

Postdoctoral Research Associate
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Research Interest

Artificial intelligent, machine learning, data mining, computational game theory, with intersections on various domains such as cyber security and transportation science

Education

Nanyang Technological University 01/2014 – 05/2018
Singapore

Ph.D. in Computer Science

Advisors: Yeng Chai Soh & Bo An

Thesis: Large Scale Strategic Decision Making in Multi-Agent Systems

University of Science and Technology of China 07/2009 – 07/2013
Hefei, China

B.Sc. in Physics

Research Appointments

Postdoctoral Research Associate 07/2018 –
Department of Computer Science, Dartmouth College
Advisor: V.S. Subrahmanian

Research Intern 11/2017 – 05/2018
Didi Xinrui Internship, Didi Chuxing
Project: InBEDE: Integrating Contextual Bandit with TD Learning for Pricing and Dispatch of Online Ride-Hailing Platforms (ICDM'19)

Research Intern 08/2013 – 11/2013
Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences

Awards

- **Demonstration Innovation Award, runner up, IJCAI'19** 2019
In this paper "VEST: A System for Vulnerability Exploit Scoring and Timing", we developed a demo system which predicts the severity as well as the timing of being exploited for a disclosed cyber vulnerability. This demo paper is built upon the algorithms developed by our KDD'19 and ICDM'19 papers, and provides a highly interactive user interface and visualization tool to illustrate the network characteristics of our designed algorithms.
- Didi Xinrui Internship, Didichuxing 2017
- **Winner of Microsoft Malmo Collaborative AI Challenge** 2017
Aimed at pushing the state of the art of collaborative AI, Microsoft Research launched the 2017 Malmo Collaborative AI Challenge, asking teams to provide solutions in a collaborative AI domain based on the Minecraft game platform. More than 80 teams from 26 countries entered the challenge and our designed agent HogRider won the first place.
Media coverage:
Presenting the winners of the Project Malmo Collaborative AI Challenge
微软 Malmo 项目协同AI 挑战赛: 中国团队榜上有名, 获胜者福利多多 (Chinese)
SCSE Team HogRider wins first place for the Microsoft Azure for Research grant prize!
- Recommended for Teaching, University Teaching Award, NTU 2015

Teaching Experiences

- Teaching Assistant of "Math Refresher"* Spring'17
(Instructor: Patricia Y. J. Wong)
- Teaching Assistant of "EE2006, Engineering Mathematics I"* Fall'16
(Instructor: Patricia Y. J. Wong)

Professional Service

Program committee member:

AAAI 2019/2020
AAMAS 2019/2020
IJCAI 2019

Journal reviewer:

European Journal of Operational Research (2019)
IEEE Intelligent Systems (2018, 2019)
Journal of Computer and System Sciences (2018)
ACM Transactions on Computational Logic (2018)
Energy and Buildings (2017)

Student volunteer: WI-IAT (2015)

Pending Patent

Haipeng Chen, Zhiwei (Tony) Qin, Yan Jiao, Xiaocheng Tang, Bo An, Hongtu Zhu, and Jieping Ye. InBEDE: Integrating Contextual Bandit with TD Learning for Pricing and Dispatch of Online Ride-Hailing Platforms.

Publications

Under review

[r4] Xu He, **Haipeng Chen**, Bo An. Adaptive Light Control by Inferring Human Light Preference from Imperfect Feedback.

[r3] **Haipeng Chen**, Mauro Conti, Luca Pajola, and V.S. Subrahmanian. StyleVAE: Preserving Styles in Text Generation.

[r2] **Haipeng Chen**, Mohammad T. Hajiaghayi, Sarit Kraus, Anshul Sawant, Edoardo Serra, V.S. Subrahmanian and Yanhai Xiong. PIE: A Data-Driven Payoff Inference Engine with Counter-Terrorism Applications. Submitted to IEEE Transactions on Computational Social Systems (*TCSS*), under revision.

[r1] **Haipeng Chen**, Qian Han, Sushil Jajodia, Roy Lindelauf, V.S. Subrahmanian and Yanhai Xiong. Disclose or Exploit? A Game Theoretic Approach Towards Strategic Decision Making in Cyber Warfare. Submitted to **IEEE Systems Journal**, under revision.

Journal Articles

- [j3] Yuanyuan Wu, **Haipeng Chen**, and Feng Zhu. DCL-AIM: Decentralized Coordination Learning of autonomous intersection management for connected and automated vehicles, *Transportation Research, Part C: Emerging Technologies (TRC)*, 2019.
- [j2] **Haipeng Chen**, Bo An, Dusit Niyato, Yengchai Soh, Chunyan Miao. Workload factoring and resource sharing via joint vertical and horizontal cloud federation networks, *IEEE Journal on Selected Areas in Communications (JSAC)*, 35(3):557-570, 2017.
- [j1] Bo An, **Haipeng Chen**, Noseong Park, V.S. Subrahmanian. Data-driven frequency-based airline profit maximization, *ACM Transactions on Intelligent Systems and Technology (TIST)*, 8(4):61, 2017.

Conference Proceedings

- [c9] **Haipeng Chen**, Yan Jiao, Zhiwei (Tony) Qin, Xiaocheng Tang, Hao Li, Bo An, Hongtu Zhu, Jieping Ye. InBEDE: Integrating Contextual Bandit with Temporal Difference Learning for Pricing and Dispatch of On-Line Car-Hailing Platform. *Proceedings of the 19th IEEE International Conference on Data Mining (ICDM'19)*, regular paper, accepted.
- [c8] **Haipeng Chen**, Jing Liu, Rui Liu, Noseong Park, V.S. Subrahmanian. VASE: Vulnerability Scoring and Analysis Engine. *Proceedings of the 19th IEEE International Conference on Data Mining (ICDM'19)*, short paper, accepted.
- [c7] **Haipeng Chen**, Jing Liu, Rui Liu, Noseong Park, V.S. Subrahmanian. VEST: A System for Vulnerability Exploit Scoring and Timing. *Proceedings of the 28th International Joint Conference on Artificial Intelligence (IJCAI'19)*, demo paper. **Demonstration Innovation Award runner up.**
- [c6] **Haipeng Chen**, Sushil Jajodia, Jing Liu, Noseong Park, Vadim Sokolov, and V. S. Subrahmanian. Fake Tables: Using GAN to Generate Functional Dependency Preserving Tables with Bounded Real Data. *Proceedings of the 28th International Joint Conference on Artificial Intelligence (IJCAI'19)*.
- [c5] Wei Qiu, **Haipeng Chen**, and Bo An. Dynamic Electronic Toll Collection via Multi-Agent Deep Reinforcement Learning with Edge-Based Graph Convolutional Network Representation. *Proceedings of the 28th International Joint Conference on Artificial Intelligence (IJCAI'19)*.
- [c4] **Haipeng Chen**, Rui Liu, Noseong Park, and V.S. Subrahmanian. Using Twitter to Predict When Vulnerabilities will be Exploited. *Proceedings of the 25th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'19)*.
- [c3] Yanhai Xiong*, **Haipeng Chen***, Mengchen Zhao, Bo An. HogRider: Champion agent of Microsoft Malmo collaborative AI challenge. *Proceedings of the 32nd AAAI Conference*

on Artificial Intelligence (*AAAI'18*). Oral presentation. **Winner of Microsoft Malmo Collaborative AI Challenge**. *Equal contribution.

[c2] **Haipeng Chen**, Bo An, Guni Sharon, Josiah Hanna, Peter Stone, Chunyan Miao, Yeng Chai Soh. DyETC: Dynamic electronic toll collection for traffic congestion alleviation. Proceedings of the 32nd AAAI Conference on Artificial Intelligence (*AAAI'18*). Oral presentation.

[c1] Bo An, **Haipeng Chen**, Noseong Park, V.S. Subrahmanian. MAP: Frequency-Based Maximization of Airline Profits based on an Ensemble Forecasting Approach, Proceedings of the 22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (*KDD'16*), pp.421-430.