

Yunpeng (Jack) Zhang, Ph.D.



Assistant Professor

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<https://uh.edu/technology/departments/ilt/people/faculty/?l=zhang&f=yunpeng>

http://scholar.google.com/citations?hl=en&user=kilrIB0AAAAAJ&view_op=list_works

Lab: [Home | Network-Software-and-System-Lab.github.io](https://github.com/Network-Software-and-System-Lab)

Professional Experience

08/2015-present, *Assistant Professor*, Department of Information and Logistics Technology, University of Houston, U.S.

07/2018, *Academic Visitor*, Oak Ridge National Lab, Oak Ridge, TN, U.S., host: Dr. Chongle Pan

11/2013-06/2015, *Research Associate*, Department of Computer Science, Boise State University, U.S., supervisor: Dr. Dianxiang Xu

01/2013-10/2013, *Research Associate*, National Center for the Protection of the Financial Infrastructure, Dakota State University, U.S., supervisor: Dr. Dianxiang Xu

09/2012-12/2012, *Academic Visitor*, the Institute of Electronics, Communications and Information Technology, Queen's University Belfast, Belfast, U.K., host: Dr. Alan Marshall

09/2011-08/2012, *Research Fellow*, CMR Unit, Imperial College London, U.K., supervisor: Dr. David Firmin

05/2011-07/2011, *Visiting Scholar*, e-Research Group, University of Melbourne, Australia, host: Richard O. Sinnott

02/2001-08/2013, *Associate Professor* (05/2010-08/2013), *Lecture* (05/2005-04/2010), *Assistant Lecturer* (02/2001-04/2005), School of Software and Microelectronics, Northwestern Polytechnical University, China

06/1999-01/2001, *Assistant Lecturer*, 211 Education Base of Computer, School of Natural and Applied Science, Northwestern Polytechnical University, China

Research Interests

Cyber Security, Data Science, AI, Physical Safety, Internet of Things, Cloud Computing, Cryptography, Access Control, Intrusion Detection, Software Engineering, Software testing and analysis, Healthcare Informatics, Human-Computer Interface Design, Bioinformatics,

Blockchain, Trusted Computing

Education

Ph.D., Degree in Computer Science and Technology, School of Computer Science, Northwestern Polytechnical University, China, 2009.

M.S., Degree in Computer Science and Technology, School of Computer Science, Northwestern Polytechnical University, China, 2004.

B.S., Degree in Chemical Engineering, School of Natural and Applied Science, Northwestern Polytechnical University, China, 1999.

Technology

Microsoft Office (Excel, Word, PowerPoint, Access, Visio); Windows/Mac/Linux; Eclipse; Microsoft Visual Studio; MTK/ITK

Programming Skills

C/C++/C#/VB/Java/Python; XACML 3.0/XML; SQL; Debugging/Code analysis; Software Engineering

Communication

Fluent in English/Chinese; Leadership; Proposal/Paper/Technical Report style writing

Teaching Interests

Introduction to Computer Science, Computer Programming C/C++/VB/Java, Object-Oriented Software Design, Data Structures, Operating Systems, Computer Networks, Database Systems, Network Security, Computer Security, Cryptography, Intrusion Detection and Incident Response, Ethical Hacking, Embedded Software System, Software Engineering, User-Central Design and Testing, Multimedia Technology, Computer Graphics, Computer Assembly and Maintenance Training, Undergraduate/Graduate Research in Computer Science, Graduate Research Thesis

Courses Taught (Selected)

Aug 2015-Present University of Houston

1. *Data Science for Cybersecurity* (CIS 6397, New developed)
2. *Cryptography and Information Systems Security* (CIS 6323)
3. *Integrated Information Systems* (CIS 3355)
4. *Intrusion Detection and Incident Response* (CIS 3351)
5. *Information Systems Application Development* (CIS 2348)
6. *Information Technology Hardware and Systems Software* (CIS 2332)

Jan 2015-May 2015 Boise State University

7. *Ethical Hacking* (CS 397), collaborative course with Prof. Izzat Alsmadi

Sept 1999-May 2011 Northwestern Polytechnical University

8. *Introduction to Computer Systems* (2220180), SSD2 (Software System Developing Course Series-2, collaborative course with Carnegie Mellon University)
9. *User-Central Design and Testing* (2230220) SSD4 (Software System Developing Course Series-4, collaborative course with Carnegie Mellon University)
10. *Embedded Software System* (3220165) (Graduate Level)
11. *Multimedia Technology* (2240280) (Graduate Level)
12. *Computer Assembly and Maintenance* (K5009)

13. *C++ Programming Design* (1010020)
14. *C Programming Design Practice* (1010140)

Supervising Experience

Supervised more than **40** undergraduate and **40** graduate Students with their projects and thesis, **8 of them received Outstanding Thesis Award.**

Project show

1. Smart Camera Water Level Detection:

Bathtub test at: <https://www.youtube.com/watch?v=o2dXpsgfzyg>

Live lab test at: <https://www.youtube.com/watch?v=QaAzGUGXrTU>

The two videos present intelligent water level detection algorithms that detect and warn about real-time stream elevations and water levels in ports, rivers, bayous, highways, streets, agricultural irrigation systems, etc. These algorithms can be embedded in agencies' existing video camera systems and networks or newly placed cameras to automatically monitor water levels on a 24/7 basis. Dr. Zhang's team is already submitted a proposal to Transportation Research Board's Innovations Deserving Exploratory Analysis Program, and is pursuing funding from Department of Agriculture.

2. Abandoned Object Detection

<https://www.dropbox.com/s/zv51srjz1zjkc2/Abandoned%20Object%20Detection.mp4?dl=0>

This project generated abandoned object detection algorithms that detect and warn about real-time abandoned objects. The algorithms can be used for abandoned object observation and detection in energy delivery and transportation hubs, etc., to protect energy equipment and the general public. Dr. Zhang's team is pursuing funding from Department of Transportation and Texas Department of Transportation.

3. Deep Learning-Based High Performance Intelligent Monitoring Prototype

<https://www.dropbox.com/s/1yqv23nqgwkaot/2.Full.mp4?dl=0>

This prototype is a real-time video analytics tool that utilizes advanced deep learning-based video processing algorithms to turn video feeds into actionable intelligence. At the core of the product will be a series of advanced object tracking algorithms that continuously track moving and stationary targets. The long term goal of this research is to create and test new algorithms that feature built-in robustness associated with environmental nuisance conditions, such as changing illumination, moving foliage or an unsteady camera. This research can be applied to multiple industries, including energy, healthcare, smart cities, transportation, government, etc. Dr. Zhang's team will pursue funding from DoE, NIH, DoT, NSF, etc.

4. Blockchain-Based Global Market Trading Platform

<https://www.youtube.com/watch?v=GOiR1LLEg0&t=56s>

This video shows a prototype of a public blockchain for an e-commerce marketplace to facilitate trade for either physical or digital products. At this stage, it demonstrates the process of a transaction between buyer and supplier under smart contracts without the involvement of a middleman. The prototype is developed on Ethereum and uses the ETH (digital currency) through its TestNet. This project is supported by Fluor Corporation and Department of Construction Management. The team already published a paper and working on the second paper. Dr. Zhang's

team already submitted a proposal to National Endowment for the Arts to support the creation and implementation of an artwork e-commerce platform.

5. High Risk Patient Behavior Data Analysis and HIPPA-based Secure Mobile App

<https://play.google.com/store/apps/details?id=com.xpandingus.app.survey>

This project is a sub-contract of the project, *Virtual Reality Cue Reactivity: Assessment of Reactivity and Extinction Protocols in Injection and Non-Injection Heroin-Using Mexican Americans*, funded by the National Institutes of Health (NIH) and National Institute on Drug Abuse (NIDA) in a collaborative grant with the Graduate College of Social Work at UH. Dr. Zhang's team developed a mobile App and analysis software to collect and analyze patient data. The database analysis system and the secure mobile application had received outstanding evaluation feedback.

Scholarship and Awards

1. May 2017, Best Presentation Award, Ben You, Yunpeng Zhang, Liang-Chieh Cheng, Review on Cybersecurity Risk Assessment and Evaluation and Their Approaches on Maritime Transportation, *The 30th Annual Conference of International Chinese Transportation Professionals Association*, May 19 ~ 21, 2017, Houston, TX, USA.
2. Nov 2015, New Faculty Award, University of Houston, Houston, TX, USA.
3. Aug 2015, Honorable Recognition of Paper, Dianxiang Xu, Yunpeng Zhang, Ning Shen, Formalizing Semantic Differences between Combining Algorithms in XACML 3.0 Policies, *Proc. Of the 2015 IEEE International Conference on Software Quality, Reliability, and Security (QRS 2015)*, Vancouver, Canada, Aug. 3-5, 2015.
4. Sept, 2010 The Outstanding Education Achievement Award. Awarded by NPU (Northwestern Polytechnical University)
5. Jan, 2010 The 3rd Courseware Award, Awarded by College of Software and Microelectronics, NPU
6. Sept, 2009 The National Higher Education Achievement Award. Awarded by China National Ministry of Education (**The highest Education award, once every four(4) years**)
7. June, 2008 The Prize of Excellent Teacher. Awarded by College of Software and Microelectronics, NPU
8. Mar, 2008 Advanced Worker. Awarded by NPU
9. June, 2007 The Outstanding Education Achievement Award. Awarded by NPU
10. June, 2006 The Outstanding Education Achievement Award. Awarded by NPU
11. Sept, 2005 The Outstanding Education Achievement Award. Awarded by NPU
12. Sept, 2004 The Outstanding Education Achievement Award. Awarded by NPU
13. Sept, 2003 The Outstanding Education Achievement Award. Awarded by NPU

Publications (Selected)

Peer Reviewed Journal Publications

1. Yunpeng Zhang, Xin Liu, An Attribute-Based Cross-Domain Access Control Model for a Distributed Multiple Autonomous Network, *International Journal of Software Engineering and Knowledge Engineering*, Vol 30, Nos. 11 & 12, Dec 2020, Pages 1851-1865.
2. Mi Gan, Ai Yi, Zongping Li, Yunpeng Zhang, Daben Yu, Wei Chen, Yanni Ju, A Deep

- Learning Approach on Short-term Spatiotemporal Distribution Forecasting of Dockless Bike-sharing System, *Neural Computing and Applications*, Vol 31, Issue 5, May, 2019, Pages 1665-1677.
3. Dong-Yang Nan, Wei Yu, Xiao Liu, Yun-Peng Zhang, Wei-Di Dai, A Framework of Community Detection Based on Individual Labels in Attribute Networks, *Physica A: Statistical Mechanics and its Applications*, Volume 512, 15 December 2018, Pages 523-536.
 4. Yulei Sui, Hua Yan, Zheng Zheng, Yunpeng Zhang, Jingling Xue, Parallel Construction of interprocedural Memory SSA Form, *Journal of Systems and Software*, Volume 146, December 2018, Pages 186-195.
 5. Yunpeng Zhang, Xuqing Wu, Beibei Zhang, High Structural Coverage ABAC Policy Combination Testing Method Based on a Decision Inheritance Tree and Data Flow, *Journal of Intelligent & Fuzzy Systems*, Vol. 34, Issue. 6, June 2018, pp. 3881-3890.
 6. Ouyang Wei, Xuefeng Xu, Yunpeng Zhang, Baijuan Yang, Qin Ye & Zhongliang Yang, Multi-Dimensional Gas Chromatography-Mass Spectrometry Method for Fingerprinting Polycyclic Aromatic Hydrocarbons and Their Alkyl-Homologs in Crude Oil, *Analytical Letters*, <http://www.tandfonline.com/doi/full/10.1080/00032719.2017.1341905?needAccess=true>, Volume 51, Issue 4. 2018, pp. 483-495.
 7. Yunpeng Zhang, Xin Liu, Yongqiang Ma, Liang-Chieh Cheng, An Optimized DNA Based Encryption Scheme with Enforced Secure Key Distribution, *Cluster Computing -The Journal of Networks Software Tools and Applications*, Vol. 20, Issue. 4, Dec 2017, pp. 3119-3130.
 8. Yunpeng Zhang, Zhiwen Wang, Zhenzhen Wang, Xin Liu, Xiaojing Yuan, A DNA-Based Encryption Method Based on DNA Chip and PCR Amplification Techniques, *Chemistry - A European Journal*, Vol. 23, Issue. 54, Sept 2017, pp. 13387-13403.
 9. Yunpeng Zhang, Xin Liu, Manhui Sun, DNA based Random Key Generation and Management for OTP Encryption, *Biosystems*, vol.159, Sept 2017, pp.51-63.
 10. Yunpeng Zhang, Zhenzhen Wang, Xuqing Wu, Two Biological Puzzles Base DNA Encryption Method, *Basic & Clinical Pharmacology & Toxicology*, Long Abstract, <http://onlinelibrary.wiley.com/doi/10.1111/bcpt.12813/epdf>, 121 (S1), 2017.
 11. Dianxiang Xu, Ning Shen, Yunpeng Zhang. Detecting Incorrect Uses of Combining Algorithms in XACML 3.0 Policies, *International Journal of Software Engineering and Knowledge Engineering*, Vol. 25, Nos. 9 & 10, Dec, 2015, 1551–1571.
 12. Yunpeng Zhang, Xianwei Zhang, Bochen Fu, Taigang He, Construct DNA Symmetric Encryption Based on the Problem of Fragment stitching, *Electrical Review*, R. 89 NR 3b/2013, Apr 2013, pp.4-6
 13. Yunpeng Zhang, Lifu Huang, Yasin Karanfil, Zhenzhen Wang, A New Digital Image Hiding Encryption Algorithm Based on Dual Chaotic Systems , *Electrical Review*, R. 89 NR 1b/2013, pp. 127-130
 14. Yunpeng Zhang, Hao Cui, Xinkui Zhao, Region of Interest Encryption Scheme Based on Chaotic Image, *International Review on Computers and Software*, 7(6), 2012.11, pp.3128-3132.
 15. Yunpeng Zhang, Hui Huang, Ping Liu, Dimitrios Doulgarakis, Xianglong Wu, A DNA Stream Encryption Scheme Based on Biological Problem, *EEST Part A* 2012, SI(2), pp. 227-234

16. Yunpeng Zhang, Dongwei Zhou, Liu He, Yasin Hasan Karanfil, Bochen Fu, A New DNA Cryptogram Scheme Based on PCR Technology, *Journal of Theoretical and Applied Information Technology*, 45(1), 2012, pp. 232-238
17. Yunpeng Zhang, Tong Chen, Xianwei Zhang, Weidong Zhao, Improved Digital Signature Scheme Based on Elliptic Curve, *Research Journal of Applied Sciences, Engineering and Technology*, Sept, 2012, 4(18), pp. 3437-3439
18. Yunpeng Zhang, Peng Sun, Liang Yi, Yongqiang Ma and Ziyi Guo, Analysis and Improvement of Encryption Algorithm Based on Blocked and Chaotic Image Scrambling, *Research Journal of Applied Sciences, Engineering and Technology*, Sept, 2012, 4(18), pp. 3440-3447
19. Yunpeng Zhang, Xia Lin, Qiang Wang, Richard O. Sinnott. A Rapid Cryptography Algorithm Based on Chaos and Public Key. *Journal of Software*, Vol 7, No 4, Apr 2012, doi:10.4304/jsw.7.4., pp.856-860.
20. Yunpeng Zhang, Peng Xu, Linzong Xiang. Research of Image Encryption Algorithm Based on Chaotic Magic Square. *Advances in Electronic Commerce, Web Application and Communication*, Volume 149/2012, 2012, pp.103-109
21. Yunpeng Zhang, Fan Duan, Xi Liu. The Research of Applying Chaos Theory to Speech Communicating Encryption System. *Advances in Multimedia, Software Engineering and Computing*, Vol(2), 2012, pp.197-202
22. Yunpeng Zhang, Fei Zuo, Zhengjun Zhai. Survey on Image Encryption Based on Chaos, *Computer Engineering and Design*, 32(2), 2011.2, PP. 463-466
23. Yunpeng Zhang, Fei Zuo, Zhengjun Zhai, A Color Image Encryption Algorithm Based on Chaotic Chebychev and Variable-Parameters Logistic Systems, *Journal of Northwestern Polytechnical University*, 28(4). , 2010.8, PP. 628-632
24. Yunpeng Zhang, Yunting Huang, Curriculum Reform Research of Introduction to Computer Systems, *Computer Education*, 2010.5, 9, PP.83-85
25. Chunyan Ma, Junsheng Wu, Tao Zhang, Yunpeng Zhang, Xiaobin Cai, Automatic Test Case Generation for BPEL Using Stream X-Machine, *International Journal of u- and e-Service, Science and Technology*, 1(1), Dec 30, 2008, pp.27-36
26. Yunpeng Zhang, Lu Zhang, Zhengjun Zhai, Chunyan Ma, Weidi Dai. A Much Different Parallel Construction Density Tree Clustering (PCDTC) Algorithm Based on Data Partitioning. *Journal of Northwestern Polytechnical University*, 26(4), 2008.8, PP.524-529
27. Chunyan MA, Fei HU, Yunpeng ZHANG, Statistical Testing of Component Reuse Using Markov Chain Usage Model, *Application Research of Computers*, 25(4), Apr 2008, pp.1051-1056
28. Yulei Shui, Yunpeng Zhang. Design and Implement of Line Shopping System Based ASP.NET, *Science Technology and Engineering*, 7(18), Sept 2007, pp.4781-4794
29. Yunpeng Zhang, Fei Hu, Design and Implementation of Distributed Intrusion Detection System Based on P2DR Model, *Computer Engineering and Applications*, 41(35), 2005.12, PP.141-144
30. Yunpeng Zhang, Human-Computer Interface Design Based on Knowledge of Cognitive Psychology, *Computer Engineering and Applications*, 41(30), 2005.10, PP.105-139
31. Yunpeng Zhang, Fei Hu, Xiaoyan Ma, Chunyan Ma, Wei Lu, The Exploration of Simulation Software in the College Chemistry Experiment Data Disposal System Based on

Programming with VB and Matlab, *Computer Engineering and Applications*, 41(20), 2005.7 , PP. 116-118

Peer Reviewed Conference/workshops Proceedings

32. Luciano Branco, Fengxiang Qiao, Yunpeng Zhang, Detecting Number of Passengers in a Moving Vehicle with Publicly Available Data, *Intelligent Systems Conference (IntelliSys) 2021*, 2-3 September 2021, Amsterdam, The Netherlands, (online participation).
33. Nirupam Bidikar, Yunpeng Zhang, Fengxiang Qiao, Identification of Critical Links within Complex Road Networks Using Centrality Principles on Weighted Graphs, *16th International Conference on Software Technologies (ICSOFT 2021)*, Jul 6, 2021 - Jul 8, 2021, Online Streaming.
34. Farzanuddin Hisam Ahmad, Yunpeng Zhang, Fengxiang Qiao, Comparative Study of Dashcam-Based Vehicle Incident Detection Techniques, The 28th Conference of the Open Innovations Association FRUCT Conference, 27-29 Jan 2021, Moscow, Russia, (online participation).
35. Glenn Turner, Guoning Chen, Yunpeng Zhang, Detection of Cyber Attacks Using Data from Multi-Modal Intelligent Traffic Signal Systems, *Visualization and Data Analysis 2021*, 19-28 Jan 2021, New York, U.S., Paris France, and Tokyo Japan, (online participation).
36. Johnathan Tai, Izzat Alsmadi, Yunpeng Zhang, and Fengxiang Qiao, Machine Learning Methods for Anomaly Detection in Industrial Control Systems, *The 4th International Workshop on Big Data Analytic for Cybercrime Investigation and Prevention, joint with 2020 IEEE International Conference on Big Data (IEEE BigData 2020)*, online/virtual event on December 10-13, 2020 due to COVID-19.
37. Yunpeng Zhang, Bidit Das, Fengxiang Qiao, Sybil Attack Detection and Prevention in VANETs: A Survey, *Future Technologies Conference (FTC) 2020*, Nov 5-6, 2020, Vancouver, Canada, (online participation due to COVID-19).
38. Yunpeng Zhang, Ali Memariani, Nirupam Bidikar, A review on Blockchain-based access control models in IoT applications, *The 16th IEEE International Conference on Control & Automation (ICCA 2020)*, Oct 9-11, 2020, Sappore, Hokkaide, Japan, (online participation due to COVID-19).
39. Anukriti Mishra, Albert M.K. Cheng, and Yunpeng Zhang, Intrusion Detection Using Principle Component Analysis and Support Vector Machines, *The 16th IEEE International Conference on Control & Automation (ICCA 2020)*, Oct 9-11, 2020, Sappore, Hokkaide, Japan, (online participation due to COVID-19).
40. Thanh Hung Duong, Fengxiang Qiao, Jyh-Haw Yeh and Yunpeng Zhang, Prediction of Fatality Crashes with Multilayer Perceptron of Crash Record Information System Datasets, *19th IEEE International Conference on Cognitive Informatics and Cognitive Computing (IEEE ICCI*CC'20)*, online/virtual event on Sept 26-28, 2020 due to COVID-19.
41. Jyh-haw Yeh, Ning Shen, Chien-Ming Chen, Yeh-Cheng Chen, Yunpeng Zhang, Ensuring Query Completeness in Outsourced Database using Order-Preserving Encryption, *The 17th IEEE International Symposium on Parallel and Distributed Processing with Applications (IEEE ISPA 2019)*, Dec 16-18, 2019, Xiamen, China.
42. Yunpeng Zhang, Liang-Chieh Cheng, Fengxiang Qiao, Anish Patel, Automated Traffic Signal Performance Measures: Features and Applications, *2019 The 6th International Conference on Systems and Informatics: (ICSAI 2019)*, Nov 2-4, 2019, Shanghai, China.

43. Eljose E Sajan, Yunpeng Zhang, Liang-Chieh Cheng, Static Analyzers and Potential Future Research Directions for Scala: An Overview, *The 2019 14th IEEE International Conference on Computer Science & Education (ICCSE 2019)*, August 19-21, 2019, Toronto, Canada.
44. Yunpeng Zhang, Anish Patel, Liang-Chieh Cheng, Jiming Peng, Nonparametric Statistical Anomaly Detection Approach for ATMS DDoS Attack, *The 2019 International Conference on Sensing, Diagnostics, Prognostics, and Control (SDPC 2019)*, August 15-17, 2019, Beijing, China. **(Session Chair)**
45. Yunpeng Zhang, Chethana Dukkupati, Liang-Chieh Cheng, Clustering Methods for Identification of Attacks in IoT Based Traffic Signal System, *The 2019 International Conference on Sensing, Diagnostics, Prognostics, and Control (SDPC 2019)*, August 15-17, 2019, Beijing, China. **(Session Chair)**
46. Tianyun Zhao; Qi Liu; Yunpeng Zhang, A Traffic Sign Detection Method based on Saliency Detection, *The 1st Industrial Artificial Intelligence Conference (IAIC 2019)*, July 23-25, 2019, Shenyang, China.
47. Yunpeng Zhang, Liang-Chieh Cheng, Fengxiang Qiao, Anish Petel, Enhancement of In-Service Performance Evaluation (ISPE) Process for Roadside Safety Devices: A Survey, *The 2019 IEEE International Conference on Cyber Physical and Social Computing (CPSCom-2019)*, July 14 - 17, 2019, Atlanta, USA. **(Session Chair)**
48. Mahdi Manavi, Yunpeng Zhang, A New Intrusion Detection System Based on Gated Recurrent Unit (GRU) and Genetic Algorithm, *The 12th International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage (SpaCCS-2019)*, July 14 - 17, 2019, Atlanta, USA.
49. Sobhan Latifi, Yunpeng Zhang, Liang-Chieh Cheng, Blockchain-based Real Estate market: one method for applying Blockchain technology in Real Estate economy, *The 2019 2nd IEEE International Conference on Blockchain (Blockchain-2019)*, July 14 - 17, 2019, Atlanta, USA. **(Session Chair)**
50. Chethana Dukkupati, Yunpeng Zhang, Liang-Chieh Cheng, LSTM Based Multiple Squashing Functions Deep Learning Model for Advanced Traffic Management System Attack Detection, *The 14th IEEE International Conference on Control and Automation (IEEE ICCA 2018)*, June 12–15, 2018, Anchorage, Alaska, USA, PP.417-422. **(Session Chair)**
51. Yunpeng Zhang, Fengxiang Qiao, Izzat Alsmadi, Qing Li, Interactive based Access Control Framework for Connected Vehicle Communication, *The 14th IEEE International Conference on Control and Automation (IEEE ICCA 2018)*, June 12–15, 2018, Anchorage, Alaska, USA, PP.393-398. **(Session Chair)**
52. Sagar Limaye, Yunpeng Zhang, Combining Algorithm Based Data Flow Testing Approach for XACML, *3rd ACM Workshop on Attribute Based Access Control*, March 21, 2018, Tempe, AZ, USA, PP.25-31.
53. Chethana Dukkupati, Yunpeng Zhang, Liang-Chieh Cheng, Decentralized, BlockChain Based Access Control Framework for the Heterogeneous Internet of Things, *3rd ACM Workshop on Attribute Based Access Control*, March 21, 2018, Tempe, AZ, USA, PP. 61-69.
54. Liang-Chieh Cheng, Yunpeng Zhang, Xuqing Wu, Melanie Igwe, Enhancing Trust in Cloud-based Supply Chains, *Symposium of 2017 Council of Supply Chain Management Professionals (CSCMP)*, Sept 24, 2017, Atlanta, Georgia, USA.
55. Yunpeng Zhang, Xin Liu, Yu Ding, A DNA Nanostructure and Biological Puzzle Based

- Encryption Method, *The 16th IASTED International Conference on Intelligent Systems and Control*, July 19 - 20, 2017, Calgary, Canada. (**Session Chair**)
56. Yunpeng Zhang, Dafang Zhang, Peng Sun, Feng Guo, DNA Sequencing Puzzle Based DNA Cryptography Algorithm, *The 7th IASTED International Conference on Modelling, Simulation and Identification*, July 19 - 20, 2017, Calgary, Canada.
 57. Yunpeng Zhang, Beibei Zhang, A New Testing Method for XACML 3.0 Policy Based on ABAC and Data Flow, *2017 13th IEEE International Conference on Control & Automation (IEEE ICCA 2017)*, Ohrid, Macedonia, July 3-6, 2017.
 58. Yunpeng Zhang, Beibei Zhang, An ACO-based Algorithm for Efficient XACML Policy Evaluation, *2017 2nd International Conference on Control, Automation and Artificial Intelligence (CAAI2017)*, Sanya, China, June 25-26, 2017. (EI and ISTP index) (**Keynote Speaker**)
 59. Dharani Chandran, Yunpeng Zhang, Liang-Chieh Cheng, A Survey on Cybersecurity of traffic signal systems, *The 30th Annual Conference of International Chinese Transportation Professionals Association*, May 19 ~ 21, 2017, Houston, TX, USA.
 60. Ben You, Yunpeng Zhang, Liang-Chieh Cheng, Review on Cybersecurity Risk Assessment and Evaluation and Their Approaches on Maritime Transportation, *The 30th Annual Conference of International Chinese Transportation Professionals Association*, May 19 ~ 21, 2017, Houston, TX, USA. (**Best Presentation Award**)
 61. Yunpeng Zhang, Beibei Zhang, Zhiwen Wang, Research of a Data Flow Test Method for Attribute-based Access Control Systems, *the 3rd Annual International Conference on Network and Information Systems for Computers (ICNISC2017)*. April 14-16, 2017 Shanghai, China
 62. Yunpeng Zhang, Xuqing Wu, Access Control in Internet of Things: A Survey, *2017 Asia-Pacific Computer Science and Application Conference (CSAC 2017)*. March 11-12, 2017, Shanghai, China.
 63. Yunpeng Zhang, Zhenzhen Wang, Zhiwen Wang, Yasin Hasan Karanfil, Weidi Dai, A New DNA Cryptography Algorithm Based on the Biological Puzzle and DNA Chip Techniques, *2016 International Conference on Biomedical and Biological Engineering (BBE2016)*, July 15th-17th, 2016, Shanghai, China.
 64. Dianxiang Xu, Yunpeng Zhang, Ning Shen, Formalizing Semantic Differences between Combining Algorithms in XACML 3.0 Policies, *Proc. Of the 2015 IEEE International Conference on Software Quality, Reliability, and Security (QRS 2015)*, Aug. 3-5, 2015, Vancouver, Canada. (**Honorable Recognition of Paper**)
 65. Dianxiang Xu, Ning Shen, Yunpeng Zhang. Fault-Based Testing of Combining Algorithms in XACML3.0 Policies, *Proc. of the 27th International Conference on Software Engineering and Knowledge Engineering (SEKE 2015)*, Jul 6, 2015 - Jul 8, 2015, Pittsburgh, U.S.
 66. Peng Sun, Ziyang Wu, Yunpeng Zhang, Yang Yang. Analysis and Modeling of Learning Behaviors on Intelligent Tutoring Website, *Proc. of the 2014 Tenth International Conference on Computational Intelligence and Security*, 15-16 Nov. 2014, Kunming, Yunnan, China.
 67. Dianxiang Xu, Yunpeng Zhang. Specification and Analysis of Attribute-Based Access Control Policies: An Overview. *Proc. of the International Workshop on Information Assurance, in conjunction with SERE'14.* , June 2014. San Francisco, CA., U.S.
 68. Peng Sun, Xin Guo, Yunpeng Zhang, Ziyang Wu,

- Analytical Model of Customer Churn Based on Bayesian Network, *9th International Conference on Computational Intelligence and Security*, CIS 2013, Chengdu, China, Dec 14-15, 2013, pp.269-271
69. Yunpeng Zhang, Fengying Tian, Manhui Sun, Ding Yu, Feixiang Fan, Weiguo Liu, Based on DNA OTP Key Generation and Management Research, *2013 International Conference on Mechatronics and Semiconductor Materials(ICMSCM 2013)*Xi'an, China. July 27 - 28, 2013, pp 2470-2472
 70. Yunpeng Zhang, Shuai Wang, Peng Xu, Liang Cao, Yi Wang, A New Image Cipher Algorithm Based on Chaos, *2013 International Conference on Mechatronics and Semiconductor Materials(ICMSCM 2013)*Xi'an, China. July 27 - 28, 2013, pp.1781-1784
 71. Yunpeng Zhang, Peng Sun, Haozhi Deng, Peiyong Hou, and Xi Liu, Optimization Study on NTRU Polynomial Multiplication, *The 16th IASTED International Conference on Software Engineering and Applications*, November 12-14, 2012 Las Vegas, USA, DOI: 10.2316/P.2012.790-034
 72. Yunpeng Zhang, Xianwei Zhang, Bochen Fu, DNA Cryptography Based on DNA Fragment Assembly, *8th International Conference on Information Science and Digital Content Technology(ICIS 2012)*,26-28,Jun,2012, Jeju, Korea,179-182
 73. Yunpeng Zhang, Xianwei Zhang, A Symmetric DNA Encryption Scheme Based on Fragment Assembly, *5th International Conference on Interaction Sciences: IT, Human and Digital Content*, June 26 - 28, 2012, Jeju Island, Republic of Korea.
 74. Yunpeng Zhang, Yu Zhu, Zhong Wang, Richard O. Sinnott. Index-Based Symmetric DNA Encryption Algorithm. *The 4th International Conference on Biomedical Engineering and Informatics*. 15-17 October, 2011, Shanghai, P.R. China, pp2318-2322.
 75. Yunpeng Zhang, Xia Lin, Qiang Wang. Asymmetric Cryptography Algorithm with Chinese Remainder Theorem. *2011 IEEE 3rd International Conference on Communication Software and Networks (ICCSN 2011)*. 27-29, May 2011. Xi'an, P.R. China, pp450-454.
 76. Yunpeng Zhang, Xia Lin, Liu Xi, An Improved High-Density Knapsack-Type Public Key Cryptosystem, *5th International Conference on Software and Data Technologies (ICSOF2010)*, Athens, Greece, July 22-24, 2010, pp127-133.
 77. Yunpeng Zhang, Peng Sun, Jing Xie, Yunting Huang, Color Image Encryption Solution Based on the Chaotic System of Logistic and Henon,*5th International Conference on Software and Data Technologies (ICSOF2010)*, Athens, Greece, July 22-24, 2010, pp275-279.
 78. Yunpeng Zhang, Yunting Huang, Xia Lin, Yu Zhu, Fast Public Key Algorithm of Knapsack Type, *CCTAE 2010-2010 International Conference on Computer and Communication Technologies in Agriculture Engineering*, Chengdu, P.R. China, June 12-13,2010, pp: 367-370.
 79. Yunpeng Zhang, Peng Sun, Jing Xie, Lifu Huang, A New Image Encryption Algorithm Based on Arnold and Coupled Chaos Maps, *CCTAE 2010-2010 International Conference on Computer and Communication Technologies in Agriculture Engineering*, Chengdu, P.R. China, June 12-13,2010, PP:308-311.
 80. Zhu Yu, Zhou Zhe, Yang Haibing, Pan Wenjie, Yunpeng Zhang. A Chaos-Based Image Encryption Algorithm Using Wavelet Transform, *The 2nd IEEE International Conference on Advanced Computer Control (ICACC 2010)*, Shenyang, China, 27-29, March, 2010, PP:

81. Yunpeng Zhang, Zhengjun Zhai, Xiaobin Cai, Hui Shi, Yu Zhu. A Bit-encryption Algorithm for JPEG2000 Image Based on Chaos, *The Seventh IEEE International Conference on Control & Automation (ICCA2009)*, Christchurch, New Zealand, December 9-11, 2009, PP.1521-1526.
82. Zhou Zhe, Yang Haibing, Zhu Yu, Pan Wenjie, Yunpeng Zhang. A Block Encryption Scheme Based on 3D Chaotic Arnold Maps, *2009 International Asia Symposium on Intelligent Interaction and Affective Computing*, Wuhan, China, December 8-9, 2009, PP.15-20
83. Yunpeng Zhang, Zhengjun Zhai, Wei Liu, Xuan Nie, Shuiping Cao, Weidi Dai. Digital Image Encryption Algorithm Based on Chaos and Improved DES, *2009 IEEE International Conference on Systems, Man, and Cybernetics (SMC2009)*, San Antonio, USA, October 11-14, 2009, PP.480-485.
84. Yunpeng Zhang, Yian Zhu, Junsheng Wu, Kangying Cai, Practice and Exploration of Bring up Project Practice Ability of Undergraduate in Multimedia Technique and Design, *IEEE 2009 4th International Conference on Computer Science & Education (ICCSE 2009)*, Nanning, P.R. China, August 25-28, 2009, PP.1715–1717.
85. Yunpeng Zhang, Yian Zhu, Junsheng Wu, Kangying Cai, Investigation and Practical Steps to Enhance Practical Project Ability of Students in Human-Computer Interface Design, *5th China-Europe International Symposium on Software Industry Oriented Education (CEISIE2009)*, Bordeaux, May 25-26, 2009, PP. 83-90
86. Chunyan Ma, Junsheng Wu, Tao Zhang, Yunpeng Zhang, Xiaobin Cai, Testing BPEL with Stream X-machine, *2008 Information Science and Engineering International Symposium, ISISE'08.*, Shanghai, China, 20-22 Dec. 2008, pp.578-582
87. Yunpeng Zhang, Tongtong Xue, Zhengjun Zhai, Chunyan Ma, Xiaobin Cai. The Improvement of Public key Cryptography Based on Chaotic Neural Networks, *Eighth International Conference on Intelligent System Design and Applications (ISDA 2008)*, Kaohsiung, Taiwan, November 26-28, 2008, PP.326 - 330.
88. Y Zhang, Z Zhai, X Nie, C Ma, F Zuo, An extended self-adaptive Kalman filtering object motion prediction model, *Fourth International Conference on Intelligent Information Hiding and Multimedia Signal Processing (IHMSP-2008)*, Harbin, 2008.8. pp.15-17
89. Yunpeng Zhang, Fei Zuo, Zhengjun Zhai, Cai Xiaobin. A New Image Encryption Algorithm Based on Multiple Chaos System, *2008' International Symposium on Electronic Commerce Security (ISECS 2008)*, Guangzhou, August 3-5, 2008, PP.347-350
90. Yunpeng Zhang, Zhengjun Zhai, Lu Zhang, Yifei Bao, Weidi Dai, Fei Zuo, Partition-Based Parallel Constructing-Density-Tree Clustering, *2008 International Symposium on Information Processing (ISIP2008)*, Mosco, Russia, May 23-25, 2008, PP.155-159.

Published Technical Report

91. Dianxiang Xu, Yunpeng Zhang, Ning Shen. Formalizing Semantic Differences of Combining Algorithms in XACML 3.0. July 2014. Boise State University, Boise, ID, U.S.A. <http://cs.boisestate.edu/~dxu/research/TR-BSU-CS-SEAL2014-001.pdf>

Papers under Review

92. Thanh Hung Duong, Fengxiang Qiao, Jyh-Haw Yeh and Yunpeng Zhang, (2020a), A Multilayer Perceptrons Approach Focusing on the Class Imbalance for Injury Severity

- Analysis of Vehicle Crash, *Accident Analysis & Prevention*, 2020, under review, pp. 1-19.
93. Zhang, Y., Wang, Z., Zai, Z., Liu, W (2020b)., Group-based Mutual Authentication Protocol for the Internet of Things, submitted to *IEEE Transactions on Emerging Topic in Computing*, 2020, under review, pp. 1-16.
 94. Mahdi Manavi and Yunpeng Zhang, (2020c) Smart Blockchain-Based Access Control for the Internet of Things, submitted to *IEEE/ACM Transactions on Networking*, Aug 2020, under review, pp. 1-10.
 95. Zhang, Y., Wang, Z., Zai, Z., Liu, W. (2021a), Multi-factor Integration Based Trust Management Model for Internet of Things, submitted to *IEEE Access*, 2021, under review, pp. 1-15.
 96. Zhang, Y., Li, L. and Alsmadi, I., (2021b), Access Control Framework and Static Conflict Detection Approach Based on Matrix for XACML 3.0 Policy to Protect Maritime Cyberinfrastructure, submitted to *IEEE Transactions on Services Computing*, 2021, under review, pp. 1-14.

Patents

1. Yunpeng Zhang, Beibei Zhang, Heng Li, Zhiwen Wang, Shiyuan Ren, Pengfei Guo, *A Smart Building Monitoring and Managing System Based on the Internet of Things*, China Patent Num: 2016100160048, 2016.01
2. Yunpeng Zhang, Beibei Zhang, Heng Li, Tianqi Zhou, Kejun Li, Mingyuan Gao, *An Agricultural Intelligent Analysis and Monitoring System Based on the Internet of Things*, China Patent Num: 2015110317239, 2015.12
3. Yunpeng Zhang, Beibei Zhang, Bobo Wang, Yingnan Cai, Heng Li, Lixiang Zhang, *Real-Time and Telemedicine Medical Positioning Monitoring System Based on the Internet of Things*, China Patent Num: 2014105837544, 2014.11
4. Yunpeng Zhang, Xiaobin Cai, Zhengjun Zhai, Huiqin Jiao, Yu Zhu, *An Encryption Method of Test Data Based on S-Box and Chaos*, China Patent Num: 2010101189474, 2010.3
5. Yunpeng Zhang, Zhe Zhou, Haibing Yang, Yu Zhu, Wenjie Pan, Xinkui Zhao, Xiangbin Zhang, *A Block Encryption Method Based on 3D Chaotic Arnold Maps*, China Patent Num: 2009102191657, 2009.11
6. Yunpeng Zhang, Fei Zuo, Zhengjun Zhai, Huiqin Jiao, *A New Image Encryption Method Based on a Multiple Chaos System*, China Patent Num: 2008101500517, 2008.6

Books

1. Yunpeng Zhang, Junsheng Wu, Fan Yang, *User-Centered Design and Evaluation*, Posts & Telecom Press, Sept 2014, ISBN: 9787115366733
2. Yunpeng Zhang, *Modern Multimedia Technology and Its Application*, Posts & Telecom Press, Mar 2014, ISBN:9787115344120
3. Yunpeng Zhang, Jiejie Li, etc, *Skilled in Program of Hacker Based on VB*, Qi Lu Electronic Audio-video Publishing House, 2009, ISBN:978-7-89462-185-6
4. Yunpeng Zhang, Yian Zhu, etc, *Introduction of Computer System*, Northwestern

Polytechnical University Press, 2009, ISBN:978-7-5612-2532-5

5. Yunpeng Zhang, *Programming with Microsoft Visual Basic6.0*, Enhanced Edition, Translation, Publishing House of Electronics Industry, 2007, ISBN:978-7-121-04237-9
6. Yunpeng Zhang, *Programming with Microsoft Visual Basic6.0*, Enhanced Edition, Reorganization, Publishing House of Electronics Industry, 2006, ISBN:7-121-03407-7

Book Chapters:

1. Yunpeng Zhang, etc, *Applied Cryptography and Network Security*, InTech - Open Access Publisher, Mar 2012, ISBN: 978-953-51-0218-2. (<http://www.intechopen.com/books/statistics/applied-cryptography-and-network-security/research-on-dna-cryptography>) Downloaded more than **3966 times** (07/28/2020).
2. Hu Liao, Yunpeng Zhang, Qinghong Yu, *Exercise Instruction of Exams for Postgraduate Schools of Discrete Mathematics*, Northwestern Polytechnical University Press, 2007, ISBN: 978-7-5612-2286-7
3. Hu Liao, Qinghong Yu, Yunpeng Zhang, *Discrete Mathematics*, Northwestern Polytechnical University Press, 2007, ISBN:978-7-5612-2254-6

Grants and Contracts

1. *Acquisition of an Advanced Traffic Management Systems for Cyber and Physical Security Research*, UH High Priority Area Research Equipment Award, \$48,600.00, April, 2020 – Oct, 2021. (**PI**, 100% Credit)
2. *Development and Enhancement of In Service Performance Evaluation (ISPE) Process for Roadside Safety Devices*, Texas Department of Transportation flow thru from Federal Highway Administration, \$249,695.00, July, 2019 – July, 2021. (**UH side PI**, \$142,296.00, 100% Credit, TSU side PI: Dr. Fengxiang Qiao)
3. *Deep Learning Based Intrusion Detection Approaches for Advanced Traffic Management Systems*, UH Data Science Institute, \$29,876.00, Jan 15 2019 – Jan 14, 2020. (**PI**, 40% credit. Co-PI: Dr. Liang-Chieh Cheng and Dr. Jiming Peng)
4. *Towards a Security Framework for the Future Heterogeneous Internet of Things: A Pilot Study*, College of Technology, UH, \$9,999.00, Feb 2018-Jan 2019. (**PI**, 100% credit.)
5. *Blockchain-Enabled Digitized Value Chain for the next-gen e-Commerce*, Fluor Corporation, Pasadena, TX, U.S.A., \$7000.00, Dec 2017- May 2018. (**Co-PI**, 50% credit, PI: Dr. Liang-Chieh Cheng, 50% credit.)
6. *Blockchain Innovations in Supply Chain*, Department of Construction Management, UH. \$5,400.00, Nov 2017-Feb 2018. (**Co-PI**, 50% credit, PI: Dr. Liang-Chieh Cheng, 50% credit.)
7. *Multiple Workflow Systems Data Combing and Security Access Design*, Segorobotics LLC, Katy, TX, U.S.A. \$3,000.00, Aug 2017-Dec 2017. (**PI**, 100% credit.)
8. *High Risk Patient Behavior Data Analysis and HIPPA-based Secure Mobile App Development*, \$7,000.00, June 2017-Mar 2018, Sub-contract of *Virtual Reality Cue Reactivity: Assessment of Reactivity and Extinction Protocols in Injection and Non-Injection Heroin-Using Mexican Americans*, National Institutes of Health (NIH) and National Institute

on Drug Abuse (NIDA), 2014-2019. Collaborative grant with Graduate College of Social Work at UH. (**Sub-contract PI**, 100% credit. The Project PI: Dr. Nicole F. Bromfield)

9. *Investigating the Security of TxDOT's Traffic Signal Systems*, Texas Department of Transportation (TxDOT) Funding, TxDOT, \$173,800.00, Sept 2016-Feb 2018, (**PI**, 60% credit.) (This project was selected by TxDOT for the award, but due to the budget issue of the TX government, TxDOT canceled the project.)
10. *New Method of DNA Encryption Based on Biological puzzle*, New Faculty Funding, University of Houston, \$6,000.00, Sept 2015-Aug 2016, (**PI**, 100% credit.)
11. *Research on New Cybersecurity Model and System*, \$29,988.00, Sept 2015-Aug 2016, University of Houston National Research University Fund. (**PI**, 100% credit.)
12. *NSF:TTP: Small: Automated Conformance Testing of Access Control and Obligation Policies*, NSF CNS1359590, \$515,371 (including \$15,600 REU supplement), Nov 2013 - August 2015. Dr. Dianxiang Xu (PI). (Dr. Yunpeng (Jack) Zhang was a **Research Associate**.). Boise State University
13. *NSF:MRI: Acquisition of an Online Banking System for Information Assurance Research*, NSF CNS1123220, \$400,000.00, Jan 2013 – Oct 2013, Dr. Dianxiang Xu (PI), (Dr. Yunpeng (Jack) Zhang was a **Research Associate**.). Dakota State University
14. *Research on DNA Cryptography*, A Basic Research Fund of Northwestern Polytechnical University, ¥100,000.00, Oct 2010-Oct 2012, GAKY100101 (**PI**, 100% credit.)
15. *Research on New Chaos Image Cryptography Based on Information Hiding*, Science and Technology Development Grant of Shaanxi Province, China, ¥50,000.00, Jan 2010-Dec 2011, 2010K06-22g, (**PI**, 100% credit.)
16. *Research on Symmetrical DNA Crypto-algorithm*, R Fund of College of Software and Microelectronics of Northwestern Polytechnical University, ¥50,000.00, Jan 2010 – Dec 2011, 2010R001, (**PI**, 100% credit.)
17. *Research on Data Cryptography of Telemetry Based on Network and Embedded System*, A Aero-Science Fund of China, ¥80,000.00, Oct 2009-Oct 2011, 2009ZD53045, (**PI**, 100% credit.)
18. *Analysis and Design of Several Chaotic Cipher Algorithms*, A NPU Innovation Technology Fund-funded, ¥60,000.00, Dec 2007 – Dec 2009, W016121, (**PI**, 100% credit.)
19. *Monitoring and Fault Predicting Technology Over the Web*, A China Aviation Industry Corporation I Science and Aeronautical Fund-funded, ¥3,500,000.00, Sept 2005-Sept 2009, (B2720060300) (A collaborative project with Prof. Zhengjun Zhai as a **Senior Personnel**, 10% credit.)

Travel Fundings

20. *Provost's Travel Fund*, UH, \$1,200.00, support travel for 2019 6th International Conference on Systems and Informatics (ICSAI2019), Nov 2-4, 2019, Shanghai, China. (**PI**, 100% credit.)
21. *Provost's Travel Fund*, UH, \$1,200.00, support travel for The 14th IEEE International Conference on Control & Automation, June 12–15, 2018, Anchorage, Alaska, USA, (**PI**, 100% credit.)

22. *Oak Ridge Associated Universities (ORAU) Travel Grant*, ORAU, \$800.00. May - Aug 2018, (PI, 100% credit.)
23. *Provost's Travel Fund*, UH, \$1,200.00, support travel for The 13th IEEE International Conference on Control & Automation, July 3–6, 2017, Ohrid, Macedonia. (PI, 100% credit.)

Projects on Education Research

24. *NSF: RET Site: Cyber Security*, NSF CNS1200648, \$500,000.00, May 2013 - August 2013, Dr. Dianxiang Xu (PI). (Dr. Yunpeng (Jack) Zhang was a **Research Associate**.), Dakota State University.
25. *Research on Teaching International Students with the Strongpoints of Chinese and Western Methods*, A Shaanxi Province Education Method Research Fund(Key), China, ¥ 50,000.00, Dec 2010-Dec 2012, (PI, 100% credit.)
26. *2008 Best Courses "Software Engineering" Project*, A NPU Education Method Research Fund, ¥ 30,000.00, Apr 2008-Apr 2011, (Co-PI, 40% credit. PI: Dr. Junsheng Wu, 60% credit.)
27. *Professional Development for Software Engineering Series Courses Project*, A China National Ministry of Education Method Research Fund, ¥ 50,000.00, Feb 2008-Feb 2010, (Co-PI, 20% credit. PI: Dr. Yian Zhu, 80% credit.)
28. *Research and Practice to Improve Student's Innovative Ability in Software Engineering Core Curriculum*, A NPU Education Research Fund (Key), ¥ 60,000.00, Dec 2007-Dec 2009, (Co-PI, 20% credit. PI: Dr. Yian Zhu, 80% credit.)
29. *The Best Course Construction of User-central Interface Design Project*, A NPU Education Method Research Fund, ¥ 5,000.00, Sep 2006-Sep 2008, (PI, 100% credit.)
30. *Research and Practice of Psychology in Human-Computer Interface Design Course Project*, A NPU Education Method Research Fund, ¥ 5,000.00, Sep 2005-Sep 2007, (PI, 100% credit.)
31. *Strengthening SSD Education Methods in the "Introduction to Computers" Course, and Strive to Improve the Overall Quality of Students Project*, A NPU Education Method Research Fund, ¥ 5,000.00, Sep 2004-Sep 2006, (PI, 100% credit.)

The Outstanding Thesis of students

1. July, 2012, Dongwei Zhou, *Based on ORF's one-time pad encryption scheme*, 2012 Key Funding Best Thesis Award, Northwestern Polytechnical University, China.
2. July, 2011, Xianwei Zhang, *Building a Symmetric Encryption Method Based on DNA Fragments Mosaic Technology*, 2011 Key Funding Best Thesis Award, Northwestern Polytechnical University, China.
3. July, 2011, Jie Zhang, *The Best Way Finding Methods Based on Machines State and Real-Time Adjustment Algorithm*, 2011 Outstanding Thesis Award, Northwestern Polytechnical University, China.
4. June, 2010, Zhe Zhou, *Chaotic Image Encryption Based on Wavelet Transform Research*, 2010 Outstanding Thesis Award, Northwestern Polytechnical University, China.

5. June, 2009, Lin Xia, *A Fast Chaotic Public Key Cryptographic Algorithm Research*, 2009 Outstanding Thesis Award, Northwestern Polytechnical University, China.
6. June, 2008, Fei Zuo, *Chaos-based Image Data Encryption Research*, 2008 Outstanding Thesis Award, Northwestern Polytechnical University, China.
7. June, 2007, Xiaodong Qi, *Design and Implementation of Online Trading Platform Based on Struts and Hibernate*, 2007 Outstanding Thesis Award, Northwestern Polytechnical University, China.
8. June, 2006, Zhi Yan, *Research and Implementation of Data Integration Platform for Shanghai Pudong*, 2006 Outstanding Thesis Award, Northwestern Polytechnical University, China.

Professional Activity

Paper Reviewer for Journals

IEEE Transactions on Reliability,
 IEEE Transactions on Dependable and Secure Computing,
 IEEE Transactions on Industrial Electronics,
 IEEE Access,
 ACM Computing Surveys,
 Journal of Internet Technology,
 Imaging Science Journal,
 Energies, etc.

Proposal Reviewer for Funding Agencies

NSF Panel
 DOD

Editor of Journal:

Journal of Computer Engineering and Informatics
<http://www.academicpub.org/jcei/EditorialBoard.aspx>

Service on International Conferences/Workshops and Journal

- | | |
|---------------------|---|
| Dec, 2020-Oct 2021 | Program Committee Member, <i>The Sixteenth International Conference on Systems and Networks Communications (ICSNC 2021)</i> , - Barcelona, Spain, October 03 - 07, 2021 |
| Jan, 2021-July 2021 | Program Committee Member, <i>2021 IEEE 45th COMPSAC Symposium on Security, Privacy and Trust in Computing (SEPT)</i> , virtual meeting, July 12-16, 2021. |
| Jan, 2021-July 2021 | Program Committee Member, <i>The 30th International Conference on Computer Communication and Networks (IEEE ICCCN 2021)</i> , Athens, Greece. July 19-22, 2021 |
| Dec, 2019-Oct 2020 | Program Committee Member, <i>The Fifteenth International Conference on</i> |

- Systems and Networks Communications (ICSNC 2020)*, - Porto, Portugal, October 18 - 22, 2020
- Oct, 2019-July 2020 Program Committee Member, *2020 IEEE 44th Computer Society Conference on Computers, Software and Applications (COMPSAC 2020)*, Madrid, Spain, July 13 – 17, 2020
- Sept, 2019-Aug 2020 Program Committee Member, *The 29th International Conference on Computer Communication and Networks (IEEE ICCCN 2020)*, Honolulu, Hawaii, USA. Aug 3-6, 2020
- Sept, 2019-May 2020 Program Committee Member, *The 13th Asia Pacific Transportation Development Conference and 33rd International Chinese Transportation Professionals Association (ICTPA) Annual Conference*, Shanghai, China. May 28-31, 2020
- Dec, 2019-Dec 2020 General Co-Chair, *The 3rd IEEE International Symposium on Future Cyber Security Technologies (FCST 2020)*. In conjunction with *The Seventh IEEE International Conference on Internet of Things: Systems, Management and Security (IoTSMS 2020)*, Paris, France. Dec 14-16, 2020
- Aug 2019 Session Chair, *The 2019 International Conference on Sensing, Diagnostics, Prognostics, and Control*, August 15-17, 2019. Beijing, China.
- July 2019 Session Chair, *The 2nd IEEE International Conference on Blockchain (IEEE Blockchain 2019)*, July 14–17, 2019, Atlanta, USA.
- Dec, 2018-Oct 2019 General Co-Chair, *The 2nd IEEE International Symposium on Future Cyber Security Technologies (FCST 2019)*. In conjunction with *The Sixth IEEE International Conference on Internet of Things: Systems, Management and Security (IoTSMS 2019)*, Granada, Spain. October 22-25, 2019
- May 2019 Judge, *The 4th annual US-China Innovation and Investment and 3rd InnoSTARS conference*, May 16-17, 2019, Houston, U.S.A
- Dec, 2017-Oct 2018 General Co-Chair, *The 1st IEEE International Symposium on Future Cyber Security Technologies (FCST 2018)*. In conjunction with *The Fifth IEEE International Conference on Internet of Things: Systems, Management and Security (IoTSMS 2018)*, Valencia, Spain. October 15-18, 2018
- Aug 2018 Judge, the 2nd InnoSTARS online showcase, Aug 8, 2018, Houston, U.S.A
- June 2018 Session Chair, *The 14th IEEE International Conference on Control and Automation (IEEE ICCA 2018)*, June 12–15, 2018, Anchorage, Alaska, USA.
- May 2018 Judge, *The 3rd annual US-China Innovation and Investment and 2nd InnoSTARS conference*, May 14-15, 2018, Houston, U.S.A
- Sept, 2017-April 2018 General Co-Chair, the 1st International Symposium on the Future of

- Security Controls (FSC 2018), Barcelona, Spain. April 23-26, 2018.
- Oct, 2017-Mar 2018 IPC Member, *3rd ACM Workshop on Attribute Based Access Control*, March 21, 2018, Tempe, AZ, USA
- Sept, 2017-April 2018 IPC Member, *the Fifth International Conference on Software Defined Systems (SDS-2018)*, Barcelona, Spain. April 23-26, 2018.
- July 2017 Session Chair, *the 16th IASTED International Conference on Intelligent Systems and Control*, Calgary, Canada.
- May 2017-Feb 2018, **Guest Editor**, *Journal of Security and communication Networks* for the Special Issue "*Emerging Security Architectures and Technologies for Internet of Things*".
- June, 2017 **Keynote Speaker**, *2017 2nd International Conference on Control, Automation and Artificial Intelligence (CAAI2017)*, Sanya, China. <http://www.caa2017.org/keynote.html>
- May, 2014-Dec, 2014 IPC Member, *Information and Cyber Security Track, I-SPAN 2014*, Chengdu, P.R. China.
- Mar, 2013 **Keynote Speaker**, *2013 International Conference on Computer Science, Electronic Technology and Intelligent System (CSETIS 2013)*, Hangzhou, China.
- Nov, 2012 Session Chair, *the 16th IASTED International Conference on Software Engineering and Applications (SEA2012)*, Las Vegas, USA
- June, 2012 Session Chair, *5th International Conference on Interaction Sciences: IT, Human and Digital Content*, Jeju Island, Republic of Korea
- Feb, 2010-May, 2010 IPC Member and Session Chair, *6th China-Europe Symposium on Software Industry Oriented Education*, Xi'an, P.R. China
- Aug, 2009 Session Co-Chair, *IEEE 2009 4th International Conference on Computer Science & Education*, Nanning, P.R. China

Selected Seminars and Talks

- Aug 2019 Invited Talk: *Research on Core Blockchain Technology in Real Estate Economy*, hosted by Tianjin University, Tianjin, China.
- Oct, 2018 Invited Talk: *Innovations of Smart & Connected Systems - New ways to conduct business in a digital tech environment*, hosted by Americas Breakbulk, Houston, U.S.A.
- July, 2018 Invited Talk: *DNA Cryptography and a Nanostructure Based Algorithm*, hosted by Oak Ridge National Lab, Oak Ridge, U.S.A.
- Mar, 2018 Invited Talk: *Decentralized, Blockchain Based Access Control Framework for the Heterogeneous Internet of Things*, Department of Industrial Engineering, hosted by University of Houston, Houston, U.S.A.
- Oct, 2017 Invited Talk: *Developing Trust Management System and Trust Data Analysis in a Cloud-Based Supply Chain*, Invited by Technology Collaboration Center, hosted by Rice University Houston, U.S.A.
- June, 2017 Invited Talk: *State of Art of Traffic Signal Systems Cybersecurity and a Solution*,

Beijing Jiaotong University, Beijing, China

- April, 2017 Invited Talk: *The Future of National Security - Maritime cybersecurity*, Department of Transportation Studies at Texas Southern University (TSU), Houston, U.S.A.
- Sept, 2016 Invited Talk: *A Novel System for Maritime Cybersecurity*, Breakbulk Americas Education Day, Houston, U.S.A.
- Sept, 2016 Invited Talk: *What's Cybersecurity?* Cyber Security Club, University of Houston, Houston, U.S.A.
- July, 2016 Invited Talk: *Background and Future Research Related to Drone Technologies*, Lone Star UAS Center of Excellence & Innovation, Texas A&M University at Corpus Christi, Corpus Christi, U.S.A.
- Mar, 2016 Invited Talk: *Cybersecurity Ramble*, Cyber Security Club, University of Houston, Houston, U.S.A.
- Nov, 2015 Invited Talk: *Fault-Based Testing of Combining Algorithms in Access Control Language Policies*, Department of Computer Science, University of Houston, Houston, U.S.A.
- Oct, 2015 Invited Talk: *Detecting Misuses of Combining Algorithms in XACML 3.0 Policies*, Department of Electrical & Computer Engineering, University of Houston, Houston, U.S.A.
- Mar, 2015 Invited Talk: *Fault Detection Conditions for XACML3.0 Policies*, Department of Information and Logistics Technology, University of Houston, Houston, U.S.A.
- Mar, 2012 Research Group Talk: *Open Source Software and Image Processing*. Imperial College London, U.K.
- Jun, 2011 eResearch Group Talk: *Index-Based Symmetric DNA Encryption Algorithm*. University of Melbourne, Australia
- May, 2011 eResearch Group Talk: *A Rapid Cryptographic Algorithm Based on Chaos and Public Key Infrastructures*. University of Melbourne, Australia
- Nov, 2010 Department Seminar: *Introduction to DNA Cryptography*. NPU, China
- Sept, 2006-Dec, 2012 Cyber Security Group Seminar, NPU, China, one time per two weeks, (on-campus or online meeting), Northwestern Polytechnical University, China

Professional Development

- May-Aug 2020, INFA792 Special Topic Machine Learning for Cyber Security, Dakota State Uni.
CyberTraining Summer Courses, Online course.
- Aug 2019, Intrusion Detection and Prevention, National Security Agency (NSA) and North Central CRRC, Faculty Professional Development Workshop, Las Vegas, NV
- July 2019, Online Course Developing Training, College of Technology, UH, Houston, TX
- May 2019, Penetration Testing, National Security Agency (NSA) and North Central CRRC, Faculty Professional Development Workshop, St. Paul, MN
- April 2019, NSF CISE Career Workshop, NSF, April 8-9, 2019, Washington D.C.
- Jan, 2019, The 36th National Effective Teaching Institute 1A NETI, January 3-5, 2019, San Diego, CA.
- May-June 2018, Incident Response, National Security Agency (NSA) and North Central CRRC, Faculty Professional Development Workshop, Sioux Falls, SD
- Aug, 2010 Cloud Computing Certificate, IBM
- Aug, 2006 Open Source Technology and software Certificate, IBM

- Feb, 2005 SSD4 (User-Central Design and Testing) Training, obtain Instructor Competency, Icarnege (Carnegie Mellon University)
- Nov, 2004 Linux Basic and System Administration Certificate, IBM
- Sept, 2004 SSD2 (Introduction to Computer Systems) Training, obtain Instructor Competency, and assumed Leading Instructor of P.R. China, Icarnege (Carnegie Mellon University)
- May, 2004 XML and Related Technologies and Web Services Certificate, IBM

Professional Affiliations

IEEE Member

ACM Member

IEEE Boise Section Secretary (01/2015-07/2015).

Service (Since Aug 2015)

1. Serve on the CM Department SCLT TT Search committee at University of Houston (Feb-July 2020 due to COVID-19)
2. Serve on the College of Technology Honest committee at University of Houston (Aug 2019-Aug 2021)
3. Build a new Course, CIS 6397-Data Science for Cybersecurity (Feb-Dec, 2019)
4. Help on Building a new Graduate Program, Data Science for Technology (2019, 2020)
5. Serve as the Department Hearing Officer (Fall 2017 – Fall 2018)
6. Help on Building the Cybersecurity Strategic Plan (2018)
7. Serve on the ILT Department Cybersecurity TT Search committee at University of Houston (Nov 2017 – Mar 2018)
8. Provide Letter of Recommendation for students
9. Advised students
 - 1) Dissertation Committee Member, Ph.D. Student, Zechun Cao, (Prof. Stephen S.-H. Huang is the Chair.) (2018, 2019, 2020) Work as faculty for Texas A&M University San Antonio.
 - 2) Dissertation Committee Member, Ph.D. Student, Mohammad Najarian, Dissertation Committee Member (Prof. Gino Lim is the Chair.) (2018, 2019, 2020)
 - 3) RA, Ph.D. Student, Thanh Hung Duong (Joint with Prof. Miao Pan, Since 2020)
 - 4) RA, Ph.D. Student, Anukriti Mishra (Joint with Prof. Albert Cheng, Female, 2019, 2020)
 - 5) RA, Ph.D. Student, Khadija khaldi (Prof. Shishir Shah is the supervisor, Female, 2019)
 - 6) RA, Ph.D. Student, Ali Memariani (Prof. Ioannis Kakadiaris is the supervisor, 2019)
 - 7) Volunteer: Ph.D. Yu Shi (2020, 2021), Work for Citibank.
 - 8) RA: Advising Research Project: Mohan Reddy (2021)
 - 9) RA: Advising Research Project: Anh Nguyen (2021)
 - 10) RA: Advising Research Project: Daniel Egwede (2021)
 - 11) RA: Advising Research Project: Yash Gandhi (2021)
 - 12) RA: Advising Research Project: Anouska Shrestha (2021)
 - 13) RA: Advising Research Project: David Utomi (2020, 2021)
 - 14) RA: Advising Research Project: Luciano R. Branco (2020, 2021)

- 15) RA: Advising Research Project: Farzanuddin Hisam Ahmad (2020, 2021)
- 16) RA: Advising Research Project: Nirupam Bidikar (2020, 2021)
- 17) RA: Advising Research Project: Sri Harsha (2020)
- 18) RA: Advising Research Project: Revanth Sri Tripuraneni (2020)
- 19) RA: Advising Research Project: Leticia de Castro Leandro (Female, 2019)
- 20) RA: Advising Research Project: Glenn Turner (2019, Master Thesis Defense on Nov 8, 2019)
- 21) RA: Advising Research Project: Tian Yuan (2019, 2020)
- 22) RA: Advising Research Project: Hung Duong (2020)
- 23) RA: Advising Research Project: Bidit Das (2019, 2020)
- 24) RA: Advising Research Project: Anish Patel (2019)
- 25) RA: Advising Research Project: Eljose Sajan (2019)
- 26) RA and Volunteer: Advising Research Project: Rashmi S Rao (Female, 2018)
- 27) Volunteer: Advising Research Project: Abheeshta Reddy Jakka (Female, 2018)
- 28) Volunteer: Advising Research Project: Zach haven (Undergraduate, 2018)
- 29) IA: Hari Prasad Jella (2018)
- 30) IA: Jules Berlin Nde Kengne (2018)
- 31) RA: Advising Research Project: Chethana Dukkupati (Female, 2017, 2018, 2019)
- 32) RA: Advising Research Project: Jincheng Lai (2017, 2018)
- 33) RA: Advising Research Project: Lun Sun (2017, 2018)
- 34) RA and Volunteer: Advising Research Project: Sarah S. Alexander (Female, 2017, 2018), work in Realresults.
- 35) RA: Advising Research Project: Xiaobo Li (2017)
- 36) Advising Graduate Student Capstone Project: Yang You, Co-Chair (2017)
- 37) Advising Graduate Student Capstone Project: Jorge Victorio, Chair (2017)
- 38) Advising Graduate Student Capstone Project: Ke Gan, Co-Chair (2017)
- 39) Volunteer: Advising Research Project: Srinivasa Kapthic Ponguru (2017)
- 40) IA: Sagar Limaye (2017)
- 41) RA: Advising Research Project: Feng Guo (Undergraduate) (2016)
- 42) IA: Dharani Chandran (2016)

Networking

Connected with around 60 Companies, Universities and Institutes. Our team's research has attracted significant interest from industrial companies and the government. Contactors examples are as follows.

1. **IBM**, Dr. Prabhakar Kudva and Dr. Liang Ma, who had discussed blockchain, IoT and cloud computing research with the PI and is doing work towards publishing papers and pursuing grants together.
2. **Department of Transportation of Corpus Christi**, Mr. Raymond Chong exchanged a lot ideas and submitted two proposals to DoT in transportation security field with Dr. Zhang's team.

3. **Port of Houston**, the Director of Security, Ms. Jessica Thmothy, who first met with Dr. Zhang's team in June 2017. Dr. Zhang's team is currently continuing contact with Ms. Thmothy. She is willing to have research and training in maritime field for Port of Houston.
4. **SegoRobotics, Inc.** in Katy, TX, Dr. Jason He and his team has shown great interest and enthusiasm in the dynamic weighted sum and multi-factor integration based trust management theoretical approaches and model for HIoT security since our cooperation began in Feb 2017. *SegoRobotics, Inc.* has supported one of the Dr. Zhang's projects, *Multiple Workflow Systems Data Combing and Security Access Design*, \$3000.00, Aug-Dec 2017, (PI, 100% credit.). Dr. Zhang's team is working closely with the engineers of *SegoRobotics, Inc.* and the insights obtained from this project will be assimilated into the operations of the company.
5. **Gensler**, who is interested in the deployment of our research in future smart cities. In July 2017, *Gensler* held the first formal meeting with the University of Houston (UH) team. Dr. Zhang's team is currently continuing contact with Gensler's team for further cooperation.
6. **Texas Southern University**, 1) Dr. Fengxiang Qiao who is the head of Innovative Transportation Research Institute; 2) Dr. Yi Qi who is the Chair in the Department of Transportation. They are working with Dr. Zhang in transportation security field and submitted proposal and/or problem statement to TxDoT and/or DoT. TSU team already submitted three proposals to TxDoT and DoT with Dr. Zhang's team.
7. **Fluor Corporation**, Pasadena, TX, U.S.A., Supported a project, *Blockchain-Enabled Digitized Value Chain for the next-gen e-Commerce*, \$7000.00, Dec 2017- May 2018. (co-PI, 50% credit, PI: Dr. Liang-Chieh Cheng, 50% credit.)
8. **Graduate College of Social Work at UH**. Dr. Luis Torres (Associate Dean) and his team, Worked with Dr. Zhang on a NIH project. Dr. Zhang had done a sub-contract, *High Risk Patient Behavior Data Analysis and HIPPA-based Secure Mobile App Development*, \$7,000.00, June 2017-Oct 2017. (PI, 100% credit.)
9. **Gulf Winds**, Mr. Dustin Hebrank, Chief Financial Officer, and his team are interested in Blockchain technology to improve their business processing. Gulf Winds team first met with Dr. Zhang's team in Nov 2017. Dr. Zhang's team is currently continuing contact with Gensler's team to pursue further cooperation.

In its efforts to keep the projects sustainable, Dr. Zhang's team is considering commercializing the technologies and transitioning their research outcome to the team's collaborating institute to provide a platform for researchers in this field.