Ali Anwar

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Academic Rank

Assistant Professor in the Department of Computer Science and Engineering.

Research Interests

Machine Learning Systems, Cloud Computing, and Quantum Computing. I focus on designing scalable, high-performance, and user-friendly systems capable of efficiently managing and processing vast volumes of data. My research spans a diverse range of topics within systems, including distributed systems, machine learning systems, serverless and cloud computing, storage systems, operating systems, high-performance computing, and quantum computing.

Education

2013—2018 **Virginia Tech**.
Ph.D. in Computer Science
Advisor: Prof. Ali R. Butt

2009–2013 **University of Engineering & Technology Lahore**.
M.Sc. in Computer Engineering

2005–2009 **University of Engineering & Technology Lahore**.
B.Sc. in Electrical Engineering

Positions/Employment

07/2022–Present **Asistant Professor**, *University of Minnesota*.
Department of Computer Science and Engineering

06/2018–07/2022 **Research Staff Member**, *IBM Research—Almaden*.
AI Platforms

2014, 2015, 2017 **Summer Research Intern**, *IBM Research*.
AI Platforms, Cloud Storage, Cloud Monitoring

06/2009–08/2013 **Technical lead**, *Mentor Graphics*.
Embedded Linux/Tools

Honors and Awards

2025 Oral Presentation ICLR'25

2024 Best Student Paper Award IEEE BigData'24

2024 Ranked among the Stanford's World's Top 2% Scientists in 2024

2023 Samsung GRO'23 Award

2023 Best Paper Award ACM Systor'23

2022 Best Paper Award IEEE Cloud'22

2021 Best Paper Award ePart'21

2021 Outstanding Research Accomplishments Award for Scientific Contributions, Collaboration and Leadership in Federated Learning at the Edge. Out of 280 nominations that represent the work of more than 1,900 IBM researchers across global labs.

2021 Outstanding Technical Achievement Award for Enterprise-Strength Federated Learning for Hybrid Cloud and Edge. One of the highest recognitions provided to IBMers for breakthrough technical achievements that have led to notable market and industry success for IBM.

2020 Research Accomplishment award for Container Storage.

2020 Research Accomplishment award for Enterprise-Strength Federated Learning for Hybrid Cloud and Edge.

2020 IBM Second Invention Plateau Award

2019 IBM Outstanding Research Accomplishment award for Advancing Adversarial Robustness in AI Models. Out of 355 nominations reflecting the work of almost 2,000 contributors from IBM Research across global.

2019 Best Paper Award AISec'19

2019 IBM First Invention Plateau Award

2019 IBM Senior Manager's Choice Award

2019 IBM Manager's Choice Award

2018 USENIX FAST'Travel Grant recipient.

2015 Virginia Tech: Pratt Fellowship awarded by Dept. of Computer Science.

2015 USENIX FAST', ACM APSys' Travel Grant recipient.

2014 IEEE Cluster', USENIX OSDI' Travel Grant recipient.

Grants and Contracts

External Sources: Received at the University of Minnesota

[NSF] NSF PDaSP Track 3 award for "Testbed for Enhancing Privacy and Robustness of Federated Learning Systems" (w/ Muhammad Ali Gulzar (Virginia Tech) and Fatima Anwar (University of Massachusetts Amherst)). Total Amount: 1.1M for 3 years. My share is 366K.

[Samsung GRO] Samsung GRO 2023 Award on New Storage for Large ML Training (w/ Yue Cheng from UVA). Total Amount: 250K for 1 year. My share is 125K.

Publications

Underlined authors are students I currently advise at the University of Minnesota. Authors marked with ⋆ are interns or students with whom I directly collaborated as their mentor during my tenure at IBM Research. † means equal contributions.

Refereed Conference Proceedings

[NeurIPS'25] Xinran Wang, Jin Du, Azal Ahmad Khan, Qi Le, Enmao Diao, Jiawei Zhou, Jie Ding, and **Ali Anwar**. *Beyond Expectations: Quantile-Guided Alignment for Risk-Calibrated Language Models*. Advances in Neural Information Processing Systems **(NeurIPS'25)**. **[Spotlight Paper]**

[EMNLP'25] Azal Ahmad Khan†, Seyyed Saeid Cheshmi†, Xinran Wang, Zirui Liu, and **Ali Anwar**. *Accelerating LLM Reasoning via Early Rejection with Partial Reward Modeling*. Findings of the Conference on Empirical Methods in Natural Language Processing **(EMNLP'25)**.

[QCE'25] Connor Howe and **Ali Anwar**. *Realizing Scalability Limits of Quantum Communication Networks*. IEEE International Conference on Quantum Computing and Engineering **(QCE'25)** or IEEE Quantum Week, 2025.

[IROS'25] Azal Ahmad Khan†, Michael Andrev†, Muhammad Ali Murtaza, Sergio Aguilera, Rui Zhang, Jie Ding, Seth Hutchinson, and **Ali Anwar**. *Safety Aware Task Planning via Large Language Models in Robotics*. IEEE/RSJ International Conference on Intelligent Robots and Systems **(IROS'25)**.

[MLSys'25] Samuel Fountain†, Ahmad Faraz Khan†⋆, Ahmed M. Abdelmoniem, Ali R. Butt, and **Ali Anwar**. *FLStore: Efficient Federated Learning Storage for Non-Training Workloads*. The Eighth Annual Conference on Machine Learning and Systems **(MLSys'25)**.

[ICLR'25] Qi Le, Enmao Diao, Ziyan Wang, Xinran Wang, Jie Ding, Li Yang, and **Ali Anwar**. *Probe Pruning: Accelerating LLMs through Dynamic Pruning via Model-Probing*. The Thirteenth International Conference on Learning Representations **(ICLR'25)**.

[ICLR'25] Xinran Wang, Qi Le, Ammar Ahmed, Enmao Diao, Yi Zhou, Nathalie Baracaldo, Jie Ding, and **Ali Anwar**. *MAP: Multi-Human-Value Alignment Palette*. The Thirteenth International Conference on Learning Representations **(ICLR'25)**. **[Oral Presentation]**

[NAACL'25] Xinran Wang, Enmao Diao, Qi Le, Jie Ding, and **Ali Anwar**. *AID: Adaptive Integration of Detectors for Safe AI with Language Models*. The 2025 Annual Conference of the North American Chapter of the Association for Computational Linguistics **(NAACL'25)** [Main Conference].

[ICSE'25] Waris Gill⋆, **Ali Anwar**, and Muhammad Ali Gulzar. *TraceFL: Interpretability-Driven Debugging in Federated Learning via Neuron Provenance*. The 47th IEEE/ACM International Conference on Software Engineering **(ICSE'25)**.

[IPDPS'25] Ahmad Khan⋆, Xinran Wang, Qi Le, Zain ul Abdeen, Azal Ahmad Khan, Haider Ali, Ming Jin, Jie Ding, Ali R. Butt, **Ali Anwar**. *IP-FL: Incentive-driven Personalization in Federated Learning*. The 39th IEEE International Parallel & Distributed Processing Symposium **(IPDPS'25)**.

[IPDPS'25] Waris Gill⋆, Mohamed Elidrisi, Pallavi Kalapatapu, Ammar Ahmed, **Ali Anwar**, Muhammad Ali Gulzar. *MeanCache: User-Centric Semantic Caching for LLM Web Services*. The 39th IEEE International Parallel & Distributed Processing Symposium **(IPDPS'25)**.

[BigData'24] Qi Le, Enmao Diao, Xinran Wang, Ahmad Faraz Khan, Vahid Tarokh, Jie Ding, and **Ali Anwar**. *DynamicFL: Federated Learning with Dynamic Communication Resource Allocation*. IEEE International Conference on Big Data **(BigData'24)** **[Best Student Paper Award]**.

[BigData'24] Xinran Wang, Qi Le, Ahmad Khan, Jie Ding, and **Ali Anwar**. *ICL: An Incentivized Collaborative Learning Framework*. IEEE International Conference on Big Data **(BigData'24)**.

[BigData'24] Azal Ahmad Khan, Ahmad Faraz Khan, Haidar Ali, and **Ali Anwar**. *Personalized Federated Learning Techniques: Empirical Analysis*. IEEE International Conference on Big Data **(BigData'24)**.

[BigData'24] Azal Ahmad Khan⋆, Sayan Alam, Xinran Wang, Ahmad Faraz Khan, Debanga Raj Neog, and **Ali Anwar**. *Mitigating Sycophancy in Large Language Models via Direct Preference Optimization*. IEEE International Conference on Big Data **(BigData'24)**.

[VLDB'24] Zhaoyuan Su, Ammar Ahmed, Zirui Wang, **Ali Anwar**, Yue Cheng. *Everything You Always Wanted to Know About Storage Compressibility of Pre-Trained ML Models but Were Afraid to Ask*. In the Proceedings of the 50th International Conference on Very Large Databases **(VLDB'24)**.

[MSST'24] Alex Merenstein⋆, Xinran Wang, Vasily Tarasov, Prajjawal Agarwal, Scott Guthridge, Kapil Thakkar, Katherine Wu, **Ali Anwar**, Erez Zadok. *Balancing Costs and Durability for Serverless Data*. In the Proceedings of the 38th International Conference on Massive Storage Systems and Technology **(MSST'24)**.

[EuroSys'24] Ahmad Faraz Khan⋆, Azal Ahmad Khan, Ahmed M. Abdelmoniem, Samuel Fountain, Ali Butt, **Ali Anwar**. *FLOAT: Federated Learning Optimizations with Automated Tuning*. In the Proceedings of the European Conference on Computer Systems **(EuroSys'24)**.

[ICSE'23] Waris Gill⋆, **Ali Anwar**, Muhammad Ali Gulzar. *FedDebug: Systematic Debugging for Federated Learning Applications*. In the Proceedings of the 45th International Conference on Software Engineering **(ICSE'23)**.

[VLDB'23] Jingyuan Zhang⋆, Ao Wang,⋆ Xiaolong Ma, Benjamin Carver, Nicholas John Newman, **Ali Anwar**, Lukas Rupprecht, Dimitrios Skourtis, Vasily Tarasov, Feng Yan, Yue Cheng. *InfiniStore: Elastic Serverless Cloud Storage*. In the Proceedings of the 49th International Conference on Very Large Data Bases **(VLDB'23)**.

[SYSTOR'23] Alex Merenstein⋆, Vasily Tarasov, **Ali Anwar**, Scott Guthridge, Erez Zadok. *F3: Serving Files Efficiently in Serverless Computing*. 16th ACM International Systems and Storage Conference **(SYSTOR'23)** **[Best Paper Award]**.

[CCGrid'23] Sixing Yu⋆, Phuong Nguyen, **Ali Anwar**, Ali Jannesari. *Heterogeneous Federated Learning using Dynamic Model Pruning and Adaptive Gradient*. To appear in the Proceedings of the 23rd IEEE/ACM international Symposium on Cluster, Cloud and Internet Computing **(CCGrid'23)**.

[CCGrid'23] Syed Zawad⋆, **Ali Anwar**, Yi Zhou, Nathalie Baracaldo, Feng Yan. *HDFL: A Heterogeneity and Client Dropout-Aware Federated Learning Framework*. To appear in the Proceedings of the 23rd IEEE/ACM international Symposium on Cluster, Cloud and Internet Computing **(CCGrid'23)**.

[BigData'23] Ahmad Khan⋆, Yuze Li, Xinran Wang, Sabaat Haroon, Haider Ali, Yue Cheng, Ali Butt, and **Ali Anwar**. *Towards cost-effective and resource-aware aggregation at Edge for Federated Learning.*. To appear in the Proceedings of the IEEE International Conference on Big Data **(IEEE BigData'23)**.

[SC'22] Sixing Yu⋆, Phuong Nguyen, Waqwoya Abebe, Wei Qian, **Ali Anwar**, and Ali Jannesari. *SPATL: Salient Parameter Aggregation and Transfer Learning for Heterogeneous Federated Learning.* International Conference for High Performance Computing, Networking, Storage and Analysis **(SC'22)**.

[IEEE BigData'22] Jingoo Han⋆, Ahmad Faraz Khan, Syed Zawad, **Ali Anwar**, Nathalie Baracaldo Angel, Yi Zhou, Feng Yan, Ali R. Butt. *Heterogeneity-Aware Adaptive Federated Learning Scheduling.* IEEE International Conference on Big Data **(IEEE BigData'22)**.

[Asilomar'22] Qi Le, Enmao Diao, Xinran Wang, **Ali Anwar**, Vahid Tarokh, Jie Ding. *Personalized Federated Recommender Systems with Private and Partially Federated AutoEncoders.* Asilomar Conference on Signals, Systems, and Computers **(Asilomar'22)**.

[Cloud'22] Runhua Xu⋆, Nathalie Baracaldo, Yi Zhou, **Ali Anwar**, Heiko Ludwig and Swanand Kadhe. *DeTrust-FL: Privacy-Preserving Federated Learning in Decentralized Trust Setting.* IEEE International Conference on Cloud Computing **(IEEE Cloud'22)** **[Best Paper Award]**.

[Cloud'22] Jingoo Han⋆, Ahmad Faraz Khan, Syed Zawad, **Ali Anwar**, Nathalie Baracaldo Angel, Yi Zhou, Feng Yan and Ali R. Butt. *TIFF: Tokenized Incentive for Federated Learning.* IEEE International Conference on Cloud Computing **(IEEE Cloud'22)**.

[Cloud'21] Kamala Varma⋆, Yi Zhou, Nathalie Baracaldo, and **Ali Anwar**. *LEGATO: A LayerwisE Gradient AggregaTiOn Algorithm for Mitigating Byzantine Attacks in Federated Learning.* IEEE International Conference on Cloud Computing **(IEEE Cloud'21)**.

[SC'21] Zheng Chai⋆, Yujing Chen, **Ali Anwar**, Liang Zhao, Yue Cheng, Huzefa Rangwala. *FedAT: A High-Performance and Communication-Efficient Federated Learning System with Asynchronous Tiers.* International Conference for High Performance Computing, Networking, Storage and Analysis **(SC'21)**.

[EGOV'21] Dian Balta, Mahdi Sellami, Peter Kuhn, Ulrich Schopp, Matthias Buchinger, Nathalie Baracaldo, **Ali Anwar**, Heiko Ludwig, Mathieu Sinn, Mark Purcell, Bashar Altakrouri. *Accountable Federated Machine Learning in Government: Engineering and Management Insights.* International Conference on Electronic Participation **(IFIP EGOV'21)** **[Best Paper Award]**.

[FAST'21] Alex Merenstein⋆, Vasily Tarasov, **Ali Anwar**, Deepavali Bhagwat, Lukas Rupprecht, Dimitris Skourtis, Erez Zadok. *CNSBench: A Cloud Native Storage Benchmark.* In 19th USENIX Conference on File and Storage Technologies **(USENIX FAST'21)** (AR: 28/139 = 21.5%).

[AAAI'21] Syed Zawad⋆, Ahsan Ali, Pin-Yu Chen, **Ali Anwar**, Yi Zhou, Nathalie Barcaldoand, Yuan Tian, Feng Yan *Curse or Redemption? How Data HeterogeneityAffects the Robustness of Federated Learning.* In Thirty-Fifth AAAI Conference on Artificial Intelligence **(AAAI'21)** (AR: $1,692/9,034 = 18.7\%$).

[SoCC'20] Benjamin Carver⋆, Jingyuan Zhang, Ao Wang, **Ali Anwar**, Panruo Wu, Yue Cheng. *Wukong: A Scalable and Locality-Enhanced Framework for Serverless Parallel Computing.* In ACM Symposium on Cloud Computing **(ACM SoCC'20)** (AR: 35/143 = 24.4%).

[ATC'20] Nannan Zhao⋆, Hadeel Albahar, Subil Abraham, Keren Chen, Vasily Tarasov, Dimitrios Skourtis, Lukas Rupprecht, **Ali Anwar**, and Ali. R. But. *DupHunter: Flexible High-Performance Deduplication for Docker Registries.* In 2020 USENIX Annual Technical Conference **(USENIX ATC'20)** (AR: 65/348 = 18.6%).

[HPDC'20] Zheng Chai⋆, Ali Ahsan, Syed Zawad, Stacey Truex, **Ali Anwar**, Nathalie Baracaldo, Yi Zhao, Heiko Ludwig, Feng Yan, and Yue Cheng, *A Tier-based Federated Learning System.* ACM Symposium on High-Performance Parallel and Distributed Computing **(ACM HPDC'20)** (AR: 16/71 = 22.5%)

[FAST'20] Ao Wang⋆, Jingyuan Zhang, Xiaolong Ma, **Ali Anwar**, Lukas Rupprecht, Dimitrios Skourtis, Vasily Tarasov, Feng Yan, and Yue Cheng, *InfiniCache: Exploiting Ephemeral Serverless Functions to Build a Cost-Effective Memory Cache.* In 18th USENIX Conference on File and Storage Technologies **(USENIX FAST'20)** (AR: 23/138 = 17%).

[IoT'19] Tim d'Hondt⋆, Anna Wilbik, Paul Grefen, Heiko Ludwig, Natalie Baracaldo, **Ali Anwar**. *Using BPM Technology to Deploy and Manage Distributed Analytics in Collaborative IoT-Driven Business Scenarios*. In Proceedings of the 9th International Conference on the Internet of Things **(IoT'19)**, Bilbao, Spain.

[Cluster'19] Nannan Zhao⋆, Vasily Tarasov, Hadeel Albahar, **Ali Anwar**, Lukas Rupprecht, Dimitrios Skourtis, Amit S. Warke, Mohamed Mohamed, and Ali R. Butt. *Large-Scale Analysis of the Docker Hub Dataset*. In Proceedings of the IEEE International Conference on Cluster Computing **(IEEE Cluster'19)**, Albuquerque, NM (AR: 39/141 = 27.7%).

[Cloud'19] Michael Littley⋆, **Ali Anwar**, Hannan Fayyaz, Zeshan Fayyaz, Vasily Tarasov, Lukas Rupprecht, Dimitrios Skourtis, Mohamed Mohamed, Heiko Ludwig, Yue Cheng, Ali R. Butt. *Bolt: Towards a Scalable Docker Registry*. In Proceedings of the IEEE International Conference on Cloud Computing **(IEEE Cloud'19)**, Milan, Italy (AR: 20.8%).

[Cloud'19] Nannan Zhao⋆, Vasily Tarasov, **Ali Anwar**, Lukas Rupprecht, Dimitrios Skourtis, Amit S Warke, Mohamed Mohamed, Dean Hildebrand and Ali R. Butt. *Slimmer: Weight Loss Secrets for Docker Registries*. In Proceedings of the IEEE International Conference on Cloud Computing **(IEEE Cloud'19)**, Milan, Italy. **(Extended Abstract)**.

[SC'18] **Ali Anwar**, Yue Cheng, Hai Huang, Jingoo Han, Hyogi Sim, Dongyoon Lee, Fred Douglis, Ali R. Butt. *BESPOKV: Application Tailored Scale-Out Key-Value Stores*. In Proceedings of the International Conference for High Performance Computing, Networking, Storage, and Analysis (**SC'18**), Dallas, TX (AR: 68/288 = 23.6%).

[BigData'18] Yue Cheng, **Ali Anwar**, Xuejing Duan. *Analyzing Alibaba's Co-located Datacenter Workloads*. In Proceedings of the IEEE International Conference on Big Data (**BigData'18**), Seattle, WA.

[FAST'18] **Ali Anwar**, Mohamed Mohamed, Vasily Tarasov, Michael Littley, Lukas Rupprecht, Yue Cheng, Nannan Zhao, Dimitrios Skourtis, Amit S Warke, Heiko Ludwig, Dean Hildebrand, Ali R Butt. *Improving Docker Registry Design based on Production Workload Analysis*. In Proceedings of the 16^{th} USENIX Conference on File and Storage Technologies (**USENIX FAST'18**), Oakland, CA (AR: 23/139 = 16.5%).

[IPDPS'18] Nannan Zhao, **Ali Anwar**, Yue Cheng, Mohammed Salman, Daping Li, Jiguang Wan, Changsheng Xie, Xubin He, Feiyi Wang, and Ali R. Butt. *Chameleon: An Adaptive Wear Balancer for Flash Clusters*. In Proceedings of the 33^{rd} IEEE International Parallel & Distributed Processing Symposium (**IEEE IPDPS'18**), Rio de Janeiro, Brazil (AR: 113/461 = 24.5%).

[HPDC'16] **Ali Anwar**, Yue Cheng, Aayush Gupta, and Ali R. Butt. *MOS: Workload-aware Elasticity for Cloud Object Stores*. In Proceedings of the 25^{th} ACM Symposium on High-Performance Parallel and Distributed Computing (**ACM HPDC'16**), Kyoto, Japan (AR: 20/129 = 15.5%).

[SC'15] Hyogi Sim, Youngjae Kim, Sudharshan S. Vazhkudai, Devesh Tiwari, **Ali Anwar**, Ali R. Butt, and Lavanya Ramakrishnan. *AnalyzeThis: An Analysis Workflow-Aware Storage System*. In Proceedings of the ACM/IEEE International Conference for High Performance Computing, Networking, Storage and Analysis (**ACM/IEEE SC'15**), Austin, TX (AR: 79/358 = 22%).

[Cloud'15] **Ali Anwar**, Anca Sailer, Andrzej Kochut, Charles O. Schulz, Alla Segal, and Ali R. Butt. *Cost-Aware Cloud Metering with Scalable Service Management Infrastructure*. In Proceedings of the IEEE 2015 International Conference on Cloud Computing (**IEEE Cloud'15**), NYC, New York (AR: 17%)

[IC2E'15] **Ali Anwar**, Anca Sailer, Andrzej Kochut, Charles O. Schulz, Alla Segal, and Ali R. Butt. *Scalable Metering for an Affordable IT Cloud Service Management*. In Proceedings of the IEEE International Conference on Cloud Engineering (**IEEE IC2E'15**), Tempe, Arizona.

[Cluster'14] **Ali Anwar**, Krish K. R., and Ali R. Butt. *On the Use of Microservers in Supporting Hadoop Applications*. In Proceedings of the IEEE International Conference on Cluster Computing (**IEEE Cluster'14**), Madrid, Spain (AR: 9/122 = 23.8%).

[MASCOTS'14] Krish K. R., **Ali Anwar**, and Ali R. Butt. *ΦSched: A Heterogeneity-Aware Hadoop Workflow Scheduler*. In Proceedings of the IEEE 22nd International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems (**IEEE MASCOTS'14**), Paris, France (AR: 39/192 = 20.3%).

[CCGRID'14] Krish K. R., **Ali Anwar**, and Ali R. Butt. *hatS: A Heterogeneity-Aware Tiered Storage for Hadoop*. In Proceedings of the 14th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (**IEEE/ACM CCGRID'14**), Chicago, Illinois (AR: 54/283 = 19.1%).

Refereed Journal Articles

[TOS'24] Nannan Zhao⋆, Muhui Lin, Hadeel Albahar, Arnab K. Paul, Zhijie Huang, Subil Abraham, Keren Chen, Vasily Tarasov, Dimitrios Skourtis, **Ali Anwar**, Ali R. Butt. *An End-to-End High-performance Deduplication Scheme for Docker Registries and Docker Container Storage Systems*. In Transactions on Storage **(TOS'24)**.

[TPDS'20] Nannan Zhao⋆, Vasily Tarasov, Hadeel Albahar, **Ali Anwar**, Lukas Rupprecht, Dimitrios Skourtis, Arnab K. Paul, Keren Chen, Mohamed Mohamed, and Ali R. Butt *Large-Scale Analysis of the Docker Images and Performance Implications to Container Storage Systems*. In IEEE Transactions on Parallel and Distributed Systems **(IEEE TPDS'20)**.

[TPDS'20] **Ali Anwar**, Yue Cheng, Hai Huang, Jingoo Han, Hyogi Sim, Dongyoon Lee, Fred Douglis, Ali R. Butt. *Customizable Scale-Out Key-Value Stores*. In IEEE Transactions on Parallel and Distributed Systems **(IEEE TPDS'20)**.

[TPDS'19] Kirk W. Cameron, **Ali Anwar**, Yue Cheng, Li Xu, Bo Li, Uday Ananth, Jon Bernard, Chandler Jearls, Thomas Lux, Yili Hong, Layne T. Watson, Ali R. Butt. *MOANA: Modeling and Analyzing I/O Variability in Parallel System Experimental Design*. In IEEE Transactions on Parallel and Distributed Systems **(IEEE TPDS'19)**.

[TPDP'18] Stacey Truex⋆, Nathalie Baracaldo, **Ali Anwar**, Thomas Steinke, Heiko Ludwig and Rui Zhang. *A Hybrid Trust Model for Distributed Differential Privacy*. In Proceedings of the Theory and Practice of Differential Privacy (**TPDP'18**), Toronto, Canada **(Poster)**.

Refereed Workshop Proceedings

[SE4SafeML'23] Waris Gill⋆, **Ali Anwar**, Muhammad Ali Gulzar. *FedDefender: Backdoor Attack Defense in Federated Learning*. Dependability and Trustworthiness of Safety-Critical Systems with Machine Learned Components **(SE4SafeML), 2023**.

[QCCC'23] Connor Howe, Xinran Wang, **Ali Anwar**. *Robust and Efficient Quantum Communication*. To appear in the Proceedings of the The Second International Workshop on Quantum Classical Cooperative Computing **(QCCC'23)**.

[I2Q'23] Xinran Wang, Connor Howe, **Ali Anwar**. *Robust and Efficient Quantum Communication*. Workshop: I too can Quantum! **(I2Q'23)**.

[AISec'21] Runhua Xu⋆, Nathalie Baracaldo, Yi Zhou, **Ali Anwar**, James Joshi, Heiko Ludwig. *FedV: Privacy-Preserving Federated Learning over Vertically Partitioned Data*. 14th ACM Workshop on Artificial Intelligence and Security (**AISec'21**).

[HotStorage'20] Alex Merenstein⋆, Vasily Tarasov, **Ali Anwar**, Deepavali Bhagwat, Lukas Rupprecht, Dimitris Skourtis, Erez Zadok. *Position: The Case for Benchmarking Control Operations in Cloud Native Storage*. In 12th USENIX Workshop on Hot Topics in Storage and File Systems (**USENIX HotStorage'20**) (AR: 26/64 = 40.6%).

[HotStorage'20] Pranav Bhandari⋆, Avani Wildani, Dimitris Skourtis, Vasily Tarasov, Deepavali Bhagwat, Lukas Rupprecht, **Ali Anwar**. *Position: Can Microservices Drive a Renaissance in Workload-Aware Storage Management?*. In 12th USENIX Workshop on Hot Topics in Storage and File Systems (**USENIX HotStorage'20**) **(Poster)**.

[FS'19] Toyotaro Suzumura, Yi Zhou, Natahalie Baracaldo, Guangnan Ye, Keith Houck, Ryo Kawahara, **Ali Anwar**, Lucia Larise Stavarache, Yuji Watanabe, Pablo Loyola, Daniel Klyashtorny, Heiko Ludwig, Kumar Bhaskaran. *Towards Federated Graph Learning for Collaborative Financial Crimes Detection*. In NeurIPS 2019 Workshop on Robust AI in Financial Services: Data, Fairness, Explainability, Trustworthiness, and Privacy **(Robust AI in FS 2019)**

[AISec'19] Runhua Xu⋆, Nathalie Baracaldo, Yi Zhou, **Ali Anwar**, Heiko Ludwig. *HybridAlpha: An Efficient Approach for Privacy-Preserving Federated Learning*. In Proceedings of the 12th ACM Workshop on Artificial Intelligence and Security **(ACM AISec'19)**, London, UK (AR: 10/42 = 23.8%).

[AISec'19] Stacey Truex⋆, Nathalie Baracaldo, **Ali Anwar**, Thomas Steinke, Heiko Ludwig, Rui Zhang, Yi Zhou. *A Hybrid Approach to Privacy-Preserving Federated Learning.* In Proceedings of the 12th ACM Workshop on Artificial Intelligence and Security **(ACM AISec'19)**, London, UK (AR: 10/42 = 23.8%). **[Best Paper Award]**

[OPML'19] Zheng Chai⋆, Hannan Fayyaz, Zeshan Fayyaz, **Ali Anwar**, Yi Zhou, Nathalie Baracaldo, Heiko Ludwig, Yue Cheng. *Towards Taming the Resource and Data Heterogeneity in Federated Learning.* In Proceedings of the 2019 USENIX Conference on Operational Machine Learning **(USENIX OPML'19)**, Santa Clara, CA (AR: 17/30 = 56.6%).

[APSys'18] Yue Cheng, Zheng Chai, **Ali Anwar**. *Characterizing Co-located Datacenter Workloads: An Alibaba Case Study* In Proceedings of the 9^th ACM SIGOPS Asia-Pacific Workshop on Systems (**ACM APSys'18**), Jeju Island, South Korea.

[HotStorage'16] **Ali Anwar**, Yue Cheng, Hai Huang, and Ali R. Butt. *ClusterOn: Building Highly Configurable and Reusable Clustered Data Services using Simple Data Nodes.* In Proceedings of the 8^{th} USENIX Workshop on Hot Topics in Storage and File Systems (**USENIX HotStorage'16**), Denver, CO.

[VarSys'16] **Ali Anwar**, Yue Cheng, and Ali R. Butt. *Towards Managing Variability in the Cloud.* In Proceedings of the 1^{st} IEEE International Workshop on Variability in Parallel and Distributed Systems (**IEEE VarSys'16**), Chicago, IL.

[PDSW'15] **Ali Anwar**, Yue Cheng, Aayush Gupta, and Ali R. Butt. *Taming the Cloud Object Stores with MOS.* In Proceedings of the 10^{th} ACM Parallel Data Storage Workshop (**ACM PDSW'15**), Austin, TX (AR: 9/25 = 36%).

[APSys'15] **Ali Anwar**, Anca Sailer, Andrzej Kochut, Ali R. Butt. *Anatomy of Cloud Monitoring and Metering: A case study and open problems.* In Proceedings of the 6th ACM SIGOPS Asia-Pacific Workshop on Systems (**ACM APSys'15**), Tokyo, Japan (AR: 20/68 = 29.4%).

Non-refereed Journal Articles, Essays, or Book Chapters

[arXiv'25] Ammar Ahmed, Azal Ahmad Khan, Ayaan Ahmad, Sheng Di, Zirui Liu, and **Ali Anwar**. *Retrieval-of-Thought: Efficient Reasoning via Reusing Thoughts.* arXiv:2509.21743 **(arXiv'25)**.

[arXiv'25] Anas Mohamed, Azal Ahmad Khan, Xinran Wang, Ahmad Faraz Khan, Shuwen Ge, Saman Bahzad Khan, Ayaan Ahmad, **Ali Anwar**. *Sem-DPO: Mitigating Semantic Inconsistency in Preference Optimization for Prompt Engineering.* arXiv:2507.20133 **(arXiv'25)**.

[arXiv'25] Ammar Ahmed, Sheng Di, Franck Cappello, Zirui Liu, Jingoo Han, **Ali Anwar**. *Systematic Evaluation of Optimization Techniques for Long-Context Language Models.* arXiv:2508.00305 **(arXiv'25)**.

[arXiv'25] Azal Ahmad Khan, Ahmad Faraz Khan, Anas Mohamed, Haider Ali, Suchithra Moolinti, Sabaat Haroon, Usman Tahir, Mattia Fazzini, Ali R. Butt, **Ali Anwar**. *LADs: Leveraging LLMs for AI-Driven DevOps.* arXiv:2502 **(arXiv'25)**.

[arXiv'25] Azal Ahmad Khan, Michael Andrev, Muhammad Ali Murtaza, Sergio Aguilera, Rui Zhang, Jie Ding, Seth Hutchinson, **Ali Anwar**. *Safety aware task planning via large language models in robotics.* arXiv:2503.15707 **(arXiv'25)**.

[arXiv'24] Connor Howe, Mohsin Aziz, **Ali Anwar**. *Towards Scalable Quantum Networks.* arXiv:2409.08416 **(arXiv'24)**.

[arXiv'24] Xinran Wang, Qi Le, Ammar Ahmed, Enmao Diao, Yi Zhou, Nathalie Baracaldo, Jie Ding, **Ali Anwar**. *Map: Multi-Human-Value Alignment Palette.* arXiv:2410.19198 **(arXiv'24)**.

[arXiv'24] Jiaxang Tang, Zeshan Fayyaz, Mohammad A Salahuddin, Raouf Boutaba, Zhi-Li Zhang, **Ali Anwar**. *HERL: Tiered Federated Learning with Adaptive Homomorphic Encryption using Reinforcement Learning.* arXiv:2409.07631 **(arXiv'24)**.

[arXiv'24] Enmao Diao, Qi Le, Suya W., Xinran Wang, **Ali Anwar**, Jie Ding, Vahid Tarokh. *COLA: Collaborative Adaptation With Gradient Learning.* arXiv:2404.13844 **(arXiv'24)**.

[arXiv'24] Waris Gill⋆, Mohamed Elidrisi, Pallavi Kalapatapu, **Ali Anwar**, Muhammad Ali Gulzar. *Privacy-Aware Semantic Cache for Large Language Models.* arXiv:2403.02694 **(arXiv'24)**.

[arXiv'24] Zoyuan Su, Ammar Ahmed, Zirui Wang, **Ali Anwar**, Yue Cheng. *Everything You Always Wanted to Know About Storage Compressibility of Pre-Trained ML Models but Were Afraid to Ask.* arXiv:2402.13429 **(arXiv'24)**.

[arXiv'23] Waris Gill⋆, **Ali Anwar**, Muhammad Ali Gulzar *ProvFL: Client-Driven Interpretability of Global Model Predictions in Federated Learning.* CoRR abs/2312.13632 **(arXiv'23)**.

[arXiv'23] Ahmad Faraz Khan⋆, Xinran Wang, Qi Le, Azal Ahmad Khan, Haider Ali, Jie Ding, Ali Butt, **Ali Anwar**. *PI-FL: Personalized and Incentivized Federated Learning.* CoRR abs/2304.07514 **(arXiv'23)**.

[arXiv'23] Xinran Wang, Qi Le, Ahmad Faraz Khan, Jie Ding, **Ali Anwar**. *A Framework for Incentivized Collaborative Learning.* CoRR abs/2305.17052 **(arXiv'23)**.

[Book Chapter] Syed Zawad, Feng Yan, Ali Anwar. *Introduction to Federated Learning Systems.* Federated Learning: A Comprehensive Overview of Methods and Applications

[Book Chapter] Syed Zawad, Feng Yan, Ali Anwar. *Local Training and Scalability of Federated Learning System.* Federated Learning: A Comprehensive Overview of Methods and Applications

[Book Chapter] Syed Zawad, Feng Yan, Ali Anwar. *Straggler Management.* Federated Learning: A Comprehensive Overview of Methods and Applications

[Book Chapter] Syed Zawad, Feng Yan, Ali Anwar. *Systems Bias in Federated Learning.* Federated Learning: A Comprehensive Overview of Methods and Applications

[Book Chapter] Yi Zhou, Nathalie Baracaldo, Ali Anwar and Kamala Varma. *Dealing with Byzantine Threats to Neural Networks.* Federated Learning: A Comprehensive Overview of Methods and Applications

[Book Chapter] Runhua Xu, Nathalie Baracaldo, Yi Zhou, Annie Abay and Ali Anwar. *Privacy-Preserving Vertical Federated Learning.* Federated Learning: A Comprehensive Overview of Methods and Applications

[arXiv'22] Jingyuan Zhang⋆, Ao Wang, Xiaolong Ma, Benjamin Carver, Nicholas John Newman, **Ali Anwar**, Lukas Rupprecht, Dimitrios Skourtis, Vasily Tarasov, Feng Yan, Yue Cheng. *Sion: Elastic Serverless Cloud Storage. CoRR abs/2209.01496.*

[arXiv'22] Ahmad Khan⋆, Yuze Li, **Ali Anwar**, Yue Cheng, Thang Hoang, Nathalie Baracaldo, Ali Butt. *A Distributed and Elastic Aggregation Service for Scalable Federated Learning Systems. arXiv:2204.07767.*

[arXiv'22] Nathalie Baracaldo, **Ali Anwar**, Mark Purcell, Ambrish Rawat, Mathieu Sinn, Bashar Altakrouri, Dian Balta, Mahdi Sellami, Peter Kuhn, Ulrich Schopp, Matthias Buchinger. *Towards an Accountable and Reproducible Federated Learning: A FactSheets Approach. arXiv:2202.12443.*

[arXiv'22] Runhua Xu⋆, Nathalie Baracaldo, Yi Zhou, **Ali Anwar**, Swanand Kadhe, Heiko Ludwig. *DeTrust-FL: Privacy-Preserving Federated Learning in Decentralized Trust Setting. CoRR abs/2207.07779.*

[arXiv'21] Zheng Chai⋆, Yujing Chen, **Ali Anwar**, Liang Zhao, Yue Cheng, Huzefa Rangwala. *Adaptive Dynamic Pruning for Non-IID Federated Learning. arXiv:2106.06921.*

[arXiv'20] Ludwig, Heiko, Nathalie Baracaldo, Gegi Thomas, Yi Zhou, **Ali Anwar**, Shashank Rajamoni, Yuya Ong, et al. *IBM Federated Learning: an Enterprise Framework White Paper V0.1 arXiv:2007.10987* (**arXiv'20**) **(White Paper)**.

[;login:] **Ali Anwar**, Lukas Rupprecht, Dimitrios Skourtis, and Vasily Tarasov. *Challenges in Storing Docker Images.* In ;login: The USENIX Magzine **(;login:)**.

[Technical Report] Kirk W. Cameron, **Ali Anwar**, Yue Cheng, Li Xu, Bo Li, Uday Ananth, Thomas Lux, Yili Hong, Layne T. Watson, Ali R. But. *MOANA: Modeling and Analyzing HPC I/O Variability.*

[Book Chapter] Ali R. Butt, **Ali Anwar**, Yue Cheng. *SDN helps Big Data to optimize storage.* Big Data and Software Defined Networks

Software Development

[LADs] **LADs**: Leveraging LLMs for AI-Driven DevOps. *Paper:* `https://arxiv.org/pdf/2502.20825`.

[MAP'24] **alignMAP**: A Python package for alignment and exploration of LLMs. *Paper:* `https://arxiv.org/pdf/2410.19198v1`. *GitHub:* `https://github.com/wang8740/MAP`.

06/2018–07/2023 **Publicly Available for Scientific Use**
IBM Federated Learning Framework. (**IBM Research**)

06/2010–08/2013 **Open Source Contributions**
Contributions to the GNU Project debugger (GDB) and BusyBox. (**Sourcery CodeBench**)

06/2009–08/2013 **Embedded Software Tools**
Debugger development to provide development support for embedded systems, from host simulation, through board bring-up and the creation of boot code and drivers, to operating system porting. Managed gdb merges in debugger which include fixing gdb issues and providing patches upstream. Added RAM profile, interrupt handling, and semihosting support for code vector processor (powerpc-eabi). (**Sourcery CodeBench, Mentor Graphics EDGE debugger**)

06/2010–08/2012 **Build system for Mentor Embedded Linux**
Worked in a scrum based agile team, managed create config scripts which are used to define the kernel configuration along with the collection and knobs to be enabled for root file system. (**Mentor Embedded Linux**)

Patents and Disclosures

[Filed] Zhaoyuan Su, Jingoo Han, Joon Hee Choi, Sam Fountain, **Ali Anwar**, Yue Cheng. *SLOServe: SLO-Guaranteed LLM Serving Framework with Dynamic Batching and KV Cache Compression.* Filed in 2024.

[Filed] Zhaoyuan Su, Jingoo Han, Joon Hee Choi, **Ali Anwar**, Yue Cheng. *High-Efficient and Accuracy-Preserving LLM Compression Based on Exponent-Less Floating Points.* Filed in 2024.

[US Patent 11,948,096] Yi Zhou, **Ali Anwar**, Nathalie Baracaldo Angel, and Hekio H. Ludwig. *Adaptively adjusting influence in federated learning model updates.* Issued April 2, 2024.

[US Patent 11,494,700] **Ali Anwar**, Nathalie Baracaldo Angel, Simone Bianco, Vito Paolo Pastore, Yi Zhou. *A system and method for semantic learning on federated learning systems.*

[US Patent 11,645,582] Shashank Rajamoni, **Ali Anwar**, Yi Zhou, Heiko Ludwig, Nathalie Baracaldo. *A Cost effective method for parameter sharing in Federated learning.*

[US Patent 16/818,537] Yi Zhou, **Ali Anwar**, Nathalie Baracaldo, Heiko Ludwig. *A method to adaptively average model updates in federated learning.*

[US Patent 11,588,621] Nathalie Baracaldo, Runhua Xu, Yi Zhou, **Ali Anwar**, Heiko Ludwig. *Efficient private vertical federated learning.*

[US Patent 16/682,927] Nathalie Baracaldo, Runhua Xu, Yi Zhou, **Ali Anwar**, Heiko Ludwig. *A method and system to improve efficiency in privacy-preserving federated learning.*

[US Patent 16/451,110] Nathalie Baracaldo, Yi Zhou, Bryant Chen, **Ali Anwar**, Heiko Ludwig. *Method to detect backdoor attacks at inference time.*

[US Patent 16/411,090] **Ali Anwar**, Yi Zhou, Nathalie Baracaldo, Heiko Ludwig. *A method and system to improve communication overhead in federated learning.*

[US Patent 11,139,961] Stacey Truex, Nathalie Baracaldo, **Ali Anwar**, Heiko Ludwig, Thomas Steinke, Rui Zhang. *A method and system to perform private and federated learning .*

[US Patent 11,132,210] **Ali Anwar**, Mohamed Mohamed, Samir Tata, Heiko Ludwig. *Dynamic adjustment of parallelism for pulling images from container registries.*

[US Patent 14/926,384] **Ali Anwar**, Andrzej Kochut, Anca Sailer, Charles O. Schulz, Alla Segal. *Dynamic Metering Adjustment For Service Management Of Computing Platform.*

[US Patent 14/871,443] **Ali Anwar**, Salman A Baset, Andrzej P Kochut, Hui Lei, Anca Sailer, Alla Segal. *Scalable Metering For Cloud Service Management Based On Cost-Awareness.*

Presentations

Invited Presentations at Professional Meetings, Conferences, Universities and Industries, etc.

2025 Privacy-Preserving Federated Learning
Guest Speaker for Institute for Health Informatics (NLP/IE Group)

2024 Leveraging LLMs for AI-Driven DevOps
Cisco Research Deep Dive.

2024 Towards Resource-aware Federated Learning with Interactive Debugging Solutions
UMN ECE Colloquium Series.

2023 Serverless Caching and Storage
Databases Lab (Prof. Mokbel's lab, UMN).

2023 Responsible AI Safety Filter: Scalable and Robust Detection for Large Language Models
Cisco Research: Lightning Round.

2023 Workload Driven Redesigning of Distributed Computing Systems
Master of Science in Software Engineering Seminar, UMN (MSSE Seminar).

2022 Towards Taming the Resource and Data Heterogeneity in Federated Learning
The Twin Cities Software Process Improvement Network (TwinSPIN).

2020 Federated Learning Systems
AI Tea Series, George Mason University.

2019 Introduction to Storage for Containers
USENIX FAST, NSDI, and Vault. Boston, MA.

Contributed Papers Presented at Professional Meetings, Conferences, etc.

2018 BESPOKV: Application Tailored Scale-Out Key-Value Stores
International Conference for High Performance Computing, Networking, Storage, and Analysis. Dallas, TX.

2018 Improving Docker Registry Design based on Production Workload Analysis
USENIX Conference on File and Storage Technologies. Oakland, CA.

2017 VOLTRON: Unlocking Pluggable Distributed Key-Value Stores
IBM Almaden Research Center, San Jose, CA.

2016 ClusterOn: Building Highly Configurable and Reusable Clustered Data Services using Simple Data Nodes
USENIX Workshop on Hot Topics in Storage and File Systems. Denver, CO.

2015 Taming the Cloud Object Stores with MOS
ACM Parallel Data Storage Workshop. Austin, TX.

2015 ClusterOn: Building highly configurable and reusable clustered data services using simple data nodes
IBM T. J. Watson Research Center, Yorktown, NY.

2015 Anatomy of Cloud Monitoring and Metering: A case study and open problems
ACM SIGOPS Asia-Pacific Workshop on Systems. Tokyo, Japan.

2015 Cost-aware cloud metering with scalable service management infrastructure
IEEE International Conference on Cloud Computing. NYC, New York.

2014 Scalable Metering for an Affordable IT Cloud Service Management
IBM T. J. Watson Research Center, Yorktown, NY.

2014 On the use of microservers in supporting hadoop applications
IEEE International Conference on Cluster Computing. Madrid, Spain.

Teaching

University of Minnesota

Fall 2025 CSCI 4061 - Introduction to Operating Systems

Spring 2025 CSCI 4061 - Introduction to Operating Systems

Fall 2024 CSCI 5980 - Cloud Computing

Fall 2023 CSCI 5980 - Cloud Computing

Fall 2022 CSCI 8980 - Topics in Modern Distributed Systems

Virginia Tech.

Spring 2017 Guest lecturer for CS3214 Computer Systems

Fall 2017 Term project mentor for CS5204 Operating Systems

Fall 2016 Term project mentor for CS5204 Operating Systems
Spring 2016 Guest lecturer for CS6204 Cloud Computing
Fall'13—Spring'16 Teaching assistant for CS3214 Computer Systems

Curriculum Development

Fall 2024 Designing a curriculum that integrates Cloud Computing as a regular course.

Collaborative Efforts and Activities

Fall 2024 Serving on the Curriculum Planning Committee.

Advising and Mentoring

Undergraduate Students

2025 Aurelius Nguyen, UMN (Undergraduate Research Opportunities Program)
2024 Sofia Kan, UMN
2024 Anas Mohamed, UMN
2024 Usman Khan, GIKI
2024 Shuwen Ge, IIT Guwahati
2024 Spandan Kukade, IIT Delhi
2023 Akanksha Rai, UMN
2023 Nishtha Verma, UMN
2023 Tony Cai, UMN
2023 Taha Alnasser, UMN
2023 Johnny Jiang, UMN
2022 Rishabh Agarwal, UMN
2023 Yuvraj Singh, BITS Goa
2022 Azal Khan, IIT Guwahati
2022 Astha Pant, IIT Kanpur

Graduate Students

Doctoral Students Advised (Current)

2024 Azal Khan, UMN (Amazon MLSys Fellow)
2023 Xinran Wang, UMN (3M and Doctoral Dissertation Fellow)
2023 Connor Howe, UMN (CS-IDEA and GAANN Fellow)
2023 Jiaxiang Tang, UMN (co-advise with Zhi-Li Zhang)
2022 Sam Fountain, UMN
2022 Qi Le, UMN (Amazon MLSys Fellow)
2022 Ammar Ahmed, UMN

Master's Students Advised (Current)

2024 Chinmayee Dharmastalam Sreedhar, UMN
2024 Pravallika Kambhampati, UMN
2024 Anas Mohamed, UMN
2024 Suchithra M, UMN

Professional Student Activities

Professional Students Supervised

2024 Michael Andrev

Other Mentoring Activities

PhD Students

2022 Waris Gill, Virginia Tech
2021 Sixing Yu, Iowa State University
2021 Ahmad Khan, Virginia Tech
2020 Alex Merenstein, Storny Brook University
2020 Ao Wang, George Mason University
2020 Jingyuan Zhang, George Mason University
2020 Kamala Varma, University of Maryland, College Park
2019 - 2020 Hadeel Albahar, Virginia Tech
2017 - 2020 Bharti Wadhwa, Virginia Tech
2017 - 2020 Nannan Zhao, Virginia Tech
2019 - 2020 Syed Zawad, University of Nevada, Reno
2019 - 2020 Runhua Xu, University of Pittsburgh
2019 - 2020 Zheng Chai, George Mason University
2019 - 2020 Ali Ahsan, University of Nevada, Reno
2018 - 2019 Stacey Truex, Georgia Tech

Master Students

2020 - 2021 Benjamin Carver, George Mason University
2019 - 2021 Kamala Varma, Vanderbilt University
2018 - 2020 Tim d'Hondt, Eindhoven University of Technnology
2017 - 2018 Michael Littley, Virginia Tech
2016 - 2017 Mohammed Salman, Virginia Tech

Service To The Discipline/Profession/Interdisciplinary Area(s)

Editorships

- Associate Editor: ACM Transactions on Storage
- Associate Editor: Neural Processing Letters

Journal Reviewer Experience

- IEEE Transactions on Computers (TC)
- IEEE Transactions on Neural Networks and Learning Systems (IEEE TNNLS)
- IEEE Signal Processing Letters
- IEEE Security & Privacy
- IEEE Transactions on Services Computing (TSC)
- ACM Transactions on Storage (ACM TOS)
- IEEE Transactions on Knowledge and Data Engineering (IEEE TKDE)
- Transactions on Parallel and Distributed Systems (IEEE TPDS)
- Journal of Parallel and Distributed Computing (JPDC - Elsevier)
- Transactions on Cloud Computing (IEEE TCC)
- Data & Knowledge Engineering (DATAK - Elsevier)
- The Journal of Networks, Software Tools and Applications (Cluster Computing - Springer)
- Sustainable Computing: Informatics and Systems (SUSCOM)
- The International Journal of Computer and Telecommunications Networking (Computer Networks)

Technical Program Committees

- Senior PC: The 40th Annual AAAI Conference on Artificial Intelligence (AAAI 2026)
- The 20th ACM European Conference on Computer Systems (EuroSys 2026)

- USENIX Conference on File and Storage Technologies (USENIX FAST 2026)
- The 20th ACM European Conference on Computer Systems (EuroSys 2025)
- USENIX Annual Technical Conference (USENIX ATC 2025)
- The 2025 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2025)
- USENIX Conference on File and Storage Technologies (USENIX FAST 2025)
- 2nd Conference on Language Modeling (COLM 2025)
- USENIX Annual Technical Conference (USENIX ATC 2024)
- 44th IEEE International Conference on Distributed Computing Systems (IEEE ICDCS 2024)
- 22nd USENIX Conference on File and Storage Technologies (USENIX FAST 2024)
- IEEE BigData 2024 (IEEE BigData 2024)
- 32nd International Symposium on High-Performance Parallel and Distributed Computing (HPDC 2023)
- 37th IEEE International Parallel & Distributed Processing Symposium (IPDPS 2023)
- IEEE International Conference on Cluster Computing serves (Cluster 2023)
- IEEE BigData 2023 (IEEE BigData 2023)
- 4th International Workshop on Distributed Machine Learning, co-located with CoNEXT 2023 (DistributedML 2023)
- Federated Learning and Analytics in Practice: Algorithms, Systems, Applications, and Opportunities (Fed-ICML 2023)
- CVPR 2023 Workshop: Second Workshop on Federated Learning for Computer Vision (FedVision 2023)
- International Workshop on Federated Learning: Recent Advances and New Challenges (FL-NeurIPS 2022)
- 2nd Workshop on Re-envisioning Extreme-Scale I/O for Emerging Hybrid HPC Workloads (REX-IO 2022)
- CVPR 2022 Workshop: Federated Learning for Computer Vision (FedVision 2022)
- IEEE International Conference on Big Data (IEEE BigData 2022)
- 42nd IEEE International Conference on Distributed Computing Systems (ICDCS 2022)
- 31st International Symposium on High-Performance Parallel and Distributed Computing (HPDC 2022)
- International Workshop on Trustable, Verifiable and Auditable Federated Learning (FL-AAAI 2022)
- NeurIPS 2021 Workshop on Federated Learning: New Challenges on Privacy, Fairness, Robustness, Personalization and Data Ownership (NFFL 2021)
- International Workshop on Federated Learning for User Privacy and Data Confidentiality (FL-ICML 2021)
- 1st Workshop on Re-envisioning Extreme-Scale I/O for Emerging Hybrid HPC Workloads (REX-IO 2021)
- IEEE International Conference on Big Data (IEEE BigData 2021)
- 13th Workshop on Hot Topics in Storage and File Systems (HotStorage 2021)
- The 30th International Symposium on High-Performance Parallel and Distributed Computing (HPDC 2021)
- The 21st IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid 2021)
- The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC 2020)
- The 29th International Symposium on High-Performance Parallel and Distributed Computing (HPDC 2020)
- The 40th IEEE International Conference on Distributed Computing Systems (ICDCS 2020)

- The Eleventh International Conference on Cloud Computing, GRIDs, and Virtualization (CLOUD COMPUTING 2020)
- The 20th IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid 2020)
- IEEE/ACM Conference on Big Data Computing Applications and Technologies (BDCAT 2019)
- 27th IEEE International Symposium on the Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS 2019)
- International Conference on Cluster Computing (IEEE Cluster 2019)
- 28th International ACM Symposium on High-Performance Parallel and Distributed Computing (HPDC 2019)
- 35th International Conference on Massive Storage Systems and Technology (MSST 2019)

Organization of Conferences, Workshops, Panels, Symposia

- Steering Committee: Workshop on Hot Topics in Storage and File Systems (HotStorage)
- PC Co-chair for the 17th Workshop on Hot Topics in Storage and File Systems (HotStorage'2025)
- NSF Proposal Review Panel 2025
- Co-chair for the IEEE Special Technical Community on Operating Systems (STCOS)
- NSF Proposal Review Panel 2024
- Publicity co-chair for the 31st International Symposium on High-Performance Parallel and Distributed Computing (HPDC'2024)
- Department of Energy 2023
- NSF Proposal Review Panel 2023
- UMN Graduate Admission Committee Member 2023
- Travel Grants Co-chair for the 32nd International Symposium on High-Performance Parallel and Distributed Computing (HPDC 2023)
- General Co-chair for the 14th Workshop on Hot Topics in Storage and File Systems (HotStorage'2023)
- General Co-chair for the 14th Workshop on Hot Topics in Storage and File Systems (HotStorage'2022)
- Publicity co-chair for the 31st International Symposium on High-Performance Parallel and Distributed Computing (HPDC'2022)
- Publicity chair for the 13th Workshop on Hot Topics in Storage and File Systems (HotStorage'2021)
- Reviewer for National Fund for Scientific and Technological Research (FONDECYT) of the National Research and Development Agency (ANID)
- Reviewer for French National Research Agency (ANR)
- External reviewer for USENIX Annual Technical Conference (USENIX ATC'2020)
- Sponsorship co-chair for The 29th International Symposium on High-Performance Parallel and Distributed Computing (HPDC'2020)
- Organizer for IBM Student Workshop on Systems and Cloud
- Reviewer for Natural Sciences and Engineering Research Council of Canada (NSERC)

Service To The University/College/Department

University of Minnesota

Department/Unit Service

2025 Graduate Admissions Committee

2025 Computing and Web Committee

2025 Faculty Recruiting Committee in Wireless Networks and Networked Systems

2024 Curriculum Planning Committee for Systems

2024 WPE & PhD Evaluation Committee
2024 Faculty Recruiting Committee in Data Science/Machine Learning
2023 PhD Advisory Committee Member
2023 Graduate Admissions Committee
2022 Graduate Admissions Committee