Baijian "Justin" Yang C.V.

GENERAL INFORMATION

Education:

Ph D, Computer Science, Michigan State University, 2002.
MS, Automation, Tsinghua University, 1998.
BS, Automation, Tsinghua University, 1995.

Academic Appointments:

2023 – Present	Associate Dean for Research, Purdue Polytechnic Institute.
2020 – Present	Professor of CIT, Purdue University.
2012 – 2020	Associate Professor of CIT, Purdue University.
2003 – 2012	Assistant, Associate Professor of Computer Technology, Ball State University

Professional Certifications

2010 – Present	Six Sigma Black Belt
2007 – Present	Certified Information System Security Professionals (CISSP), $(ISC)^2$
1998 – 2015	Microsoft Certified System Engineer (MCSE), Microsoft

Honors and awards

1. HRSA (*Health Resources & Services Administration*) Building Bridges to Better Health Competition, 2nd place, 2023.
2. 2023 Seed for Success Acorn Award, Purdue University
3. Outstanding Faculty Award in Engagement, Department of Computer and Information Technology, Purdue University. February 2023.
4. Leadership in Manufacturing Award, Manufacturing Times Digital (MxD), 2021
5. Good to Great Award, Purdue Polytechnic, 2021
6. Outstanding Faculty Award in Discovery, Department of Computer and Information Technology, Purdue University. February 2020.
7. University Faculty Scholars, Purdue University, May 2019
8. Exemplary contributions and service, The Association of Technology, Management, and Applied Engineering (ATMAE), November 12, 2016
9. Exemplary contributions and service, The Association of Technology, Management, and Applied Engineering, November 16, 2012
10. Outstanding Faculty in Teaching, Department of Technology, Ball State University, 2010.

Leadership in professional societies or organizations

2018 - Present	Editor, Associate Editor, Journal of IET Smart Cities. https://digital-library.theiet.org/journals/iet-smc/editorial-board
2015 - 2017	Member, IEEE Cybersecurity Initiative Steering Committee.
2014 - 2016	Board of Directors, Association of Technology, Management, and Applied Engineering (ATMAE), Elmhurst, IL.
2010 - 2012	President, EECT division of Association of Technology, Management, and Applied Engineering, Elmhurst, IL.

Professional and leadership development activities

2022 – 2023	Faculty Insights Forum, Academic Leadership Training, Office of the Provost, Purdue University
2019 – 2020	Faculty Leadership Academy for Interdisciplinary Research (FLAIR) Fellows Program, Office of the Executive Vice President for Research and Partnerships, Purdue University
2018 – 2019	Faculty Leadership Training for Research Impact Area Champions, Polytechnic Institute, Purdue University
2017 – 2021	Research Mentoring Lunch meetings, Polytechnic Institute, Purdue University
2015 – Present	Web trainings on Research Conducts, Ethics and Compliance, Human Subject Research and etc.
2014 – 2015	Instruction Matters: Purdue's Academic Course Transformation (IMPACT), Purdue University

Memberships in academic, professional, and scholarly societies

2002 – Present	Institute of Electrical and Electronics Engineers, (IEEE)
2005 – Present	Computer Society, IEEE
2009 – Present	International Information Systems Security Certification Consortium, $(ISC)^2$
2012 – Present	The Association for Computing Machinery, ACM
2013 – Present	ACM Special Intergroup Group on Information Technology Education (SIGITE).
2013 – 2016	Information Technology Education and Research Association (ITERA)
2014 – 2016	American Society for Engineering Education (ASEE)
2003 – 2016	Association of Technology, Management, and Applied Engineering, ATAME

PUBLICATIONS

Full articles in refereed journals

1. Ou, B., Shao, G., Yang, B., & Fei, S. (2025). FocalSR: Revisiting image super-resolution transformers with fourier-transform cross attention layers for remote sensing image enhancement. *Geomatica*, *77*(1). doi:10.1016/j.geomat.2024.100042
2. Huang, Y., Yang, B., Carpenter, J., Jung, J., & Fei, S. (2025). Temperate forest tree species classification with winter UAV images. *Remote Sensing Applications: Society and Environment*, *37*. doi:10.1016/j.rsase.2024.101422
3. Huang, Y., Ou, B., Meng, K., Yang, B., Carpenter, J., Jung, J., & Fei, S. (2024). Tree Species Classification from UAV Canopy Images with Deep Learning Models. *Remote Sensing*, *16*(20). doi:10.3390/rs16203836
4. Wei-Kocsis, J., Sabounchi, M., Mendis, G. J., Fernando, P., Yang, B., & Zhang, T. (2024). Cybersecurity Education in the Age of Artificial Intelligence: A Novel Proactive and

Collaborative Learning Paradigm. *IEEE Transactions on Education*, *67*(3), 395-404. doi:10.1109/TE.2023.3337337

5. Xiong, C., Liu, X., Tu, W., Yang, B., Liangpunsakul, S., & Su, J. (2024). Mo1518 Determinants of Risks Associated with Alcohol-Associated Hepatitis or Pancreatitis: A Comprehensive Analysis of the All of Us Cohort. *Gastroenterology*, *166*(5), S-1677. doi:10.1016/s0016-5085(24)04312-9
6. Wang, R., Jo, W., Zhao, D., Wang, W., Yang, B., & Chen, G. (2024.). Husformer: A Multi Modal Transformer for Multi Modal Human State Recognition. *IEEE Transactions on Affective Computing*.
7. Li, Z., Yang, B., & Xiong, J. (2024). Message from the Program Chairs SmartCloud 2024. *Proceedings - 2024 IEEE 9th International Conference on Smart Cloud, SmartCloud 2024*, ix. doi:10.1109/SmartCloud62736.2024.00005
8. Jo, W., Wang, R., **Yang, B.**, Foti, D., Rastgaar, M., & Min, B. -C. (2024). Cognitive Load-Based Affective Workload Allocation for Multihuman Multirobot Teams. *IEEE Transactions on Human-Machine Systems*, 1-14. doi:10.1109/thms.2024.3509223
9. Lu, Y., Zhang, J., Sun, S., Guo, Q., Cao, Z., Fei, S., **Yang, B.** & Chen, Y. V. (2024). Label-Efficient Video Object Segmentation with Motion Clues. *IEEE Transactions on Circuits and Systems for Video Technology*, *34*(8), 6710-6721. doi:10.1109/TCSVT.2023.3298853
10. Jin, N., Li, Z., Kettler, C., Tu, W., **Yang, B.** & Su, J. (2023.). ARDaC Common Data Model Facilitates Data Dissemination and Enables Data Commons for Modern Clinical Studies. In *Medinfo 2023*. IOS Press.
11. Mulkey, M., Huang, H., Albanese, T., **Yang, B.** & Kim, S. (2023). Supervised Deep Learning with Vision Transformer Predicts Delirium Using Limited Lead EEG. *Scientific Reports*.
12. Tang, Z., Su, J., Su, J., **Yang, B.** & Song, Q. (2023.). SiGra: Single cell spatial elucidation through image augmented graph transformer. *Nature Communications*.
13. Tang, Z., Liu, X., Li, Z., Zhang, T., **Yang, B.**, Su, J., & Song, Q. (2023). SpaRx: Elucidate single-cell spatial heterogeneity of drug responses for personalized treatment. To appear *Briefings in Bioinformatics*. 2023.
14. Tang, Z., Li, Z., Hou, T., Zhang, T., **Yang, B.**, Su, J., & Song, Q. (2023). SiGra: Single-cell spatial elucidation through image-augmented graph transformer. *Nature Communications*. 14, 5618 (2023). https://doi.org/10.1038/s41467-023-41437-w
15. Lu, Y., Zhang, J., Sun, S., Guo, Q., Cao, Z., Fei, S.,**Yang, B.**& Chen, Y. (2023). Label-Efficient Video Object Segmentation with Motion Clues. *IEEE Transactions on Circuits and Systems for Video Technology*. DOI: 10.1109/TCSVT.2023.3298853
16. Mulkey, M., Huang, H., Albanese, T., Sunghan, K., & **Yang, B**. (2023). Supervised Deep Learning with Vision Transformer Predicts Delirium Using Limited Lead EEG, *Scientific report*, (2023)13:7890 https://doi.org/10.1038/s41598-023-35004-y
17. Tang, Z., Zhang, T., **Yang, B.**, Su, J., & Song, Q. (2023). spaCI: deciphering spatial cellular communications through adaptive graph model. *Briefings in Bioinformatics*, 24(1). https://doi.org/10.1093/bib/bbac563
18. Mulkey, M., Albanese, T., Kim, S., Huang, H., & **Yang, B.** (2022). Delirium detection using GAMMA wave and machine learning: A pilot study. *Research in Nursing & Health* (RINAH), 45(6). https://doi.org/https://doi.org/10.1002/nur.22268

19. Li, S., Tang, Z., Jin, N., **Yang**, Q., Gang Liu, Liu, T., … Ma, L. (2022). Uncovering Brain Differences in Preschoolers and Young Adolescents with Autism Spectrum Disorder Using Deep Learning. *International Journal of Neural Systems*, 32(9), 11. https://doi.org/https://doi.org/10.1142/S0129065722500447
20. Liang, J., Wang, Y., Chen, Y. V., **Yang, B.**, & Liu, D. (2022). A Triangulation-Based Visual Localization for Field Robots. *IEEE/CAA Journal of Automatica Sinica*, 9(6), 1083-1086
21. Tang, W., Vian, C., Tang, Z., & **Yang, B.** (2021). Anomaly detection of core failures in die casting X-ray inspection images using a convolutional autoencoder. *Machine Vision and Applications*, (32), 102. https://doi.org/10.1007/s00138-021-01226-1
22. Zhang, T., & **Yang, B.** (2021). Online multiple learning with working sufficient statistics for generalized linear models in big data. *Statistics and Its Interface 14*(4), 403-416
23. Zhang, T., & **Yang, B.** (2021). Accounting for factor variables in big data regression. *Statistica Sinica*, 31(1), 1-28. https://doi.org/10.5705/ss.202018.0309
24. Mendez Mena, D. & **Yang, B** (2020). Decentralized Actionable Cyber Threat Intelligence for Networks and the Internet of Things, *IoT*, 2(1), 1-16. https://doi.org/https://doi.org/10.3390/iot2010001
25. Tang, Z [G]. Liu, X [G]. Chen, H [G]. Hupy, J. & **Yang, B.** (2020). Deep learning based wildfire event object detection from 4K aerial images acquired by UAS. *AI, 1*(2), 166-179. https://doi.org/10.3390/ai1020010
26. Mendez Mena, D. [G], Papapanagiotou, I., & **Yang, B.** (2018). Internet of things: survey on security. *Information Security Journal: A Global Perspective, 27*(3), 162--182. https://doi.org/10.1080/19393555.2018.1458258
27. Albabtain, Y.[G], **Yang, B.**, Dietz, J. E., Min, B.-C., & Gusev, D. A. (2018). Survey of GPU vulnerabilities and forensic science. *Technology Interface International Journal*, *19*(1), 24-41, http://tiij.org/issues/issues/fall2018/X__TIIJ%20fall%202018%20v19%20n1.pdf
28. Ryu, S [G]., & **Yang, B.** (2018). A comparative study of machine learning algorithms and their ensembles for botnet detection. *Journal of Computer and Communications, 6*(05), 119-129. https://doi.org/10.4236/jcc.2018.65010
29. Zhang, T., & **Yang, B.** (2018). Dimension reduction for big data. *Statistics and Its Interface, 11*(2), 295-306. https://doi.org/10.4310/SII.2018.v11.n2.a7
30. AlBabtain, Y.[G], & **Yang, B.** (2018). The process of recovering image and web page artifacts from the GPU. *International Journal of Cyber-Security and Digital Forensics, 7*(2), 132-141. https://doi.org/10.17781/P002380
31. Chen, Y. V., **Yang, B.**, & Wang, W [G]. (2017). NetFlowMatrix: A visual approach for analyzing large NetFlow data. *International Journal of Security and Networks, 12*(4), 215-229. https://doi.org/10.1504/IJSN.2017.088115
32. Zhang, T., & **Yang, B.** (2017). An exact approach to ridge regression for big data. *Computational Statistics,32*, 909-928. https://doi.org/10.1007/s00180-017-0731-5
33. Zhang, T., & **Yang, B.** (2017). Box-Cox transformation in big data. *Technometrics, 59*(2), 189-201. https://doi.org/10.1080/00401706.2016.1156025
34. Tian, C., **Yang, B**., Zhong, J., & Liu, X. (2014). Trust-based incentive mechanism to motivate cooperation in hybrid P2P networks. *Computer Networks, 73*, 244-255. https://doi.org/10.1016/j.comnet.2014.08.010
35. Tian, C., & **Yang, B.** (2014). A D-S evidence theory based fuzzy trust model in file- sharing

P2P networks. *Peer-to-Peer Networking and Applications*. *7*(4), 332-345 https://doi.org/10.1007/s12083-012-0153-7

36. Wang, X., Li, S., Li, M., & **Yang, B.** (2012). Cable-based moving reachability with mobile sensors. *Ad Hoc & Sensor Wireless Networks, 14*(3-4), 227-250. https://www.oldcitypublishing.com/journals/ahswn-home/ahswn-issue-contents/ahswn-volume-14-number-3-4-2012/ahswn-14-3-4-p-227-250/
37. Mirzoev, T., **Yang, B.**, Davis, M., & Williams, T. (2011). A case study on virtual and physical I/O throughputs. *Journal of Industrial Technology*, *27*(3), 1-10. https://www.atmae.org/resource/resmgr/Articles/Mirzoev-Virtual-Physical-I-O.pdf
38. Tian, C., & **Yang, B.** (2011). R2 Trust, a reputation and risk based trust management framework for large-scale, fully decentralized overlay networks. *Future Generation Computer Systems, 27*(8), 1135-1141. https://doi.org/10.1016/j.future.2011.03.006
39. Mirzoev, T., & **Yang, B.** (2010). Securing virtualized datacenters. *International Journal of Engineering Research & Innovation*, *2*(1), 23-29 http://ijeri.org/IJERI-Archives/issues/spring2010/spring2010.htm
40. He, Y., Ren, H., Liu, Y., & **Yang, B.** (2009). On the reliability of large-scale distributed systems – A topological view. *Computer Networks, Vol. 53*(Issue 12), 2140-2152. doi: https://doi.org/10.1016/j.comnet.2009.03.012
41. **Yang, B.**, & Gao, T. (2008). Enhancing network availability and security via multi- homed virtual private networks. *International Journal of Modern Engineering*. *8*(2), 47-52. http://ijme.us/issues/spring2008/IJME_spring08_web_book_b.pdf
42. Yang, Z., Xu, B., **Yang, B.**, Dai, J., & Gu, T. (2008). PAS: Prediction-based Adaptive Sleeping for Diffusion Stimulus Monitoring Sensor Networks. *Ad Hoc & Sensor Wireless Networks, 5*(3-4), 235-246. https://www.oldcitypublishing.com/journals/ahswn-home/ahswn-issue-contents/ahswn-volume-5-number-3-4-2008/ahswn-5-3-4-p-235-246/
43. **Yang, B.** (2007). Project teaches students to diagnose an ailing Windows OS, *Techdirections, 67*(4), 23-26. https://eric.ed.gov/?id=EJ786242
44. **Yang, B.**, & Mohapatra, P. (2004). DifferServ-aware multicasting. *Journal of High- Speed Networks, 13*(1), 37-57. https://content.iospress.com/articles/journal-of- high-speed-networks/jhs235
45. **Yang, B.**, & Mohapatra, P. (2004). Multicasting in MPLS domains. *Journal of Computer Communications, 27*(2), 162-170. https://doi.org/10.1016/S0140-3664(03)00212-3

Short communications, letters, notes or briefs in refereed journals

1. **Yang, B.**, & Kirk, B. (2016). *Try-CybSI: A Platform for Trying Out Cybersecurity*, IEEE Security and Privacy *4*(14), (pp. 74-75). IEEE. https://doi.org/ 10.1109/MSP.2016.68
2. Hacker, T. J., **Yang, B.**, & McCartney, G. (2014). *Empowering Faculty: A Campus Cyberinfrastructure Strategy for Research Communities*. Educause. http://er.educause.edu/articles/2014/7/empowering-faculty-a-campus-cyberinfrastructure-strategy-for-research-communities.

Peer Reviewed Conference or symposium proceedings

1. Zhao, H., Huang, H., Zhang, T., **Yang, B.**, Wei-Kocsis, J., & Fei, S. (2024). Unsupervised Machine Learning for Detecting and Locating Human-Made Objects in 3D Point Cloud. In *Proceedings - 2024 IEEE International Conference on Big Data, BigData 2024* (pp. 1500-1507). doi:10.1109/BigData62323.2024.10825112
2. Huang, H., Tang, Z., Zhang, T., and **Yang, B**. (2023), "*Improved Clustering Using Nice Initialization*", 2023 IEEE Globecom conference proceedings.
3. Tang, Z., Zhang, T., **Yang, B.**, Su, J., & Song, Q. (*2023*). *PINet: Privileged Information Improve the Interpretablity and generalization of structural MRI in Alzheimer's Disease*, ACM-BCB 2023, 47, pp1-9. https://doi.org/10.1145/3584371.3613000
4. Huang, H., Tang, Z., Zhang, T., **Yang, B.**, Song, Q., and Su, J. (*in press*). *Feature Selection for Unsupervised Machine Learning*. IEEE SmartCloud 2023.
5. Jin, N., Shah, D., Terven, J., Lozada, D., Bennet, Z., Chen, L., and **Yang, B**. (*in press*). *Making Autonomous Stores Smarter (MASS): A Practical Solution to Improve Product Detection Performance Using Synthetic Dataset at Scale*, 2023 IEEE SmartCloud.
6. Jin, N., Li, Z., Kettler, C., **Yang, B.**, Tu, W., & Su, J. (*in press*). *ARDaC Common Data Model Facilitates Data Dissemination and Enables Data Commons for Modern Clinical Studies*. In Medinfo 2023. IOS Press.
7. Kocsis, J., Sabounchi, M., **Yang, B.**, & Zhang, T. (2022). *Cybersecurity Education in the Age of Artificial Intelligence: A Novel Proactive and Collaborative Learning Paradigm*. In 2022 IEEE Frontiers in Education Conference (FIE) (pp. 1–5). https://doi.org/10.1109/FIE56618.2022.9962643
8. Tang, W., Zhang, T., & **Yang, B.** (2022). *SemiCon: A Semi-supervised Learning for Industrial Image Inspection*. In 2022 IEEE CSCloud/EdgeCom. (pp. 12–17). https://doi.org/10.1109/CSCloud-EdgeCom54986.2022.00012
9. Liu, D., Cui, Y., Guo, X., Ding, W., **Yang, B.**, & Chen, Y. V. (2021). *Visual Localization for Autonomous Driving: Mapping the Accurate Location in the City Maze* (pp. 3411–3420). Milan, Itay: IEEE International Conference on Pattern Recognition (ICPR). https://doi.org/10.1109/ICPR48806.2021.9411961
10. Liu, D., Cui, Y., Yan, Li, Mousas, C., **Yang, B**.& Chen, Y. (2021), *DenserNet: Weakly Supervised Visual Localization Using Multi-scale Feature Aggregation*, Proceedings of the AAAI Conference on Artificial Intelligence, *35*(7), (pp.6101-6109). https://doi.org/10.1609/aaai.v35i7.16760
11. Tang, W., Liu, X., Huang, H., Tang, Z., Zhang, T. & **Yang, B**. (2020). *High-Order Orthogonal Decomposition for Tensors*. 2020 IEEE Smartcom.
12. Huang, H, Liu, X., Zhang, T., & **Yang, B.** (2020). *Regression PCA for Moving Objects Separation*. To appear in proceedings of 2020 IEEE Globecom, Taipei, Taiwan, Dec. 2020, pp. 1-6, doi: 10.1109/GLOBECOM42002.2020.9322471.
13. Liu, X., Huang, H., Tang, W., Zhang, T., & **Yang, B**. (2020). *Low-Rank Sparse Tensor Approximations for Large High-Resolution Videos*. 2020 IEEE ICMLA, Miami, FL, USA, 2020, pp. 65-70, doi: 10.1109/ICMLA51294.2020.00020.
14. Tang, Z., Liu, X., & **Yang, B**. (2020). *PENet: Object Detection using Points Estimation High Definition Aerial Images Approximations for Large High-Resolution Videos*. 2020 IEEE ICMLA, Miami, FL, USA, 2020, pp. 392-398, doi:

10.1109/ICMLA51294.2020.00069
15. Kalyanam, R, Willis, C., Kirkpatrick, C., & **Yang, B.** (2020). *CHEESE: Cyber Human Ecosystem of Engaged Security Education*. To appear in proceedings of 2020 IEEE Frontiers in Education, Uppsala, Sweden, Oct. 2020. pp. 1-7, doi: 10.1109/FIE44824.2020.9273931.
16. Chen, H.[G], & **Yang, B.** (2019, December). *A Performance Evaluation of CAN Encryption*. 1st IEEE International conference on Trust, Privacy, and Security in Intelligent Systems and Applications (TPS-ISA) (pp.140-149). Los Angeles, CA, USA. IEEE. https://doi.org/10.1109/TPS-ISA48467.2019.00025
17. Liu, X.[G], Tang, Z.[G], Huang, H.[G], Zhang, T., & **Yang, B.** (2019, December). *Multiple Learning for Regression in Big Data.* 2019 IEEE International Conference on Machine Learning and Applications (ICMLA) (pp. 587-594). Miami, FL, USA. IEEE. https://doi.org/10.1109/ICMLA.2019.00109.
18. Liu, X.[G], Huang, H.[G], Tang, Z.[G], Zhang, T., & **Yang, B.** (2019, December). *Sparse Block Regression (SBR) for Big Data with Categorical Variables*. 2019 IEEE international conference on Big Data (BIGDATA) (pp. 221-227). Los Angeles, CA, USA, IEEE. https://doi.org/10.1109/BigData47090.2019.9006448
19. Penmetcha, M. [G], Luo, S. [G], Samantaray, A. [G], Dietz, J. E., **Yang, B.**, & Min, B.-C. (2019, October). *Computer vision-based algae removal planner for multi-robot teams*. 2019 IEEE International Conference on Systems, Man and Cybernetics (SMC) (pp.1575--1581). Bari, Italy. IEEE. https://doi.org/10.1109/SMC.2019.8913967
20. Tang, Z.[G], Liu, X.[G], Chen, Y. V., & **Yang, B.** (2019, October). *The role of multiple representations and representational fluency in cryptography education*. The 20th Annual Conference on Information Technology Education (SIGITE) (pp. 75-80), Tacoma, WA, USA. ACM. https://doi.org/10.1145/3349266.3351412.
21. Liu, X.[G], Tang, Z.[G], & **Yang, B.** (2019, May). *Predicting Network Attacks with CNN by Constructing Images from NetFlow Data.* 2019 IEEE 5th Intl Conference on Big Data Security on Cloud (BigDataSecurity) (pp. 61-66). Washington, DC, USA. https://doi.org/10.1109/BigDataSecurity-HPSC-IDS.2019.00022
22. Shakdher, A.[G], Agrawal, S.[G], & **Yang, B.** (2019, May). *Security Vulnerabilities in Consumer IoT Applications*. 2019 IEEE 5th Intl Conference on Big Data Security on Cloud (BigDataSecurity) (pp. 1-6). Washington, DC, USA. IEEE. https://doi.org/10.1109/BigDataSecurity-HPSC-IDS.2019.00012
23. Hansen, R. A., Seigfried-Spellar, K. C., Lee, S.[G], Chowdhury, S.[G], Abraham, N.[G], Springer, J. A., **Yang, B.**, & Rogers, M. K. (2018, December). *File Toolkit for Selective Analysis & Reconstruction (FileTSAR) for Large-Scale Networks*. 2018 IEEE International Conference on Big Data (Big Data) (pp. 3059-3065). Seattle, WA, USA. IEEE. https://doi.org/10.1109/bigdata.2018.8621914
24. Chiang, W.[G], Liu, X.[G], Zhang, T., & **Yang, B.** (2018, December). *A study of Exact Ridge Regression for Big Data.* 2018 IEEE International Conference on Big Data (Big Data) (pp. 3821-3830). Seattle, WA, USA. IEEE https://doi.org/10.1109/BigData.2018.8622274
25. **Yang, B.**, Wang, M.[G], Xu, Z.[G], & Zhang, T. (2018, December). *Streaming Algorithm for Big Data Logistic Regression.* 2018 IEEE International Conference on Big Data (Big Data) (pp. 2940-2950). Seattle, WA, USA. IEEE. https://doi.org/10.1109/BigData.2018.8622392

26. Mendez Mena, D. M.[G], & **Yang, B.** (2018, October). *Blockchain-Based Whitelisting for Consumer IoT Devices and Home Networks*. 19th Annual Conference on Information Technology Education (SIGITE) (pp. 7-12). Fort Lauderdale, FL, USA. ACM. https://doi.org/10.1145/3241815.3241853
27. Liu, F.[G], Wang, S.[G], Liu, X.[G], Zhang, T., **Yang, B.**, Han, Q., & Vian, C. (2018, October). *AI-Driven Smart Manufacturing of Die Casting*. Proceedings of 2018 North American Die Casting Association Congress and Exposition (NADCA) (pp.10-18). Indianapolis, IN, USA.
28. AlBabtain, Y., & **Yang, B.** (2018, August). *The Process of Reverse Engineering GPU Malware and Provide Protection To GPUS*. 17th IEEE International Conference On Trust, Security And Privacy In Computing And Communications (TrustCom) (pp.1669-1673). New York, NY, USA. IEEE. https://doi.org/10.1109/TrustCom/BigDataSE.2018.00248
29. Zhao, J.[G], Liu, X.[G], Kuang, Y., Chen, Y. V., & **Yang, B.** (2018, June). *Deep CNN-Based Methods to Evaluate Neighborhood-Scale Urban Valuation Through Street Scenes Perception.* 2018 IEEE Third International Conference on Data Science in Cyberspace (DSC), (pp. 20-27). GuangZhou, China. IEEE. https://doi.org/10.1109/DSC.2018.00012
30. AlBabtain, Y.[G], & **Yang, B.** (2018, May). *Live GPU Forensics: the Process of Recovering Video Frames from NVIDIA GPU*. Annual Association of Digital Forensics Security and Law Conference (ADFSL), (pp.71-82), San Antonio, TX, USA. ADFSL. https://commons.erau.edu/adfsl/2018/presentations/3/
31. Albabtain, Y.[G], & **Yang, B.** (2017, December). *GPU Forensics: Recovering Artifacts From The Gpus Global Memory Using Opencl*. The Third International Conference on Information Security and Digital Forensics (ISDF2017) (pp.12-20)., Thessaloniki , Greece, The Society of Digital Information and Wireless Communications (SDIWC). http://paper.researchbib.com/view/paper/145384
32. Lee, P.-T.[G], & **Yang, B.** (2017, October). *Indexing Architecture for File Extraction from Network Traffic*. Proceedings of the 6th Annual Conference on Research in Information Technology (RIIT) (pp. 17-21). Rochester, NY, USA. ACM. https://doi.org/10.1145/3125649.3125655
33. Beckman, J.[G], Bari, S.[G], Chen, Y. V., Dark, M. J., & **Yang, B.** (2017, October). *The Impacts of Representational Fluency on Cognitive Processing of Cryptography Concepts*, Proceedings of the Learning from Authoritative Security Experiment Results (LASER) 2017 workshop (pp. 59-67). Arlington, VA, USA. USENIX. https://www.usenix.org/system/files/conference/laser2017/laser2017_beckman.pdf
34. Kalyanam, R., & **Yang, B.** (2017, October). *Try-CybSI: An Extensible Cybersecurity Learning and Demonstration Platform.* Proceedings of the 18th Annual Conference on Information Technology Education (SIGITE) (pp. 41-46). Rochester, NY, USA. ACM. https://doi.org/10.1145/3125659.3125683
35. Beckman, J.[G], Dark, M. J., P.[G], Bari, S.[G], Wagstaff, S. S., Chen, Y. V., & **Yang, B.** (2017, June). *Cognitive Processing of Cryptography Concepts: An fMRI Study*. 124th Annual Conference of American Society for Engineering Education (ASEE). Columbus, Ohio, USA. ASEE. https://www.asee.org/public/conferences/78/papers/20261/download
36. Gao, Y., Zhang, T., & **Yang, B.** (2017, June). *Finding the best box-cox transformation in*

Big Data with Meta-model learning: A Case Study on QCT Developer Cloud, 4th International Conference on Cyber Security and Cloud Computing (CSCloud) (pp. 31-34). New York City, NY, USA. IEEE. https://doi.org/10.1109/CSCloud.2017.53

37. Li, P.[G], Fang, H.[G], Liu, X.[G], & **Yang, B.** (2017, March). *A countermeasure against relay attack in NFC payment*. Proceedings of the Second International Conference on Internet of things and Cloud Computing (ICC). Cambridge, UK. ACM. https://doi.org/10.1145/3018896.3025144
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Editor of Refereed Journal

2018 - Present	Associate Editor, Journal of IET Smart Cities. https://digital-library.theiet.org/journals/iet-smc/editorial-board

Books

1. Zhou, A., Zhu, R., Zheng, P., & **Yang, B.** (2011). *Windows Phone 7 Programming for Android and iOS Developers*. Indianapolis, IN: WROX.
2. **Yang, B.** Zheng, P., & Ni, L. M. (2007). *Professional Microsoft Smartphone Programming*. Indianapolis, IN: Wiley.

TEACHING & LEARNING ACTIVITIES

New Courses Developed

1. IE 590 Fundamentals of Secure Design, Fall 2018
   This course is offered outside Purdue University as the first course for the 'Design for Security' certificate program.
2. CNIT 344 Networking Engineering Fundamentals, Fall 2017
3. CNIT 370, introduction to cryptography, Fall 2017
4. CNIT 623 Applied Machine Learning, Fall 2017.

Courses taught at Purdue in the last 5 years.

Fall 2024

1. CNIT 555: Advanced Networking. 1 section. 17 student(s) enrolled.
2. CNIT 69800: Research MS Thesis. 1 section. 2 student(s) enrolled.
3. TECH 64000: Research DTech Thesis. 1 section. 1 student(s) enrolled.
4. TECH 69900: Research PhD Thesis. 1 section. 2 student(s) enrolled.
5. TECH 69000: Cloud Security, Individual study. 1 section. 1 student(s) enrolled.

Spring 2024

1. CNIT 69800: Research MS Thesis. 1 section. 2 student(s) enrolled.
2. TECH 64000: Research DTech Thesis. 1 section. 1 student(s) enrolled.
3. TECH 69900: Research PhD Thesis. 1 section. 2 student(s) enrolled.
4. TECH 69000: Cloud Security, Individual study. 1 section. 1 student(s) enrolled.

Fall 2023
1. CNIT 34000: UNIX Administration. 1 section. 191 student(s) enrolled.
2. CNIT 62300: Big Data Machine Learning. 1 section. 18 student(s) enrolled.
3. CNIT 59000: Diffusion Models In Remote Sen. 1 section. 3 student(s) enrolled.
4. CNIT 69800: Research MS Thesis. 1 section. 4 student(s) enrolled.
4. TECH 64000: Research DTech Thesis. 1 section. 1 student(s) enrolled.
5. TECH 69900: Research PhD Thesis. 1 section. 3 student(s) enrolled.
6. TECH 69000: IoT Application & Concepts, individual study. 1 section. 1 student enrolled.
7. TECH 69000: Cloud Security Study, individual study. 1 section. 1 student enrolled.

Spring 2023
1. CNIT 555: Advanced Networking. 1 section. 9 student(s) enrolled.
2. CNIT 62300: Big Data Machine Learning. 1 section. 13 student(s) enrolled.
3. CNIT 69800: Research MS Thesis. 1 section. 3 student(s) enrolled.
4. TECH 64000: Research DTech Thesis. 1 section. 1 student(s) enrolled.
5. TECH 69900: Research PhD Thesis. 1 section. 3 student(s) enrolled.
6. CNIT 59000: Container Networking, Individual study. 1 section. 1 student(s) enrolled.

Fall 2022
1. CNIT 34000: UNIX Administration. 1 section. 78 student(s) enrolled.
2. CNIT 62300: Big Data Machine Learning. 1 section. 17 student(s) enrolled.
3. CNIT 69800: Research MS Thesis. 1 section. 3 student(s) enrolled.
4. TECH 64000: Research DTech Thesis. 1 section. 1 student(s) enrolled.
5. TECH 69900: Research PhD Thesis. 1 section. 2 student(s) enrolled.

Spring 2022
1. CNIT 55500: Advanced Network Security. 1 section. 21 student(s) enrolled.
2. CNIT 62300: Big Data Machine Learning. 1 section. 9 student(s) enrolled.
3. CNIT 69800: Research MS Thesis. 1 section. 1 student(s) enrolled.
4. TECH 64000: Research DTech Thesis. 1 section. 1 student(s) enrolled.
5. TECH 69900: Research PhD Thesis. 1 section. 3 student(s) enrolled.

Fall 2021
1. CNIT 34000: UNIX Administration. 1 section. 61 student(s) enrolled.
2. CNIT 62300: Big Data Machine Learning. 1 section. 15 student(s) enrolled.
3. CNIT 69800: Research MS Thesis. 1 section. 1 student(s) enrolled.
4. TECH 69900: Research PhD Thesis. 1 section. 3 student(s) enrolled.

Spring 2021
1. CNIT 55500: Adv Network Security. 1 section. 12 student(s) enrolled.
2. CNIT 62300: Big Data Machine Learning. 1 section. 13 student(s) enrolled.
3. CNIT 69800: Research MS Thesis. 1 section. 1 student(s) enrolled.
4. TECH 69900: Research PhD Thesis. 1 section. 4 student(s) enrolled.

Fall 2020
1. CNIT 34000: UNIX Administration. 1 section. 57 student(s) enrolled.

2. CNIT 62300: Big Data Machine Learning. 1 section. 19 student(s) enrolled.
3. CNIT 69800: Research MS Thesis. 1 section. 1 student(s) enrolled.
4. TECH 69900: Research PhD Thesis. 1 section. 4 student(s) enrolled.

Spring 2020

1. CNIT 55500: Adv Network Security. 1 section. 6 student(s) enrolled.
2. CNIT 62300: Big Data Machine Learning. 1 section. 19 student(s) enrolled.
3. CNIT 69800: Research MS Thesis. 1 section. 5 student(s) enrolled.
4. TECH 69900: Research PhD Thesis. 1 section. 3 student(s) enrolled.

DISCOVERY ACTIVITIES

External grants and contracts awarded in support of Discovery.

1. Biomedical informatics approaches and its implementation in cancer research
   Sponsoring Organization: Indiana University
   Role: PI
   Total Amount Awarded: USD 47,292.00
   Investigator Credit: 100%
   Grant Number: 40005061
   Funding Dates: 8/15/2024–8/14/2025

2. Biomedical informatics approaches and its implementation in chronic disease management and intensive care of patients with chronic diseases
   Role: PI
   Sponsoring Organization: Indiana University
   Total Amount Awarded: USD 47,292.00
   Investigator Credit: 100%
   Grant Number: 40005078
   Funding Dates: 8/12/2024–8/11/2025

3. Collaborative Research: CyberTraining: Implementation: Medium: AI and Cybersecurity Education for Cyberinfrastructure: A Hands-On Approach
   Sponsoring Organization: National Science Foundation
   Role: PI
   Total Amount Awarded: USD 640,000.00
   Investigator Credit: 25%
   Grant Number: 10002476
   Funding Dates: 7/1/2024–6/30/2028

4. Promoting Economic Resilience and Sustainability of the Eastern U.S. Forests (PERSEUS)
   Sponsoring Organization: USDA
   Role: Co-PI
   Total Award Amount: $10,000,000.00
   Date: December 15, 2022 - December 14, 2026

5. Hands-on and Portable Cybersecurity Training (Smart Manufacturing)
   Sponsoring Organization: Wistron Corporation
   Role: PI
   Total Award Amount: $124,000.00
   Date: December 14, 2022 - December 14, 2025

6. Wistron Graduate Research Assistantship for Smart Manufacturing Platform Research Project Funding Agreement
   Sponsoring Organization: Wistron Corporation
   Role: Co-PI
   Total Award Amount: $31,705.00
   Date: December 14, 2022 - December 14, 2025

7. Hands-on and Portable Cybersecurity Training (Open Edge PLatform)
   Sponsoring Organization: Wistron Corporation
   Role: PI
   Total Award Amount: $124,000.00
   Date: October 15, 2022 - October 15, 2025

8. HRSA Building Bridges to Better Health: Phase 1 and 2
   Sponsoring Organization: HEALTH RESOURCES & SERVICES ADMIN
   Role: Co-PI
   Total Award Amount: $31,111.11
   Date: October 18, 2022 - December 31, 2099

9. EAGER: SaTC-EDU: Cybersecurity Education in The Age of Artificial Intelligence: A Novel Proactive and Collaborative Learning Paradigm
   Sponsoring Organization: NATIONAL SCIENCE FOUNDATION
   Role: Co-PI
   Total Award Amount: $299,934.00
   Date: May 1, 2021 - April 30, 2024

10. Biomedical informatics approaches and its implementation in cancer research
    Sponsoring Organization: INDIANA UNIVERSITY
    Role: PI
    Total Award Amount: $50,635.00
    Date: August 15, 2022 - August 14, 2023

11. Data Coordinating Center for the Alcoholic Hepatitis Research Network
    Sponsoring Organization: INDIANA UNIVERSITY
    Role: PI
    Total Award Amount: $53,966.00
    Date: July 1, 2022 - June 30, 2023

12. Graph AI precision medicine in chronic diseases using longitudinal real-world evidence data
    Sponsoring Organization: INDIANA UNIVERSITY
    Role: PI

Total Award Amount: $8,355.00 (supplemental)
Date: August 16, 2021 - June 30, 2022

13. Graph AI precision medicine in chronic diseases using longitudinal real-world evidence data
Sponsoring Organization: INDIANA UNIVERSITY
Role: PI
Total Award Amount: $37,803.00
Date: August 16, 2021 - June 30, 2022

14. FileTSAR+ An Elastic Network Forensic Toolkit for Law Enforcement
Sponsoring Organization: NATIONAL INSTITUTE OF JUSTICE
Role: Co-PI
Total Award Amount: $400,973.00
Date: January 1, 2021 - December 31, 2022.

15. Methods of Identifying Neurological Delirium (MIND)
Sponsoring Organization: East Carolina University
Role: PI
Total Award Amount: $4,767.00
Date: February 1, 2021 - January 31, 2022

16. CERIAS Ukrainian/US Cybersecurity Faculty and Curriculum Development Program
Sponsoring Organization: CRDF Global
Role: Co-PI
Total Award Amount: $130,898.30
Date: July 13, 2021 - January 15, 2022

17. CERIAS Ukrainian Critical Infrastructure Protection Events 2021
Sponsoring Organization: CRDF Global
Role: Co-PI
Total Award Amount: $70,766.40
Date: June 21, 2021 - September 30, 2021

18. Purdue Engineering Online and Socratic Arts
Sponsoring Organization: Socratic Arts Inc.
Role: PI
Total Award: $8,000.00
Date: Feb 19, 2020 - Feb 18, 2021.

15. INTEL
Sponsoring Organization: INTEL Corporation
Role: PI
Total Award: $25,000.00
Date: July 1, 2015 - December 31, 2075.

16. Collaborative Research: CHEESE: Cyber Human Ecosystem of Engaged Security Education
Sponsoring Organization: NATIONAL SCIENCE FOUNDATION

Role: PI
Total Award: $349,936.00

17. CICI: RDP: Supporting Controlled Unclassified Information with a Campus Awareness and Risk Management Framework
Sponsoring Organization: NATIONAL SCIENCE FOUNDATION
Role: PI
Total Award: $598,373.00
Date: September 1, 2018 - August 31, 2020.

18. File Toolkit for Selective Analysis and Reconstruction (File TSAR) for Large Scale Computer Networks
Sponsoring Organization: National Institute of Justice
Role: Co-PI
Total Award: $487,440.00
Date: January 1, 2017 - December 31, 2018.

19. SaTC-EDU: EAGER Enhancing Cybersecurity Education Through a Representational Fluency Model
Sponsoring Organization: National Science Foundation
Role: PI
Total Award: $299,376.00
Date: July 15, 2015 - December 31, 2018.

20. IEEE Try-CybSi Project
Sponsoring Organization: Institute of Electrical Electronics Engineers
Role: PI
Total Award: $201,427.00
Date: September 28, 2015 - May 31, 2016.

F. 6 Internal grants and contracts awarded in support of Discovery

1. Intelligent Virtual Reality: Partnering VR with AI
Sponsoring Organization: Polytechnic Institute
Role: Co-PI
Total Award: $8,000.00
Date: November 8, 2018 - June 30, 2019.

2. Disaster and Accident Debris Data Compilation and Management for Transportation
Sponsoring Organization: Polytechnic Institute
Role: PI
Total Award: $40,000.00
Date: August 2018 - June 2019.

3. Building a decentralized network white list with Blockchain
Sponsoring Organization: Polytechnic Institute
Role: PI

Total Award: $2,200.00
Date: June 2018 - August 2018.

4. Visualizing and Explaining Deep Learning for Suburban Neighborhood Valuation
   Sponsoring Organization: Polytechnic Institute
   Role: Co-PI
   Total Award: $7,904.42
   Date: April 17, 2018 - June 30, 2018.

5. Polytechnic RDE Travel Grant
   Sponsoring Organization: Polytechnic
   Role: PI
   Total Award: $3,000.00
   Date: March 2018 - June 2018.

Donations received in support of Discovery

1. AIFI unrestricted gift to Yang’s Lab
   Sponsoring Organization: AIFI.com
   Role: PI
   Total Award: $20,000.00
   Date: Jan, 2021 – Dec 2099

2. Microsoft Azure Research Award CRM:0518935
   Sponsoring Organization: Microsoft Research
   Role: PI
   Total Award: $5,000.00
   Date: May 25, 2017 - May 24, 2018.
   Notes/Description: *$5000 Azure credits for research needs.*

ENGAGEMENT ACTIVITIES

Consulting arrangements

1. Consulting Type: For Profit Organization
   Client: Maryland Technology Development Corporation
   Duration: 2018
   Provided expert opinion on a smartphone innovation proposal

2. Consulting Type: Academic
   Client: Dark Enterprise
   Duration: May 2018 - August 2018
   Reviewed three NSA cybersecurity courses

3. Consulting Type: Non-Governmental Organization (NGO)

Client: Science and Technology Museum of China
Duration: May 2018 - July 2018
Reviewed more than 400 work for an international science fair competition.

4. Consulting Type: Academic
Client: Ball State University
Duration: May 2010 - December 2010
Provide Six Sigma Training to MindPro and Building Better Community (BBC) clients

SERVICE ACTIVITIES

Committee assignments in the department, college, and/or university

Department

2021 – 2023	Chair, CIT Faculty Affair Committee
2021 – 2022	Chair, CIT Cybersecurity Faculty Search Committee
2020 – 2021	Chair, CIT Cybersecurity Faculty Search Committee
2017 – 2018	Chair, CIT Vote Committee
2017 – 2018	Chair, CIT NET Faculty Search
2017 – 2018	Chair, CIT NET curriculum subcommittee
2012 – Present	Member, CIT NET curriculum subcommittee
2014 – 2016	Member, CIT graduate education committee
2015 – Present	Member, CIT cybersecurity curriculum subcommittee
2015 – Present	Member, CIT diversity committee
2016 – Present	Member, CIT scholarship committee

College

2024 – 2025	Chair, SoET School Head Search Committee
2020 – 2023	Senator, Purdue Polytechnic
2021 – 2022	Senior Faculty Fellow, Purdue Polytechnic RIA,
2018 – 2021	Faculty Champion, Holistic Safety and Security (HSS) Research Impact Area (RIA)
2019 – 2023	Sectary, Polytechnic Faculty Grievance Committee
2019 – 2023	Member, Polytechnic Election Committee
2015 – 2016	Member, Polytechnic Transformation Team 4
2015 – 2016	Member, Polytechnic Mentorship Committee

University

2021 – Present	Member, Research Leadership Board, CERIAS, Purdue
2019 – 2022	Member, CERIAS Interdisciplinary Graduate Program Committee
2020 – 2023	Member, Library Committee of Purdue University