument, NASA (November 2009)
- Hazel Brown Outstanding Teaching Assistant Award, The Ohio State University (May 1997)
- Laura Eisenstein Award, University of Illinois at Urbana-Champaign (May 1996)
- Undergraduate Outreach Achievement Award, University of Illinois at Urbana-Champaign (May 1995)

EDUCATION AND CERTIFICATIONS

- Project Management Profesional, Project Management Institute (2018)
- Certified Scrum Master, Scrum Alliance, Inc (2017)
- Postdoctoral Research Associate, University of Rochester , High Energy Physics (2004)
- Ph.D., The Ohio State University , High Energy Physics (2002)
- B.S., University of Illinois Urbana-Champaign , Engineering Physics (1996)

PROJECTS

- ILLUMINE - - Intelligent Learning for Light Source and Neutron Source User Measurements including Navigation and Experiment Steering - SLAC National Accelerator Laboratory (9/1/2023 - present)
- Actionable Information from Sensor to Data Center - SLAC National Accelerator Laboratory (9/1/2023 - 9/30/2023)

- LCLStream - SLAC National Accelerator Laboratory with Oak Ridge National Laboratory (11/1/2023 - 10/31/2024)
- Diaspora - Argonne National Laboratory

SERVICE, VOLUNTEER, AND COMMUNITY WORK

- Girl Scout Leader for Troop 61781 in Redwood City

LINKS

- LCLS Data Systems: <https://lcls.slac.stanford.edu/depts/data-systems>

Professional

SKILLS AND EXPERTISE

Administrative Operations

- Project Management
- Strategic Planning

Information Technology

- Application Programming Interface (API)
- Artificial Intelligence (AI)
- Data Management
- High-Performance Computing (HPC)
- Linux
- Project Management
- Research Computing

Publications

PUBLICATIONS

- **Generative modeling enables molecular structure retrieval from Coulomb explosion imaging.** *Nature communications*
Li, X., Jahnke, T., Boll, R., Han, J., Xu, M., Meyer, M., Piancastelli, M. N., Rolles, D., Rudenko, A., Trinter, F., Wolf, T. J., Thayer, J. B., Cryan, et al
2026
- **End-to-end deep learning pipeline for real-time bragg peak segmentation: From training to large-scale deployment** *Frontiers in High Performance Computing*
Wang, C., Mariani, V., Avaylon, M., Thayer, J. B.
2025; 3
- **The LCLStream Ecosystem for Multi-Institutional Dataset Exploration** *arXiv*
Rogers, D., Mariani, V., Wang, C., Coffee, R., Kroeger, W., Shankar, M., Schwander, H. T., Beck, T., Poitevin, F., Thayer, J. B.
2025
- **LCLS Big Data Handling – How I Learned to Stop Worrying and Love the Data Deluge** *Synchrotron Radiation News*
Thayer, J. B., Mariani, V., Poitevin, F., Wang, C.
2025; 4 (38): 4-9
- **Massive Scale Data Analytics at LCLS-II**
Thayer, J., Chen, Z., Claus, R., Damiani, D., Ford, C., Dubrovin, M., Elmir, V., Kroeger, W., Li, X., Marchesini, S., Mariani, V., Melcchiori, R., Nelson, et al
edited by Espinal, DeVita, R., Laycock, P., Shadura, O.
E D P SCIENCES.2024

- **SpeckleNN: a unified embedding for real-time speckle pattern classification in X-ray single-particle imaging with limited labeled examples.** *IUCrJ*
Wang, C., Florin, E., Chang, H. Y., Thayer, J., Yoon, C. H.
2023; 10 (Pt 5): 568-578
- **Testing the data framework for an AI algorithm in preparation for high data rate X-ray facilities**
Chen, H., Chitturi, S. R., Plumley, R., Shen, L., Drucker, N. C., Burdet, N., Peng, C., Mardanya, S., Ratner, D., Mishra, A., Yoon, C., Song, S., Chollet, et al
IEEE.2022: 1-9
- **fairDMS: Rapid Model Training by Data and Model Reuse**
Ali, A., Sharma, H., Kettimuthu, R., Kenesei, P., Trujillo, D., Miceli, A., Foster, I., Coffee, R., Thayer, J., Liu, Z., IEEE Comp Soc
IEEE COMPUTER SOC.2022: 394-405
- **Bridging Data Center AI Systems with Edge Computing for Actionable Information Retrieval**
Liu, Z., Ali, A., Kenesei, P., Miceli, A., Sharma, H., Schwarz, N., Trujillo, D., Yoo, H., Coffee, R., Layad, N., Thayer, J., Herbst, R., Yoon, et al
IEEE COMPUTER SOC.2021: 15-23
- **Enabling scientific discovery at next-generation light sources with advanced AI and HPC** *17th Smoky Mountains Computational Sciences and Engineering Conference*
Schwarz, N., Campbell, S., Hexemer, A., Mehta, A., Thayer, J.
2020: 145-146
- **Data systems for the Linac coherent light source.** *Advanced structural and chemical imaging*
Thayer, J., Damiani, D., Ford, C., Dubrovin, M., Gaponenko, I., O'Grady, C. P., Kroeger, W., Pines, J., Lane, T. J., Salnikov, A., Schneider, D., Tookey, T., Weaver, et al
2017; 3 (1): 3
- **Data systems for the Linac Coherent Light Source** *JOURNAL OF APPLIED CRYSTALLOGRAPHY*
Thayer, J., Damiani, D., Ford, C., Gaponenko, I., Kroeger, W., O'Grady, C., Pines, J., Tookey, T., Weaver, M., Perazzo, A.
2016; 49: 1363-1369
- **THE LARGE AREA TELESCOPE ON THE FERMI GAMMA-RAY SPACE TELESCOPE MISSION** *ASTROPHYSICAL JOURNAL*
Atwood, W. B., Abdo, A. A., Ackermann, M., Althouse, W., Anderson, B., Axelsson, M., Baldini, L., Ballet, J., Band, D. L., Barbiellini, G., Bartelt, J., Bastieri, D., Baughman, et al
2009; 697 (2): 1071-1102
- **Search for Baryons in the Radiative Penguin Decay $b \rightarrow s\gamma$** *Physical Review D*
Edwards, K. W., et al
2003; 68 (011102)
- **Branching Fraction and Photon Energy Spectrum for $b \rightarrow s\gamma$** *Physical Review Letters*
Chen, S., et al
2001; 87 (251807)

PRESENTATIONS

- LCLS Big Data Handling - Working Smarter and Harder - International Conference on Synchrotron Radiation Instrumentation (8/26/2024 - 8/30/2024)