Yuewei Lin

Computational Science Initiative
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PROFESSIONAL EXPERIENCE

2020 –	Computational Scientist, Brookhaven National Laboratory, Upton, NY, USA
2019 –	Research Associate Professor, Stony Brook University, Stony Brook, NY, USA
2018 – 2020	Associate Computational Scientist, Brookhaven National Laboratory, Upton, NY, USA
2016 – 2018	Assistant Computational Scientist, Brookhaven National Laboratory, Upton, NY, USA

EDUCATION

2011 – 2016	PhD in Computer Science and Engineering, University of South Carolina, SC, USA.
2007 – 2010	Graduate Student in Computer Science, Chongqing University, China.
2004 – 2007	M.Eng. Chongqing University, Chongqing, China
2000 – 2004	B.S. Sichuan University, Chengdu, Sichuan, China

PUBLICATIONS

Book Chapter

• **Y. Lin**, M. Topsakal, J. Timoshenko, D. Lu, S. Yoo, A. I. Frenkel. "Machine-Learning Assisted Structure Determination of Metallic Nanoparticles: A Benchmark." *Handbook on Big Data and Machine Learning in the Physical Sciences*, World Scientific Publishers, 2020.

Peer Reviewed Papers

• R. Lian, B. Huang, L. Wang, Q. Liu, **Y. Lin**, H. Ling. "End-to-end Orientation Estimation from Single Particle Cryo-EM Images." *Acta Crystallographica Section D: Structural Biology.* D78, 2022.

• H. Wang, Y. Deng, S. Yoo, **Y. Lin***. "AGKD-BML: Defense Against Adversarial Attack by Attention Guided Knowledge Distillation and Bi-directional Metric Learning." *IEEE International Conference on Computer Vision* **(ICCV)**, 2021. (* corresponding author)

• H. Fan, H. Miththanthaya, Harshit, S. Rajan, X. Liu, Z. Zou, **Y. Lin**, H. Ling. "Transparent Object Tracking Benchmark." *IEEE International Conference on Computer Vision* **(ICCV)**, 2021.

• P. Liu, **Y. Lin**, Z. Meng, L. Lu, W. Deng, J. T. Zhou, Y. Yang. "Point Adversarial Self Mining: A Simple Method for Facial Expression Recognition in the Wild." *IEEE Transactions on Cybernetics.* In press, 2021.

• H. Sun, **Y. Lin**, Q. Zou, S. Song, J. Fang, H. Yu, "Convolutional Neural Networks Based Remote Sensing Scene Classification under Clear and Cloudy Environments." *ICCV Workshop on Learning to Understand Aerial Images*, 2021.

• H. Fan, F. Yang, P. Chu, L. Yuan, **Y. Lin**, H. Ling. "TracKlinic: Diagnosis of Challenge Factors in Visual Tracking." *IEEE Winter Conference on Applications of Computer Vision (WACV)*, Waikoloa, Hawaii, 2021.

• Z. Zhang, Q. Zou, **Y. Lin**, L. Chen, S. Wang. "Improved Deep Hashing with Soft Pairwise Similarity for Multi-label Image Retrieval." *IEEE Transactions on Multimedia.* vol. 22 (2), 2020.

• H. Li, **Y. Lin**, K. Mueller, W. Xu. "Interpreting Galaxy Deblender GAN from the Discriminator's Perspective." *International Symposium on Visual Computing*, Oct. 2020.

• L. Pouchard, **Y. Lin**, H. Van Dam. "Replicating Machine Learning Experiments in Materials Science." *Advances in Parallel Computing.* Vol. 36, IOS Press, 2020.

• S. Song, H. Yu, Z. Miao, Q. Zhang, **Y. Lin**, S. Wang. "Domain Adaptation for Convolutional Neural Networks based Remote Sensing Scene Classification." *IEEE Geoscience and Remote Sensing Letters*, 16(8), 2019.

• S. Ha, **Y. Lin**, X. Huang, H. Yan, W. Xu. "An End-to-end Deep Convolutional Neural Network for a Multi-scale Image Matching and Localization Problem." *CVPR Workshop on Image Matching: Local Features & Beyond*, Long Beach, CA, 2019.

• X. Li, **Y. Lin**, Q. Liu, S McSweeney, S. Yoo. "Picking Particles in Cryo-EM Micrographs without Knowing the Particle Size." *New York Scientific Data Summit (NYSDS)*, New York city, NY, 2019.

• **Y. Lin**, J. Chen, Y. Cao, Y. Zhou, L. Zhang, Y. Y. Tang, S. Wang. "Cross-Domain Recognition by Identifying Joint Subspaces of Source Domain and Target Domain". *IEEE Transactions on Cybernetics* 47(4), 2017.

• **Y. Lin**, Y. Tong, Y. Cao, Y. Zhou, S. Wang. "Visual-Attention Based Background Modeling for Detecting Infrequently Moving Objects". *IEEE Transaction on Circuits and Systems for Video Technology* 27(6), 2017.

• J. Timoshenko, D. Lu, **Y. Lin**, A. I. Frenkel. "Supervised Machine-Learning-Based Determination of Three-Dimensional Structure of Metallic Nanoparticles." *The Journal of Physical Chemistry Letters*, 8(20), 2017.

• K. Zheng, X. Fan, **Y. Lin**, H. Guo, H. Yu, D. Guo, S. Wang. "Learning View-Invariant Features for Person Identification in Temporally Synchronized Videos Taken by Wearable Cameras". *IEEE International Conference on Computer Vision* **(ICCV)**, Venice, Italy, 2017.

• **Y. Lin**, D. Zakharov, R. Megret, S. Yoo, E. Stach. "Near Real Time ETEM Streaming Video Analysis." *New York Scientific Data Summit (NYSDS)*, New York city, NY, 2017.

• J. Rodman, **Y. Lin**, D. Sprouster, L. Ecker, S. Yoo. "Automated Synchrotron X-Ray Diffraction of Irradiated Materials." *New York Scientific Data Summit (NYSDS)*, New York city, NY, 2017.

• H. Yu, Y. Zhou, J. Simmons, C. Przybyla, **Y. Lin**, X. Fan, Y. Mi, S. Wang. "Groupwise Tracking of Crowded Similar-Appearance Targets from Low-Continuity Image Sequences". *IEEE Conference on Computer Vision and Pattern Recognition* **(CVPR)**, Las Vegas, NV, 2016.

• **Y. Lin**, K. E. El-Deen, Y. Zhou, X. Fan, H. Yu, H. Qian, S. Wang. "Co-interest Person Detection from Multiple Wearable Camera Videos". *IEEE International Conference on Computer Vision* **(ICCV)**, Santiago, Chile, 2015.

• **Y. Lin**, J. Chen, Y. Cao, Y. Zhou, L. Zhang, S. Wang. "Cross-Domain Recognition by Identifying Compact Joint Subspaces". *International Conference on Image Processing (ICIP)*, Quebec City, Canada, 2015. (**Best 10% Paper Award**)

• X. Fan, K. Zheng, **Y. Lin**, S. Wang. "Combining Local Appearance and Holistic View: Dual-Source Deep Neural Networks for Human Pose Estimation". *IEEE Conference on Computer Vision and Pattern Recognition* **(CVPR)**, Boston, MA, 2015.

• J. Chen, Y. Y. Tang, P. Chen, B. Fang, Z. Shang, **Y. Lin**. "NNMap: A Method to Construct A Good Embedding for Nearest Neighbor Classification". *Neurocomputing*, 152, 2015.

• K. Zheng*, **Y. Lin***, Y. Zhou, D. Salvi, X. Fan, D. Guo, Z. Meng, S. Wang. "Video-based Action Detection using Multiple Wearable Cameras". *ECCV workshop on ChaLearn Looking at People*, 2014. (* Co-first author)

• J. Chen, Y. Y. Tang, P. Chen, B. Fang, **Y. Lin**, Z. Shang. "Multi-label Learning with Fuzzy Hypergraph Regularization for Protein Subcellular Location Prediction". *IEEE Transactions on NanoBioscience*, 13(4), 2014. (**Front cover paper**)

• J. Chen, Y. Y. Tang, P. Chen, B. Fang, Z. Shang, **Y. Lin**. "Similarity Measure Learning in Closed-Form Solution for Image Classification". *The Scientific World Journal*, 2014.

• J. Chen, Y. Y. Tang, P. Chen, **Y. Lin**. "Dual Fuzzy Hypergraph Regularized Multi-label Learning for Protein Subcellular Location Prediction". *International Conference on Pattern Recognition (ICPR)*, 2014.

• Y. Zhou, L. Ju, Y. Cao, J. Waggoner, **Y. Lin**, J. Simmons, S. Wang. "Edge-Weighted Centroid Voronoi Tessellation with Propagation of Consistency Constraint for 3D Grain Segmentation in Microscopic Superalloy Images". *CVPR Workshop on Perception Beyond the Visible Spectrum (PBVS)*, 2014.

• C. Qu, D. Zhang, **Y. Lin**, S. Wang. "Distant Human Interaction Recognition with Kinect". *Journal of Computers*, vol 9, 2014.

• **Y. Lin**, Y. Y. Tang, B. Fang, Z. Shang, Y. Huang, S. Wang. "A Visual-Attention Model Using Earth Mover's Distance based Saliency Measurement and Nonlinear Feature Combination". *IEEE Transactions on Pattern Analysis and Machine Intelligence* **(TPAMI)**, 35(2), 2013.

• Y. Cao, D. Barrett, A. Barbu, S. Narayanaswamy, H. Yu, A. Michaux, **Y. Lin**, S. Dickinson, J. Siskind, S. Wang. "Recognize Human Activities from Partially Observed Videos". *IEEE Conference on Computer Vision*

and Pattern Recognition **(CVPR)**, Portland, Oregon, 2013.

• W. Yang, Y. Y. Tang, B. Fang, Z. Shang, **Y. Lin**. "Visual Saliency Detection with Center Shift". *Neurocomputing*, 103(1), 2013.

• **Y. Lin**, B. Fang, Y. Tang."A Computational Model for Saliency Maps by Using Local Entropy". *AAAI Conference on Artificial Intelligence* **(AAAI10)**, Atlanta, GA, USA, 2010.

AWARDS

• Department of Energy (DOE) NNSA Joule Award, 2020.
• 2017's Top-10 Discoveries and Scientific Achievements at Brookhaven National Laboratory, 2017.
• Outstanding Graduate Researcher of the Department of Computer Science and Engineering, University of South Carolina, 2016.
• Chinese Government Award for Outstanding Self-financed Student Abroad, 2015.
• Best 10% Paper Award, International Conference on Image Processing, 2015.
• IEEE Signal Processing Society Travel Grant, 2015.

GRANTS

• **co-PI.** "Eureka!", Brookhaven National Laboratory Directed Research and Development (LDRD), Type A. $1,250,000, FY22–FY24.

• **co-PI.** "Automated sorting of high repetition rate coherent diffraction data from XFELs", DOE BES Data Science to Advance Chemical and Materials Sciences. $800,000/year, FY22–FY24.

• **co-PI.** "Development of an Integrated Multi-Scale Bioimaging Capability", Brookhaven National Laboratory Directed Research and Development (LDRD). $1,500,000, FY21–FY24.

• **co-PI.** "Linking Experiments to Algorithms For Solving Single- Particle Cryo-EM Challenges", Brookhaven National Laboratory Directed Research and Development (LDRD). $360,000, FY20–FY21.

• **PI.** "Visualization toward white box", Brookhaven National Laboratory Directed Research and Development (LDRD). $1,000,000, FY18–FY20.

• **BNL PI.** "Characterizing Sub-Cellular Morphology Across Cancer Types", Stony Brook University Brookhaven national lab seed grant award. $42,663, FY18–FY19.

• **co-PI.** "Using Deep Learning Algorithm to Enhance Image-review Software for Surveillance Cameras". DOE Safeguards Technology Development Program. $300,000/year, FY18–FY23.

• **co-PI.** "Satellite image analysis," National Geospatial intelligence agency (NGA) project. $600,000, FY18–FY19.

• **co-PI.** "Accelerating HEP Science: Inference and Machine Learning at Extreme Scales", DOE SciDAC 4 Program. $650,000/year, FY17–FY22.

PROFESSIONAL PRESENTATIONS

Invited Talks

• "Automated Defense Against Adversarial Attacks and Forgeries".
AI@DOE Roundtable, Department of Energy, Virtual, Jan. 2022.

• "Towards Against the Adversarial Attacks and Forgeries".
Workshop of Mission-Critical Big Data Analytics (MCBDA), Prairie View A&M University, TX. June 2021.

• "Large Scale Data to Drive Scientific Discoveries and Failure Prediction".
INL-BNL Workshop: Let Us Collaborate – A Forum on Energy Research and Technology, Oct. 2020.

• "Machine Learning/Computer Vision Techniques used in Large Scale Scientific Data at BNL".
Workshop of Mission-Critical Big Data Analytics (MCBDA), Prairie View A&M University, TX. May 2018.

Poster/Oral Presentations

• "Using Machine Learning To Track Objects Across Cameras".
Oral Presentation in Institute of Nuclear Materials Management (INMM) Annual Meeting, Virtual, Aug. 2021.

• "Replicating analysis in material sciences".
Oral Presentation in Parallel Computing Conference, Prague, Czech Republic, Sep. 2019.

• "Single-shot Particle Picking in Cryo-EM images".
Oral Presentation in New York Scientific Data Summit (NYSDS), New York City, NY, Jun. 2019.

• "Structure Determination of Metallic Nanoparticles: A Machine Learning Benchmark".
Oral Presentation in New York Scientific Data Summit (NYSDS), Upton, NY, Aug. 2018.

• "Near Real Time ETEM Streaming Video Analysis".
Poster Presentation in New York Scientific Data Summit (NYSDS), New York city, NY, Aug. 2017.

• "Improved Background Subtraction for Detecting Objects with Infrequent Motions".
Poster Presentation in PI's Meeting of DARPA Mind's Eye Program, Monterey, CA, Nov. 8-9, 2012.

• "A Computational Model for Saliency Maps by Using Local Entropy".
Oral Presentation in the 24th AAAI Conference on Artificial Intelligence, Atlanta, GA, July 2010.

STUDENT SUPERVISION

Doctoral Student Co-advisor

Hong Wang, Stony Brook University

PhD Committee Member

Heyi Li, Stony Brook University
Bingyao Huang, Stony Brook University
Michael Viteritto, Montclair State University
Sana Mirza, Montclair State University

Mentor of SULI (DOE's Science Undergraduate Laboratory Internship)

Ian McDiarmid-Sterling, Swarthmore College
Shenghui Yu, Stony Brook University
Jeremy Chu, Stony Brook University

PROFESSIONAL SERVICES

Workshop Organized

Workshop of Machine Learning in X-ray Imaging and Microscopy Applications - A Symposium with Hands-on Demonstrations, NSLS-II & CFN Users' meeting, May 2020.

Guest Editor

Special Issue of the International Journal of Wavelets, Multiresolution and Information Processing.

Journal Reviewer

IEEE Transaction on Pattern Analysis and Machine Intelligence
IEEE Transactions on Image Processing
Scientific Reports
Pattern Recognition
IEEE Transactions on Multimedia
IEEE Transactions on Circuits and Systems for Video Technology
IEEE Transactions on Intelligent Transportation Systems
PLOS ONE
Remote Sensing

Neurocomputing
Image and Vision Computing
IEEE Signal Processing Letters
Computer Vision and Image Understanding
Pattern Recognition Letters
Visual Cognition
Optical Engineering
Journal of Electronic Imaging

Conference Area Chair

ACM International Conference on Multimedia (MM), 2022.

Conference Program Committee Member

IEEE International Conference on Computer Vision (ICCV), 2019, 2021
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2018–2022
The International Conference on Learning Representations (ICLR), 2022
SIAM International Conference on Data Mining (SDM), 2022
European Conference on Computer Vision (ECCV), 2020, 2022
ACM SigKDD Conference on Knowledge Discovery and Data Mining, 2019–2022
AAAI Conference on Artificial Intelligence, 2017, 2019, 2020, 2021
International Joint Conference on Artificial Intelligence (IJCAI), 2020
IEEE Winter Conference on Applications of Computer Vision (WACV) 2020, 2021, 2022
International Conference on Pattern Recognition (ICPR), 2018

Others

INMM Annual Meeting. Student paper competition judging for the J.D. Williams Student Paper awards, 2021.