






CHIA-CHENG (JERRY) YEN

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RESEARCH INTERESTS

- Reinforcement Learning, Traffic Signal Control, Cyber-security, WSNs

EDUCATION

PhD candidate in Computer Science
University of California, Davis

09/2017-present

- Current GPA: 3.88/4.0

Master of Science in Computer Science

09/2012-07/2014

National Tsing Hua University, Hsinchu, Taiwan

- Overall GPA: 4.27/4.3 (50% Academic Average and 50% Thesis)

Bachelor of Science in Computer Science and Information Engineering

09/2008-06/2012

Fu Jen Catholic University, Taipei, Taiwan

- Overall GPA: 3.96/4.0 (Major GPA: 4.0/4.0)
- Best Ranked 1st, Average Ranked 2nd in class

RESEARCH EXPERIENCES

Network and Architecture Lab (Advisor: Professor Dipak Ghosal)
University of California, Davis

09/2017-present

- Security Vulnerability on Backpressure-based TSC Schemes [1][6]
 - Discover potential threats to modern TSC systems
 - Avoid 100% security attacks by the proposed algorithms
- Deep Reinforcement Learning (DRL) for Multi-intersection Control [5]
 - Increase learning ability of DRL-agents by learnable image features
 - Enhance performance of DRL-agents by the proposed reward function
 - Achieve 3x speed-up during training by the proposed 2DSARSA

Visual Communication Lab (Advisor: Professor Jia-Shung Wang)
National Tsing Hua University, Hsinchu, Taiwan

09/2012-07/2014

- Distributed Delivery of Videos over Ultra-dense Networks (UDN) [7][9]
 - Deploy distributed storage using LT codes for popular videos
 - Evaluate distributed delivery for hot videos over UDN
- Interpolation-based Clustering Algorithm for Gene Expression Data [4]
 - Propose an unsupervised framework for classifying time-series data
 - Achieve higher classification accuracy than other methods
- Data Compression in WSNs [2][8]
 - Propose tree-structured linear approximation for compression data
 - Compress data based on available transmission rate without high distortion
 - Achieve better performance in compression for heterogeneous sensor data

PUBLICATIONS

Journal Papers

- [1] Chia-Cheng Yen, Dipak Ghosal, Michael Zhang, and Chen-Nee Chuah, "Security Vulnerabilities and Protection Mechanisms for Backpressure-based Traffic Signal Control," *IEEE Transactions on Intelligent Transportation Systems*, 2019, **Under Review**.
- [2] Chia-Cheng Yen, Chu-Ming Wang, Wan-Yane Yang, and Jia-Shung Wang, "Homogeneous and Heterogeneous IoT Data Compression using Tree-Structured Linear Approximation Approach," *ACM Transaction on Sensor Network*, 2019, **Under Review**.
- [3] Yu-Tai Lin, Chia-Cheng Yen, and Jia-Shung Wang, "Video Recommendation and Popularity Prediction: An Auto-encoder Approach with Clustering," *ACM Transaction on Information Systems*, 2019, **Under Review**.
- [4] Tai-Yu Chiu, Ting-Chieh Hsu, Chia-Cheng Yen, and Jia-Shung Wang, "Interpolation based consensus clustering for gene expression time series," *BMC Bioinformatics*.2015;16:117.

Conference Papers

- [5] Chia-Cheng Yen, Dipak Ghosal, Michael Zhang, and Chen-Nee Chuah, "A Deep On-policy Learning Traffic Signal Control Using Traffic Flow Maps for Multiple Intersections," *IEEE 23rd International Conference on Intelligent Transportation Systems*, Sep. 2020, **Under Review**.

- [6] **Chia-Cheng Yen**, Dipak Ghosal, Michael Zhang, Chen-Nee Chuah, and Hao Chen, "Falsified Data Attack on Backpressure-based Traffic Signal Control Algorithms," *IEEE Vehicular Networking Conference*, Dec. 2018.
- [7] Yi-Ting Chen, **Chia-Cheng Yen**, Yu-Tai Lin, and Jia-Shung Wang, "Cooperative Caching Plan of Popular Videos for Mobile Users by Grouping Preference," *IEEE 16th International Conference on Pervasive Intelligence and Computing (PiCom)*, Aug. 2018.
- [8] Chu-Ming Wang, **Chia-Cheng Yen**, Wan-Yane Yang, and Jia-Shung Wang, "Tree-Structure Linear Approximation for Data Compression over WSNs," *IEEE 12th International Conference on Distributed Computing in Sensor Systems (DCOSS)*, May 2016.
- [9] **Chia-Cheng Yen** and Jia-Shung Wang, "Distributed Delivery of Popular Videos over Ultra-Dense Networks," *IEEE Symposium on Computers and Communication (ISCC)*, Jul. 2015.
- [10] Hsien-Tzu Chiu, **Chia-Cheng Yen**, and Jia-Shung Wang, "A Framework of Temporal Data Retrieval for Unreliable WSNs Using Distributed Fountain Codes," *IEEE 9th International Conference on Mobile Ad-hoc and Sensor Networks (MSN)*, Dec. 2013.

WORK & TEACHING EXPERIENCES

Teaching Assistant, Department of Computer Science University of California, Davis, CA, USA	03/2018-present
<ul style="list-style-type: none"> ECS 10, ECS 50, ECS 122A, ECS 154A Teach and organize discussions for undergraduate students 	
Graduate Student Researcher, Network and Architecture Lab University of California, Davis, CA, USA	09/2017-present
<ul style="list-style-type: none"> Research topics including Reinforcement Learning, Traffic Signal Control, and Security 	
Research Assistant, Advanced Network Technologies and Services Lab Institute of Information Science, Academia Sinica, Taiwan	04/2017-08/2017
<ul style="list-style-type: none"> Research topics including Wireless Networks and Machine Learning 	
Research Assistant, Visual Communication Lab National Tsing Hua University, Hsinchu, Taiwan	09/2012-07/2014
<ul style="list-style-type: none"> Research topics including Networks, Clustering, Stereo Matching, and Data Compression 	

AWARDS

NSF Travel Grant Award	12/2018
<ul style="list-style-type: none"> Awarded to students whose research paper is accepted by VNC [3] Selection is based on student merit qualifications and financial need 	
Academic Excellence Award (7 times)	09/2008-06/2012
<ul style="list-style-type: none"> Awarded to students with top 5% GPA for that semester Provided scholarships to students with top 5% GPA for that semester 	
Second Best Project Award, Department of Computer Science and Information Engineering, FJCU	11/2011
<ul style="list-style-type: none"> Ranked 2nd out of 27 teams 	

SELECTED TERM PROJECTS

Online Ticketing System, Department of Computer Science and Information Engineering, FJCU
<ul style="list-style-type: none"> Utilized Oracle to build up an online ticketing system for railway Supported multiple users for simultaneous booking
Multimedia Sharing System, Department of Computer Science and Information Engineering, FJCU
<ul style="list-style-type: none"> Shared movies or music with friends through MSN Utilized peer-to-peer communication and adjusted transmission rate dynamically Applied distributed streaming mechanism and circular buffer technique Awarded second place prize
Stereo Matching, Visual Communication Lab
<ul style="list-style-type: none"> Implemented Horizontal and Vertical Consideration on Cost Initialization Implemented Domain Transform on Cost Aggregation Improved disparity estimation method

PROGRAMMING LANGUAGES

- Proficient with:** C/C++, Python, Java, Matlab
- Comfortable or Familiar with:** HTML, Assembly