CHIA-CHENG (JERRY) YEN

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RESEARCH INTERESTS

- Reinforcement Learning, Traffic Networks, Cyber-security, WSNs

EDUCATION

PhD student in Computer Science **09/2017-present**
University of California, Davis
- 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

Algorithms and Theory Lab (Advisor: Professor Dipak Ghosal) **09/2017-present**
University of California, Davis
- Backpressure-based Schemes for Maximizing Throughput at Multiple Intersections [3]
  - Apply the network model to schedule traffic signal controls for multiple intersections
  - Security analysis on Backpressure-based schemes
- Delay-based Deep Reinforcement Learning for Multiple Intersections
  - Propose a two level architecture for scheduling multiple intersections
  - Use flow maps to dynamically model states of the traffic network
  - Apply SARSA, SARSA λ, and Q-learning with deep neural networks for scheduling

Visual Communication Lab (Advisor: Professor Jia-Shung Wang) **09/2012-07/2014**
National Tsing Hua University, Hsinchu, Taiwan
- Distributed Delivery of Videos over Ultra-dense Networks [4][6][7]
  - Deploy distributed storage using LT codes on cloud platform for popular videos
  - Evaluate distributed delivery techniques for hot videos over ultra-dense wireless environments
- Clustering Algorithm for Gene Expression Data [2]
  - Affinity propagation-based clustering algorithm for time-series gene expression data
  - Outperform other methods when the same datasets were used in the evaluation
- Data Compression in WSNs [1][5]
  - Tree-structured linear approximation with optimal RD control method for IoT Data
  - Considering the heterogeneity of sensors simultaneously using the R-D distortion allocation

PUBLICATIONS

Journal Papers

[1] **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," *IEEE Transaction on Computers*, 2019, **Submitted**.

[2] 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, **Submitted**.

[3] 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

[4] **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.

[5] 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.

[6] 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.

[7] **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.

[8] 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* **03/2018-present**
University of California, Davis, CA, USA

- ECS 10, ECS 50
- Led discussion classes and assisted students with programming and examining

Graduate Student Researcher, *Algorithms and Theory Lab* **09/2017-present**
University of California, Davis, CA, USA

- Research topics including Reinforcement Learning, Traffic Signal Control, and Security

Research Assistant, *Advanced Network Technologies and Services Lab* **04/2017-08/2017**
Institute of Information Science, Academia Sinica, Taiwan

- Research topics including Wireless Networks and Machine Learning

Research Assistant, *Visual Communication Lab* **09/2012-07/2014**
National Tsing Hua University, Hsinchu, Taiwan

- Research topics including Networks, Clustering, Stereo Matching, and Data Compression
- Attended IEEE 9th International Conference on Mobile Ad-hoc and Sensor Networks, International Workshop on Software Defined Sensor Networks, Dalian, China, December 11-13, 2013

AWARDS

NSF Travel Grant Award **12/2018**

- 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**

- 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**

- Ranked 2nd out of 27 teams

SELECTED TERM PROJECTS

Online Ticketing System, *Department of Computer Science and Information Engineering, FJCU*

- 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*

- 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*

- 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