B.   GENERAL INFORMATION

B. 1   Name

Baijian Yang

B. 2   Degrees

Ph D, Computer Science, Michigan State University, 2002.

MS, Automation, Tsinghua University, 1998.

BS, Automation, Tsinghua University, 1995.

B. 3   Positions at Purdue

2012 - Present   Associate Professor, Purdue University.

B. 4   Positions at other institutions or organizations

August 2011 - July 2012   Associate Professor, Ball State University.

August 2003 - July 2011   Assistant Professor, Ball State University.

B. 5   Licenses, Registrations, Certifications

2010 – Present   Six Sigma Black Belt

2007 – Present   Certified Information System Security Professionals (CISSP)
                      International Info System Security Certification Consortium Inc

1998 – 2015   Microsoft Certified System Engineer (MCSE), Microsoft

B. 6   Honors and awards

1. Outstanding Faculty Award in Discovery, Department of Computer and Information
    Technology
    February 2020
    Purpose: Scholarship/Research
    Scope: Department

2. University Faculty Scholars, Purdue University
    May 2019
    Purpose: Scholarship/Research
    Scope: University

3. Exemplary contributions and service, The Association of Technology, Management, and Applied Engineering
   November 12, 2016
   Purpose: Service, Professional
   Scope: National
   Serving as a Board of Director for ATMAE

4. Exemplary contributions and service, The Association of Technology, Management, and Applied Engineering
   November 16, 2012
   Purpose: Service, Professional
   Scope: National
   Serving as President of EECT division, ATMAE

B. 7   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

B. 8   Professional development activities within the last five years

2019 – Present	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 – Present	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

D. PUBLICATIONS

Student co-authors on publications are designated with a superscript [U] for undergraduate and [G] for graduate. The author that is the subject of this report is in **bold**.

D. 1   Optional summary paragraph on the nature of the publications

D. 2   Full articles in refereed journals

1. Zhang, T., & **Yang, B.** (in press). Online multiple learning with working sufficient statistics for generalized linear models in big data. *Statistics and Its Interface*.

2. 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

3. Zhang, T., & **Yang, B.** (2021). Accounting for factor variables in big data regression. *Statistica Sinica*. https://doi.org/10.5705/ss.202018.0309

4. 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

5. 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

6. 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

7. 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

8. 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

9. 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

10. 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

11. 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

12. Zhang, T., & **Yang, B.** (2017). Box-Cox transformation in big data. *Technometrics, 59*(2), 189-201. https://doi.org/10.1080/00401706.2016.1156025

13. 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

14. 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

15. 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/

16. 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

17. 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

18. 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

19. 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

20. **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

21. 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/

22. **Yang, B.** (2007). Project teaches students to diagnose an ailing Windows OS, *Techdirections*, *67*(4), 23-26. https://eric.ed.gov/?id=EJ786242

23. **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

24. **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

D. 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.

D. 4   Conference or symposium proceedings

Peer Reviewed/Refereed

1. Liu, D., Cui, Y., Yan, Li, Mousas, C., **Yang, B**.& Chen, Y. (2021), *DenserNet: Weakly Supervised Visual Localization Using Multi-scale Feature Aggregation*, 2021 AAAI

2. Tang, W., Liu, X., Huang, H., Tang, Z., Zhang, T. & **Yang, B**. (2020). *High-Order Orthogonal Decomposition for Tensors*. 2020 Smartcom.

3. 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, IEEE.

4. Liu, X., Huang, H., Tang, W., Zhang, T., & **Yang, B**. (2020). *Low-Rank Sparse Tensor Approximations for Large High-Resolution Videos*. 2020 IEEE ICMLA.

5. 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.

6. 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, IEEE.

7. 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

8. 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.

9. 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

10. 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

11. 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.

12. 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

13. 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

14. 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

15. 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

16. **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

17. 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

18. 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.

19. 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

20. 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

21. 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/

22. 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

23. 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

24. 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

25. 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

26. 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

27. 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

28. 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

29. Siddharth, G.[G], Kodam, S.[G], & **Yang, B.** (2017, March). *Multichannel Key Exchange.* Proceedings of the Second International Conference on Internet of things and Cloud Computing (ICC). Cambridge, UK. ACM. http://doi.org/10.1145/3018896.3025145.

30. Visan, B.[G], Lee, J.[G], **Yang, B.**, Smith, A. H., & Matson, E. T. (2017, January). *Vulnerabilities in hub architecture IoT devices.* 14th IEEE Consumer Communications & Networking Conference (CCNC) (pp.83-88). Las Vegas, NV, USA. IEEE. https://doi.org/10.1109/CCNC.2017.7983086

31. Nanda, S[G]., Zafari, F.[G], DeCusatis, C., Wedaa, E., & **Yang, B.** (2016, November). *Predicting network attack patterns in SDN using machine learning approach.* IEEE Conference on Network Function Virtualization and Software Defined Networks (NFV-SDN) (pp. 167--172). Palo Alto, CA, USA. IEEE. https://doi.org/10.1109/NFV-SDN.2016.7919493

32. **Yang, B.**, & Zhang, T. (2016, November). *A Scalable Feature Selection and Model Updating Approach for Big Data Machine Learning*. IEEE International Conference on Smart Cloud (SmartCloud) (pp. 146-151). New York City, NY, USA. IEEE. https://doi.org/10.1109/SmartCloud.2016.32

33. Zhang, T., & **Yang, B.** (2016, November). *Big Data Dimension Reduction using PCA.* IEEE International Conference on Smart Cloud (SmartCloud) (pp. 152-157). New York City, NY, USA. IEEE. https://doi.org/10.1109/SmartCloud.2016.33.

34. Serrano Anazco, M.I [G], Magana, A. J., & **Yang, B.** (2016, June). *Employing model-eliciting activities in cybersecurity education.* 123th Annual Conference and Exposition of American Society for Engineering Education (ASEE) (pp. 9). New Orleans, LA, USA. ASEE. https://www.asee.org/public/conferences/64/papers/15859/download

35. Ravandi, B.[G], Papapanagiotou, I., & **Yang, B.** (2016, June) *A Black-Box Self-Learning Scheduler for Cloud Block Storage Systems*. IEEE 9th International Conferences on Cloud Computing (CLOUD) (pp.820-825). San Francisco, CA, USA. IEEE. https://doi.org/10.1109/CLOUD.2016.0115

36. Lerums, J.[G], **Yang, B.**, & Dietz, J. E. (2016, April). *Checking, Increasing, and Confirming a Smart Home's IoT Security*. 14th Annual Conference of Information and Telecommunications Education and Research Association (ITERA). Louisville, KY, USA. ITERA.

37. Wang, T.[G], **Yang, B.**, & Hansen, R. A. (2016, April). *Re-recognition of Http Strict Transport Security (HSTS)*. 14th Annual Conference of Information and Telecommunications Education and Research Association (ITERA). Louisville, KY, USA. ITERA.

38. Flory, T.[G], **Yang, B.**, & Hansen, R. (2016). *Tors Effect on User Experiences and Computer Performance While Browsing*. 14th Annual Conference of Information and Telecommunications Education and Research Association (ITERA). Louisville, KY, USA. ITERA.

39. **Yang, B.**, & Zhang, T. (2016, April). *A Scalable Meta-Model for Big Data Security Analyses*. IEEE 2nd International Conference on Big Data Security on Cloud (BigDataSecurity) (pp.55-60). New York, NY, USA. IEEE. https://doi.org/10.1109/BigDataSecurity-HPSC-IDS.2016.71

40. Seaton, B.[G], & **Yang, B.** (2015, November). *Developing a BYOD Deployment Strategy in an Enterprise Environment*. Annual Conference of the Association of Technology, Management and Applied Engineering (ATMAE) (pp. 244-259). Pittsburgh, PA, USA. ATMAE. https://www.atmae.org/resource/resmgr/Event_Materials/2015_ATMAE_Proceedings.pdf

41. Brooks, M.[G], & **Yang, B.** (2015, October). *A Man-in-the-Middle attack against OpenDayLight SDN controller.* Proceedings of the 4th Annual Conference on Research in Information Technology (RIIT) (pp. 45-49). Chicago, IL: ACM. https://doi.org/10.1145/2808062.2808073

42. Hands, N. M.[G], **Yang, B.**, & Hansen, R. A. (2015, October). *A Study on Botnets Utilizing DNS.* Proceedings of the 4th Annual Conference on Research in Information Technology (RIIT) (pp. 23-28). Chicago, IL, USA. ACM. https://doi.org/10.1145/2808062.2808070.

43. Zhang, Y., **Yang, B.**, Rogers, M. K., & Hansen, R. A. (2015, October). *Forensically Sound Retrieval and Recovery of Images from GPU Memory.* International Conference on Digital Forensics and Cyber Crime (ICDF2C) (pp. 53-66). Seoul, South Korea. Springer. http://doi.org/10.1007/978-3-319-25512-5_5.

44. Anksari, F., & **Yang, B.** (2015, June). *A Pilot Study on VM Template Authentication,* Proceedings of annual conference of American Society for Engineering Education (ASEE). Seattle, WA, USA. ASEE. https://doi.org/10.18260/p.23423.

45. Wang, W.[G], **Yang, B.**, & Chen, Y. V. (2015, May). *A Visual Analytics based approach on detecting Server Redirections and Data Exfiltration.* IEEE International Conference on Intelligence and Security Informatics (ISI) (pp. 13-18). Baltimore, MD, USA. IEEE. https://doi.org/10.1109/ISI.2015.7165932

46. Flory, C.[G], & **Yang, B.** (2015, April). *SIM Cards: A Threat to Network Security?* 13rd Annual Conference of Information and Telecommunications Education and Research Association (ITERA). Arlington, VA, USA. ITERA.

47. Wang, W., Chen, Y. V., & **Yang, B.** (2014, October). *Detecting subtle port scans through characteristics based on interactive visualization.* Proceedings of the 3rd annual conference on Research in information technology (RIIT) (pp.33-38). Atlanta, GA. USA. ACM. https://doi.org/10.1145/2656434.2656441

48. Misata, K.[G], Hansen, R., & **Yang, B.** (2014, October). *A taxonomy of privacy-protecting tools to browse the world wide web.* Proceedings of the 3rd annual conference on Research in information technology (RIIT) (pp. 63-68). Atlanta, GA. USA. ACM. https://doi.org/10.1145/2656434.2656446

49. Wang, W.J., Promann, M., **Yang, B.**, & Chen, Y. V. (2013, October). *A real-time Network hosts visualization system.* IEEE International Conference on Visual Analytics Sciences and Technology (VAST). Atlanta, GA, USA. IEEE. http://ieeevis.org/year/2013/info/overview-amp-topics/vast-challenge-presentations

50. Kambic, J.[G], Smith, A. H., & **Yang, B.** (2013, April). *An Introduction to SCADA/ICS Systems and the Security Surrounding Them.* 12th Annual Conference of Information and Telecommunications Education and Research Association (ITERA). Cincinnati, OH, USA. ITERA.

51. **Yang, B.**, & Hua, D. (2011, November). *Storing and Maintaining Virtual Machines in Computer Technology Labs*, Annual convention of Association of Technology, Management and Applied Engineering (ATMAE) (pp.92-101). Cleveland, Ohio, USA. ATMAE. https://www.atmae.org/resource/resmgr/event_materials/atmae2011confproc.pdf

52. Yang, Z., Xu, B., Ye, S., & **Yang, B.** (2009, December). *tk-coverage: Time-based K-Coverage for energy efficient monitoring.* 15th International Conference on Parallel and Distributed Systems (ICPADS) (pp. 495--502). Shenzhen, China. IEEE. https://doi.org/10.1109/ICPADS.2009.111

53. Xu, L., Chen, G., Yin, X., Yang, P., & **Yang, B.** (2009, April). *LORP: A Load-balancing Based Optimal Routing Protocol for Sensor Networks with Bottlenecks.* IEEE Conference on Wireless Communications & Networking Conference (WCNC) Budapest, Hungary. IEEE. https://10.1109/WCNC.2009.4917789

54. Dai, J., **Yang, B.**, Wong, C. (2007, June). *Design a Building Intelligence Management System with SOA and RFID Technology*. Proceedings of the 2007 International Conference on Software Engineering Research & Practice (SERP) (pp.236-241). Las Vegas, NV, USA. CSREA press.

55. **Yang, B.**, & Hua, D. (2006, November). *OS and Application Management in a Dynamic Classroom Environment.* Annual Convention of National Association of Industrial Technology (NAIT). Cleveland, OH, USA. NAIT. https://www.atmae.org/resource/resmgr/event_materials/nait2006convpapers.pdf

56. **Yang, B.**, & Gao, T. (2006, October). *Building a secure and reliable network via multi-homed vpn*. 2006 International Journal of Modern Engineering (IJME)-Intertech International Conference. New Jersey, NY. USA. http://ijme.us/cd_06/PDF/IT%20303-088.pdf

57. Cheng, D., Han, J., Li, M., & **Yang, B.** (2006, June). *Achieving Anonymous Communication in Ad Hoc Netowrks*. The Proceedings of International Conference on Communications, Circuits, and Systems (pp.1547-1551). Guilin, China. IEEE. https://doi.org/10.1109/ICCCAS.2006.284966

58. Li, M., & **Yang, B.** (2006, June). *A Survey on Topology Issues in Wireless Sensor Network.* Proceedings of the 2006 International Conference on Wireless Networks (ICWC) (pp.503-509). Las Vegas, NV, USA. CSREA Press. http://ww1.ucmss.com/books/LFS/CSREA2006/ICW7307.pdf

59. Liu, Y., Xiao, L., Ni, L. M., & **Yang, B.** (2004, October). *Efficient Gnutella-like P2P overlay construction.* IFIP International Conference on Network and Parallel Computing (NPC) (pp.146--153). Wuhan, China. Springer. https:/doi.org/10.1007/978-3-540-30141-7_23

60. **Yang, B.**, Esfahanian, A.-H., Ni, L. M., & Mohapatra, P. (2003, June). *A Tree Building Technique for Overlay Multicasting in DiffServ Domains.* International Conference on Internet Computing (pp. 893--899). Las Vegas, NV, USA. CSREA Press. https://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.14.3737

61. **Yang, B.**, & Mohapatra, P. (2002, August). *Edge Router Multicasting with MPLS Traffic Engineering.* Proceedings of 10th IEEE International Conference on Networks (ICON) (pp.43-48). Singapore. IEEE. https://doi.org/10.1109/ICON.2002.1033287

62. **Yang, B.**, & Mohapatra, P. (2002, December). *Multicasting in Differentiated Service Domain.* Proceedings of Global Telecommunications Conference (Globecom) (pp.2074-2078). Taipei, Taiwan. IEEE. https://doi.org/10.1109/GLOCOM.2002.1188996

63. Cao, H., **Yang, B.**, Luo, Y., Yang, S., & Peng, Y. (1997, November). *A Practical Approach for job-shop scheduling problems using genetic algorithm.* Proceedings of IEEE International Conference on Intelligent Processing Systems (pp. 543-547). Beijing, China. IEEE. https://doi.org/10.1109/ICIPS.1997.672842

D. 5   Conference summaries or abstracts

1. Wu, W.[G], Xu, Z.[G], Chen, Y. V., & **Yang, B.** (2018, October). *Representational Fluency in Cryptography: An Eye-Tracking Study.* Proceedings of the 19th Annual SIG Conference on Information Technology Education (SIGITE) (pp. 143). Fort Lauderdale, FL, USA. ACM. [Abstract] https://doi.org/10.1145/3241815.3241840

2. Hilt, M.[U], Shao, D.[G], & **Yang, B.** (2018, October). *RFID Security, Verification, and Blockchain: Vulnerabilities within the Supply Chain for Food Security.* Proceedings of the 19th Annual SIG Conference on Information Technology Education (SIGITE) (pp. p145). Fort Lauderdale, FL, USA. ACM. [Abstract] https://doi.org/10.1145/3241815.3241838

3. **Yang, B.** (2014, November). *Developing a Software Defined Network Curriculum for Computer Technology and Information Technology Students.* Proceedings of annual convention of Association of Technology, Management and Applied Engineering (ATMAE) (pp. 57). St. Louis, MO, USA. ATMAE. [Abstract] https://www.atmae.org/resource/resmgr/Event_Materials/2014_Conf._Proceedings.pdf

4. **Yang, B.** (2014, November). *Visual Analytics in Information Security.* Proceedings of annual convention of Association of Technology, Management and Applied Engineering (ATMAE) (pp. 49). St. Louis, MO, USA. ATMAE. [Abstract] https://www.atmae.org/resource/resmgr/Event_Materials/2014_Conf._Proceedings.pdf

5. **Yang, B.** (2012, November). *Challenges in Health Information Technology for Small Physician Practices.* Proceedings of annual convention of Association of Technology, Management and Applied Engineering (ATMAE) (pp. 92). Nashville, TN, USA.

ATMAE. [Abstract]
https://www.atmae.org/resource/resmgr/event_materials/atmae2012confproc.pdf

D. 6   Creative Endeavors

D. 7   Editor of Refereed Journal

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

D. 8   Books

1. Zhou, A., Zhu, R., Zheng, P., & **Yang, B.** (2011). *Windows Phone 7 Programming for Android and iOS Developers*. Indianapolis, IN: WROX.

6. **Yang, B.** Zheng, P., & Ni, L. M. (2007). *Professional Microsoft Smartphone Programming*. Indianapolis, IN: Wiley.

D. 9   Chapter in books

D.10   Book Reviews

2014   Reviewed Comer, D. (2014). *Computer Networks and Internets (6th Edition)*, ISBN-13: 978-0133587937. Pearson,

D. 11   Government, university, industrial reports and standards

D. 12   Other submitted publications and editorial contributions

1. Tang, Z., **Yang, B**. (2019, April). *Controlled Unclassified Information Framework*. Poster presented at the meeting of the Purdue University.

2. Liu, X. [G], Kalyanam, R., Miller, C., **Yang, B**. (2019, April). *Cyber Human Ecosystem of Engaged Secuirty Education (CHEESE)*. Poster presented at the meeting of the Purdue University.

3. Liu, X. [G], **Yang, B**. (2019, March). *Bird Sound Classification using Deep Learning*. Poster presented at the meeting of the Purdue Polytechnic Institute.

4. Gong, T.[G], Sun, W., & **Yang, B.** (2019, March). *Towards a More Stable Bitcoin Transaction Fee Design*. Purdue University.

E. TEACHING & LEARNING ACTIVITIES

E. 2   Curricular innovations such as new programs, minors, courses, etc.

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.
It is also offered within Purdue as a one-credit elective.

2.   CNIT 344 Networking Engineering Fundamentals, Fall 2017

3.   CNIT 370, introduction to cryptography, Fall 2017

4.   CNIT 623 Applied Machine Learning, Fall 2017.

E. 3   Courses taught at Purdue

(a) Courses taught in the last three years

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.

Fall 2019
1. CNIT 24000: Data Comm & Networking. 1 section. 38 student(s) enrolled.
2. CNIT 62300: Big Data Machine Learning. 1 section. 22 student(s) enrolled.
3. CNIT 69800: Research MS Thesis. 1 section. 7 student(s) enrolled.
4. TECH 69900: Research PhD Thesis. 1 section. 3 student(s) enrolled.

Summer 2019
1. CNIT 69800: Research MS Thesis. 1 section. 2 student(s) enrolled.
2. TECH 69900: Research PhD Thesis. 1 section. 2 student(s) enrolled.

Spring 2019
1. CNIT 34400: Network Engr Fundamentals. 1 section. 54 student(s) enrolled.
2. CNIT 49900: Data Analysis with Spark. 1 section. 1 student(s) enrolled.
3. CNIT 55500: Adv Network Security. 1 section. 16 student(s) enrolled.
4. CNIT 59000: Machine Learning with Python. 2 sections. 6 student(s) enrolled.
5. CNIT 69800: Research MS Thesis. 1 section. 4 student(s) enrolled.
6. TECH 69900: Research PhD Thesis. 1 section. 1 student(s) enrolled.

Fall 2018
1. CNIT 34400: Network Engr Fundamentals. 1 section. 27 student(s) enrolled.
2. CNIT 37000: Introduction to Cryptography. 1 section. 81 student(s) enrolled.

3. CNIT 49900: Data Analysis of Spark. 1 section. 1 student(s) enrolled.
4. CNIT 59000: Big Data Machine Learning. 1 section. 1 student(s) enrolled.
5. CNIT 69800: Research MS Thesis. 1 section. 4 student(s) enrolled.
6. IE 59000: Fdtns Of Secure Development. 1 section. 1 student(s) enrolled.

Summer 2018
1. CNIT 49900: Topics in Blockchain. 1 section. 1 student(s) enrolled.
2. CNIT 59000: Software Designed Networking. 1 section. 2 student(s) enrolled.
3. CNIT 69800: Research MS Thesis. 1 section. 1 student(s) enrolled.
4. TECH 69900: Research PhD Thesis. 1 section. 2 student(s) enrolled.

Spring 2018
1. CNIT 24000: Data Comm & Networking. 1 section. 32 student(s) enrolled.
2. CNIT 39900: Applied Cryptography. 2 sections. 3 student(s) enrolled.
3. CNIT 55500: Adv Network Security. 1 section. 19 student(s) enrolled.
4. CNIT 59000: Blockchain Security. 1 section. 3 student(s) enrolled.
5. CNIT 69800: Research MS Thesis. 1 section. 4 student(s) enrolled.
6. TECH 69900: Research PhD Thesis. 1 section. 2 student(s) enrolled.

E. 5   Undergraduate special projects directed

E. 6   Short courses, workshops, guest lectures and seminars delivered

1. Zhang, T., Yang, B. (2018, November). *A Few Statistical Considerations in Big Data Research*. Oral Presentation. IUPUI Research Seminar, Indianapolis, IN, United States

2. Yang, B. (2016, April). *IEEE Try-CybSI: A collaborative and Interactive Platform for Cybersecurity Learning,* Purdue CERIAS Techtalk, West Lafayette, IN, United States.

3. Yang, B (2015, September). *Introduction to Cryptography*, to Peru visiting students, West Lafayette, IN, United States.

4. Yang, B. (2015, May). *Representational Fluency (RF) and Cybersecurity Education..* International Security Education (SecEd) Workshop, Atlanta, GA, United States

5. Yang, B (2014, October). *Software Defined Network*, to Peru visiting students, West Lafayette, IN, United States.

6. Yang, B (2013, October). *Introduction to Cryptography*, to Peru visiting students, West Lafayette, IN, United States.

E. 7   Courses significantly modified at Purdue

    (a) CNIT 55500, Advanced Network Security

    (b) CNIT 24000, Data Communication and Networking

    (c) CNIT 24200, Server Administration

E. 8   Grants and contracts related to learning (listing for all grants and gifts should be consistent with the form found in Appendix B of the document handbook)

E. 9   Other significant contributions on teaching and learning

F. DISCOVERY ACTIVITIES

F. 3   PhD and MS thesis and directed project committees, chair or member

Dissertation Committee Chair

1. Yazeed AlBabtain, Ph.D.
    Completed: July 2018
    Dissertation: Digital Forensics and Security Vulnerabilities in GPU

2. Diego Mendez
    Aug 2014 – Present
    Note: Diego is a part-time Ph.D. student. He is working full time.

3. Yanqun Kuang
    Aug 2017 – Present
    Note: Yanqun is a part-time Ph.D. student. He is working full time.

4. Xiang Liu
    August 2017 – Present

5. Fengyi Liu
    Dec 2017 – Present

6. Weitao Tang
    August 2018 – Present

7. Ziyang Tang
    August 2019 – Present

8. Nanxin Jin
    August 2020 – Present

Dissertation Committee Co-Chair

9. Hanlin Chen
    August 2019 – Present

Dissertation Committee Member

Dr. Yang is serving or has served as a member on 14 PhD dissertation committees:

Graduated:

1. Ibrahim Waziri,   2016

2. Filipo Sharevski,   2016

3. Zhihao Yao,   2017

4. Corey Holzer,   2017

5. Saura Nanda,   2018

6. Rylan Chong,   2018

7. James Lerums,   2019

8. Joseph Beckman,   2019

In Progress:

9. Kelly Cole

10. Manoj Penmetcha

11. Wonse Jo

12. Junhan Zhao

13. Usman Raza

14. Dongfang Liu

15. Robert Bott

Master's Thesis/Directed Project Committee Chair

1. Zhaorui Liu
    August 2020 – Present
    Thesis: To be determined

2. Daeun Yim
    Graduated in 2020
    Thesis: Exploratory Search using Vector Model and Linked Data

3. Chenxi Xiong
    Graduated in 2020
    Thesis: Hybrid Feature Selection in Network Intrusion Detection

4. Nanxin Jin
   Graduated in 2020
   Thesis: ASD Prediction from Structural MRI with Machine Learning

5. Guangyu Shen
   Graduated in 2020
   Thesis: Unrestricted Controllable Attacks for Segmentation Neural Networks

6. Siqi Gu
   Graduated in 2020
   Thesis: Scalable Dynamic Big Data Geovisualization with Spatial Data Structure

7. Li Shen
   Graduated in 2020
   Thesis: Detect Dense Productions on Grocery Shelves with Deep Learning Techniques

8. Gagandeep Khanuja
   Graduated in 2019
   Thesis: A Study of Real Time Search in Flood Scenes from UAV videos Using Deep Learning Techniques

9. Enchun Shao
   Graduated in 2019
   Thesis: Encoding IP Address as a Feature for Network Intrusion Detection

10. Qingdong Cheng
    Graduated in 2019
    Thesis: Using a Scalable Feature Selection Approach for Big Data Regression

11. Kristina Lister-Gruesbeck
    Graduated in 2018
    Thesis: Feasibility Study Using Blockchain to Implement Proof of Location

12. Wan-Chih Chiang
    Graduated in 2018
    Thesis: The Approach to Ridge Regression for Big Data: An Examination

13. Mengyao Wang
    Graduated in 2018
    Thesis: Performance Enhancement of Logistic Regression for Big Data on Spark

14. Zhenzhi Xu
    Graduated in 2018
    Thesis: Improving IRWLS Algorithm for GLM with Intel Xeon Family

15. Huayi Fang
Graduated in 2017
Thesis: Improving Big Data Box-Cox Transformation on Spark

16. Siddharth Gupta
Graduated in 2017
Thesis: Improving Authentication System Using Dual-Simplex Communication

17. Tian Wang
Graduated in 2017
Thesis: Hadoop Based Algorithm for Computing Linear Regression

18. Nicole Hands
Graduated in 2016
Thesis: Detection of communication over DNSSEC covert channels

19. Weijie Wang
Graduated in 2015
Thesis: A Characteristic-based Visual Analytics Approach to Detect Subtle Attacks from NetFlow Records

20. Yulong Zhang
Graduated in 2015
Thesis: Recovering Image Data from a GPU using a Forensic Sound Method

21. Di Xie
Graduated in 2014
Thesis: User-differentiated Hierarchical Key Management for the Bring-Your-Own-Device Environments

Master's Thesis/Directed Project Committee Co-Chair

22. Daniel Shao
Graduated in 2020
Thesis: Emotionally Unstable Personality Traits as Predictors for Traditional and Digital Forms of Non-Suicidal Self-Injury

23. Huyunting Huang
Graduated in 2019
Thesis: Regressive Principal Component Analysis

24. Ziyang Tang

Graduated in 2019
Thesis: CFNET: A Synthesis for Video Colorization

25. Faheem Faheem
    Graduated in 2016
    Thesis: Ibeacon Based Proximity and Indoor Localization System

Master's Thesis/Directed Project Committee Member

Dr. Yang is serving or has served as a member on 39 MS thesis/directed project

Graduated:
1. Geetanjali Bihani,   2020

2. Zhongwei Chu,   2020

3. Arjun Shakdher,   2019

4. Qiaofei Ye,   2019

5. Siddharth Chowdhury , 2018

6. Shouyu Wang,   2018

7. Anna Larson,   2018

8. Arabinda Samantaray, 2018

9. Bogdan Visan,   2017

10. Chinmay Talekar,   2017

11. Hemanth Devarapalli, 2017

12. Michael Graham,   2017

13. Neveah Abraham,   2017

14. Pei-Ting Lee,   2017

15. Song-hui Ryu,   2017

16. Xiaoyi Huang,   2017

17. Peng Li,   2016

18. Siddharth Gupta (CS),2016

19. Meetalk Vaidya,   2016

20. Upasita Jan,   2016

21. Faisal Alaskandrani,   2016

22. Gino Dominic Savio, 2015

23. James Lerums,   2015

24. Kelu Diao,   2015

25. Prajwal Hegde,   2015

26. William Sanchez Cossio,   2015

27. Yuankun Song,   2014

28. Chandrika Silla,   2014

29. Christopher Flory,   2014

30. Susan Fowler,   2013

31. Yue Zhang,   2013

In progress:

32. Goeum Cha

33. Priyanka Tiwari

34. Minglu Li

35. Saurabh Devulapalli

36. Jeremy Pan

37. Yifei Hu

38. Neesha Shantaram

39. Xiaoyi Zhou

F. 5   External grants and contracts awarded in support of Discovery

1. Purdue Engineering Online and Socratic Arts
    Sponsoring Organization: Socratic Arts Inc.
    Role: PI
    Total Award: $8,000.00
    Investigator Award Amount: $8,000.00
    Investigator Credit: 1.00
    GOEUS Number: 20089739
    Date: Feb 19, 2020 - Feb 18, 2021.

2. INTEL
    Sponsoring Organization: INTEL Corporation
    Role: PI
    Total Award: $25,000.00
    Investigator Award Amount: $25,000.00
    Investigator Credit: 1.00
    COEUS Number: 15121218
    Date: July 1, 2015 - December 31, 2075.

3. Collaborative Research: CHEESE: Cyber Human Ecosystem of Engaged Security
    Education
    Sponsoring Organization: NATIONAL SCIENCE FOUNDATION
    Role: PI
    Total Award: $349,936.00
    Investigator Award Amount: $262,452.00
    Investigator Credit: 0.75
    COEUS Number: 18067665
    Date: July 1, 2018 - June 30, 2021.

4. 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
    Investigator Award Amount: $299,186.50
    Investigator Credit: 0.50
    COEUS Number: 18122671
    Date: September 1, 2018 - August 31, 2020.

5. 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
    Investigator Award Amount: $97,488.00
    Investigator Credit: 0.20

COEUS Number: 16109801
Date: January 1, 2017 - December 31, 2018.

6. SaTC-EDU: EAGER Enhancing Cybersecurity Education Through a Representational Fluency Model
Sponsoring Organization: National Science Foundation
Role: PI
Total Award: $299,376.00
Investigator Award Amount: $74,844.00
Investigator Credit: 0.25
COEUS Number: 15033873
Date: July 15, 2015 - December 31, 2018.

7. IEEE Try-CybSi Project
Sponsoring Organization: Institute of Electrical Electronics Engineers
Role: PI
Total Award: $201,427.00
Investigator Award Amount: $201,427.00
Investigator Credit: 1.00
COEUS Number: 16023039
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
Investigator Award Amount: $4,000.00
Date: November 8, 2018 - June 30, 2019.
Additional Investigators: Chen, Y. V. (PI)

2. Disaster and Accident Debris Data Compilation and Management for Transportation
Sponsoring Organization: Polytechnic Institute
Role: PI
Total Award: $40,000.00
Investigator Award Amount: $10,000.00
Date: August 2018 - June 2019.
Additional Investigators: Rapp, R. R. (PI), Cole, A. (PI), Chen, Y. V. (PI)

3. Building a decentralized network white list with Blockchain
Sponsoring Organization: Polytechnic Institute
Role: PI
Total Award: $2,200.00
Investigator Award Amount: $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
   Investigator Award Amount: $3,952.51
   Date: April 17, 2018 - June 30, 2018.
   Additional Investigators: Chen, Y. V. (PI) (Purdue University)

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

F. 7   Grants and contracts not funded in support of Discovery

1. OAC Core: SMALL: Statistical Abstraction Framework for Big Data
   Sponsoring Organization: NSF
   Role: Co-PI
   Total Proposal Amount: $499,999.73
   Investigator Proposal Amount: 30%
   Date: June 2020 – May 2023
   COEUS Number: 00087425

2. Adversarial-machine-learning aware adaptive building (AMLAB) controls for cyber-security and optimal operation
   Sponsoring Organization: ENERGY, U.S. DEPARTMENT OF
   Role: Co-PI
   Total Proposal Amount: $1,663,686.00
   Investigator Proposal Amount: $166,368.60
   Investigator Credit: 0.10
   Date: July 2020 – June 2023
   COEUS Number: 20013808

3. Deep Learning Annotation of UAS Aerial Image Wildfire Event Object Detection Via Citable Public Learning Datasets.
   Sponsoring Organization: AmericaView Inc.
   Role: Co-PI
   Total Proposal Amount: $7,500
   Investigator Credit: 0.25
   Date: May 2020 – September 2020
   COEUS Number: 00090096

4. Online Multiple Learning for Data with Scalable Analysis Structures in Massive Computing
   Sponsoring Organization: NATIONAL SCIENCE FOUNDATION

Role: Co-PI
Total Proposal Amount: $398,725.00
Investigator Proposal Amount: $159,490.00
Investigator Credit: 0.40
Date: May 2019 - April 2022.
COEUS Number: 19035457.

5. OAC Core: Small: Working Sufficient Information: A Framework for Resource-efficient Big Data Analysis
Sponsoring Organization: NATIONAL SCIENCE FOUNDATION
Role: Co-PI
Total Proposal Amount: $500,000.00
Investigator Proposal Amount: $250,000.00
Investigator Credit: 0.50
Date: June 2019 - May 2022
COEUS Number: 19057157.

6. Statistical Issues for Big Data
Sponsoring Organization: NATIONAL SCIENCE FOUNDATION
Role: Co-PI
Total Proposal Amount: $458,058.00
Investigator Proposal Amount: $274,834.80
Investigator Credit: 0.60
Date: August 2018 - July 2021.
COEUS Number: 18067674.

7. Distributed Artificial Integllinces for Knowledge-based Network Security (DAIKONS)
Sponsoring Organization: Purdue University
Role: PI
Total Proposal Amount: $53,972.24
Investigator Proposal Amount: $53,972.24
Investigator Credit: 1.00
Date: August 2019 - July 2020.
COEUS Number: 00083178

8. BIGDATA: F: Sparse Event Discovery in Massive Heterogeneous Data
Sponsoring Organization: National Science Foundation
Role: Co-PI
Total Proposal Amount: $814,508.00
Investigator Proposal Amount: $325,803.20
Investigator Credit: 0.40
Date: March 2019 - Feb 2023.
COEUS Number: 17099711.

9. SaTC: CORE: Small: Modeling before Learning: a Framework for Big Data

Security Analytics
Sponsoring Organization: National Science Foundation
Role: PI
Total Proposal Amount: $446,103.26
Investigator Proposal Amount: $239,509.00
Investigator Credit: 0.50
Date: August 2018 - July 2022.
COEUS Number: 17056380.

10. I3big: an innovative intelligent and interactive big data analytic toolkit
Sponsoring Organization: Naval Surface Warfare Center
Role: PI
Total Proposal Amount: $479,018.00
Investigator Credit: 0.50
Date: June 2018 - May 2021.
COEUS Number: 00075067

11. Flexible Logical Partitions and Combinations for Big Data Intelligence
Sponsoring Organization: National Science Foundation
Role: Co-PI
Total Proposal Amount: $320,435.00
Investigator Proposal Amount: $224,304.50
Investigator Credit: 0.70
Date: August 2017 - June 2020.
COEUS Number: 17066996.

12. Support of Cyber Operations Curriculum for the United States Navy
Sponsoring Organization: Department of the Navy
Role: Co-PI
Total Proposal Amount: $433,295.00
Investigator Proposal Amount: $108,323.75
Investigator Credit: 0.25
Date: August 2015 – July 2018
COEUS Number: 13076708.

13. Big Data Analysis Using Family-Based Statistical Approaches and Algorithms
Sponsoring Organization: National Science Foundation
Role: Co-PI
Total Proposal Amount: $734,183.00
Investigator Proposal Amount: $293,673.20
Investigator Credit: 0.40
Date: August 2016 – July 2019
COEUS Number: 16066422.

14. TWC: Small: A Scalable Meta-Model for Per-Flow Traffic Data Security Analyses
Sponsoring Organization: National Science Foundation

Role: PI
Total Proposal Amount: $500,000.00
Investigator Proposal Amount: $250,000.00
Investigator Credit: 0.50
Date: July 2016 – June 2019
COEUS Number: 16055934.

15. Real Time Visual Analytics to Enhance Cyber Security of Large Scale Computer Network
Sponsoring Organization: Purdue University
Role: PI
Total Proposal Amount: $19,938.00
Investigator Proposal Amount: $9,969.00
Investigator Credit: 0.50
Date: July 2016 – June 2017
COEUS Number: 13065594.

16. Software Defined Security Monitoring
Sponsoring Organization: Cisco Systems Inc.
Role: PI
Total Proposal Amount: $95,114.00
Investigator Proposal Amount: $95,114.00
Investigator Credit: 1.00
Date: July 2015 – June 2016
COEUS Number: 15110181.

17. EDU: Develop a Multi-Representational Multi-Layer Teaching Model for Cybersecurity Education
Sponsoring Organization: National Science Foundation
Role: PI
Total Proposal Amount: $299,367.00
Investigator Proposal Amount: $104,778.45
Investigator Credit: 0.35
Date: July 2014 – June 2017
COEUS Number: 14066219.

18. Endace Traffic Collection Box
Sponsoring Organization: Purdue University
Role: Co-PI
Total Proposal Amount: $40,000.00
Investigator Proposal Amount: $6,400.00
Investigator Credit: 0.16
Date: May 2014 – April 2015
COEUS Number: 13033257.

F. 8   Submitted proposals in support of Discovery

1. FileTSAR+ An Elastic Network Forensic Toolkit for Law Enforcement
    Sponsoring Organization: NIJ
    Role: Co-PI
    Total Proposal Amount: $ 400,972.54
    Investigator Proposal Amount: 25% credit
    Date: January 2021 – December 2023
    COEUS Number: 00090593.

2. The Higher Educational Institutions as Catalysts to Great Internet Freedom
    Sponsoring Organization: USAID
    Role: Co-PI
    Total Proposal Amount: $15,500,000.00
    Investigator Proposal Amount: 10% credit
    Date: September 2020 – September 2023
    COEUS Number: 00089601.

3. AI Institute Planning: Human-AI-Interaction: HAI2
    Sponsoring Organization: NSF
    Role: Co-PI
    Total Proposal Amount: $480,078.03
    Investigator Proposal Amount: 17.5%
    Date: August 2020 – July 2022
    COEUS Number: 00088408.

4. Automating monitoring and controls for critical machine components
    Sponsoring Organization: FCA
    Role: PI
    Total Proposal Amount: $201,796.00
    Investigator Proposal Amount: $100,898.00
    Investigator Credit: 0.50
    Date: July 2020 – June 2021
    COEUS Number: 20013929.

5. Applying Artificial Intelligence to Defect Discovery from CT Scans
    Sponsoring Organization: Fiat Chrysler Automobiles
    Role: PI
    Total Proposal Amount: $212,119.00
    Investigator Proposal Amount: $72,120.46
    Investigator Credit: 0.34
    Date: July 2020 – June 2021
    COEUS Number: 20013883.

6. Improving X-Ray defect inspection through AI
    Sponsoring Organization: Fiat Chrysler Automobiles

Role: Co-PI
Total Proposal Amount: $207,399.00
Investigator Proposal Amount: $68,441.67
Investigator Credit: 0.33
Date: July 2020 – June 2021
COEUS Number: 20013909.

F. 9   Donations received in support of Discovery

1. Microsoft Azure Research Award CRM:0518935
    Sponsoring Organization: Microsoft Research
    Role: PI
    Total Award: $5,000.00
    Investigator Award Amount: $5,000.00
    Investigator Credit: 1.0
    Date: May 25, 2017 - May 24, 2018.
    Notes/Description: *$5000 Azure credits for research needs.*

F. 10   Contributions to discovery space development
The Data Driven AI Auto Organization & Optimization (DAO^2) lab's physical location was established in August 2018 and consists of over 450 square feet in the Knoy Hall of Technology, and the lab supports about 12 concurrent contributors (undergraduate and graduate researchers, faculty, Post Docs, and professional staff).

F. 11   Other significant contributions to discovery

F. 12   U.S. and international patents submitted

1. Yang, B., Xie, D., Liles, S. P., John, S. "USER-DIFFERENTIATED HIERARCHICAL KEY MANAGEMENT SCHEME." (Application: October 6, 2015).

G. ENGAGEMENT ACTIVITIES

G. 2   Technical Assistant Program activities

G. 3   Faculty participation in internships or off-campus temporary assignments such as an Intergovernmental Personnel Act Agreement

G. 4   Short courses and workshops, guest lectures and seminars delivered in support of engagement

G. 5   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

G. 6   Other industry interactions in support of engagement, including international

G. 7   Diversity and climate activities including student outreach activities

G. 8   Outreach activities, including international travel

1. Expert Panelist for MxD
   Reviewed the concept map and taxonomy for Cybersecurity in Manufacture.

2. Security and Big data issues in IT, Chengdu, Sichuan, China
   A series of talks on my research and teaching was given to the graduate students at the University of Electronic Science and Technology (UEST), China. Was awarded $2100 travel by UEST. And was recognized by UEST as an outstanding scholar.

June 25, 2018 - June 29, 2018

3. Introduction to Crypto for GenCyber students
An engaging cryptograph classes were developed and delivered to 40 high school students in the summer of 2016 and 2018. It helped recurring some female students to Purdue CIT and enhanced the diversity of the program.

4. Security and Big Data Issues in IT, Chengdu, Sichuan, China
A series of talks on my research and teaching was given to the graduate students at the University of Electronic Science and Technology (UEST), China. Was awarded $2100 travel by UEST. And was recognized by UEST as an outstanding scholar.
June 26, 2017 - June 30, 2017

5. Workshop on Cryptography and Software Defined Network (SDN)
This workshop was created and delivered to Peru study abroad students from 2013 to 2016. Each year, there are about 20 students. In return, CIT sent a group of students in Peru to increase their global awareness.

6. Big Data and Machine Learning, Xian, Shanxi, China
With a goal of establishing collocation with Chang An University.
May 1, 2017 - May 6, 2017

G. 9   Appearances in media interviews and other coverage in support of engagement

1. Journal & Courier, https://www.jconline.com/story/news/2019/10/01/subaru-cancels-shifts-lafayette-plant-unclear-if-tied-fbi-ransomware-investigation/3828321002/ October 2019.

2. Purdue Exponent, "Deepfakes: Videos made to manipulate", https://www.purdueexponent.org/campus/article_4bcdf36b-6525-5276-962f-7c7a64fe1181.html, October 2019

3. Purdue Exponent, https://www.purdueexponent.org/article_4504b35b-7a36-586a-bcd5-1ccd85866eb6.html, August 2019

4. Polytechnic, https://polytechnic.purdue.edu/newsroom/filetsar-cyber-toolkit-helps-detectives-solve-digital-crimes
March 2019

5. Polytechnic, https://polytechnic.purdue.edu/newsroom/cit-faculty-aim-make-big-data-small-issue-for-law-enforcement
July 24, 2017

6. Polytechnic https://polytechnic.purdue.edu/newsroom/yangs-research-allows-for-hands-cybersecurity-education
February 7, 2017

7. Professor: Ransomware attacks will continue to increase in 2017,
   https://www.purdue.edu/newsroom/releases/2017/Q1/professor-ransomware-attacks-
   will-continue-to-increase-in-2017.html
   February 6, 2017

8. Yang was interviewed to provide updates on IEEE Try-CybSI projects.
   http://ieeecybersec.wpengine.com/blog/2016/05/18/try-cybsi-updates-from-justin-
   yang/
   May 2016

G. 10 Other major engagement activities

1. FileTSAR Law Enforcement Training Event, September 11, 2018 - September 13,
   2018, 3-day law enforcement training event for FileTSAR, Knoy 228. Funded by NIJ
   Grant.

H. SERVICE ACTIVITIES

H. 2   Committee assignments in the department, college, and/or university

Department

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 – 2018	Member, CIT cybersecurity curriculum subcommittee
2015 – Present	Member, CIT diversity committee
2016 – Present	Member, CIT scholarship committee

College

2018 – Present	Faculty Champion, Holistic Safety and Security (HSS) Research Impact Area (RIA)
2019 – Present	Sectary, Polytechnic Faculty Grievance Committee
2019 – Present	Member, Polytechnic Election Committee
2015 – 2016	Member, Polytechnic Transformation Team 4
2015 – 2016	Member, Polytechnic Mentorship Committee

University

2019 – Present	Member, CERIAS Interdisciplinary Graduate Program Committee
2020 – 2023	Member, Library Committee of Purdue University

H. 3   Administrative duties at Purdue

H. 4   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.

H. 5   Service to government or professional organizations

2020	Reviewer, Concurrency and Computation: Practice and Experience
2020	Reviewer, IEEE International Conference on Frontiers in

	Education (FIE), 2020
2020	Reviewer, British Machine Vision Conference 2020
2020 – Present	Reviewer Board, MDPI Information Journal
2020	Reviewer, Journal of Computational Science Education
2019	Reviewer, IEEE Internet of Things Journal
2019	Reviewer, Journal of Cloud Computing (IJCC).
2019	Reviewer, Communications in Statistics
2019	Reviewer, International Conference on Biological Information and Biomedical Engineering, 2019
2019	Reviewer, ACM SIGCSE 2019
2019 – Present	Reviewer, MDPI Journal of Sensor and Actuator Networks
2019 – Present	Reviewer, MDPI Journal of Applied Sciences
2018 – Present	Reviewer, MDPI Journal of Information
2018 – Present	Reviewer, MDPI Journal of Sensors
2018 – Present	Reviewer, MDPI Journal of Symmetry
2017	Program Committee Member, International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP), 2017
2017	Reviewer, Journal of Clinical Epidemiology
2017	Technical Program Committee Member, IEEE FutureCloud 2017
2017 – Present	Reviewer, MDPI Journal of Electronics
2017 – Present	Reviewer, IEEE International Conference on Big Data
2017 – Present	Reviewer, IEEE Access
2017 – Present	Reviewer, PLOS ONE
2016	Reviewer, International Journal of Grid and High Performance Computing (IJGHPC)
2014	Reviewer, Reliability Engineering & System Safety (RESS)
2014	Reviewer, International Association of Journals & Conferences (IAJC) / International Society of Agile Manufacturing (ISAM) conference.
2014 – Present	Reviewer, ACM Special Interest Group in IT Education (SIGITE)
2014 – 2016	Reviewer, American Society for Engineering Education (ASEE)
2013	Reviewer, IEEE International Conference on Collaboration Technologies and Infrastructure
2013	Reviewer, Journal of Systems Science and Systems Engineering (JSSSE)
2013 – 2015	Reviewer, Information Technology Education and Research Association (ITERA)
2012	Reviewer, International Journal of Intelligent Computing and Cybernetics (IJICC)
2012 – 2013	Reviewer, IEEE Transaction on Parallel and Distributed Systems (TPDS)
2012 – Present	Reviewer, International Journal of Engineering Research and

Innovation (IJERI)

2012 – Present   Reviewer, Technology Interface International Journal (TIIJ)

2011 – 2016   Reviewer, Journal of Industrial Technology, (JIT) Renamed to Journal of Journal of Technology, Management and Applied Engineering (JTMAE)

H. 6   Diversity and climate activities

H. 7   Mentoring of Faculty

2018 – Present   Faculty Mentor of Dr. Salam Abdul.

H. 8   Mentoring or advising of students (individuals or organizations)

2016 – 2019   Faculty Mentor of Polytechnic Tech 120, advised 16 undergraduate students.

2017 – 2019   CIT Faculty-to-Student mentor, mentored 5 undergraduate students

2014 – 2017   Faculty mentor of 3 undergraduate students in REU projects.

2014 – Present   Faculty Advisor of 6 undergraduate students research projects.