

# CHIA-CHENG (JERRY) YEN

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## RESEARCH INTERESTS

- Traffic Networks, Cyber-security, Reinforcement Learning

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## EDUCATION

<b>PhD student in Computer Science</b> <b>University of California, Davis</b> <ul style="list-style-type: none"><li>• Current GPA: 3.86/4.0</li></ul>	<b>09/2017-present</b>
<b>Master of Science in Computer Science</b> <b>National Tsing Hua University, Hsinchu, Taiwan</b> <ul style="list-style-type: none"><li>• Overall GPA: 4.27/4.3 (50% Academic Average and 50% Thesis)</li></ul>	<b>09/2012-07/2014</b>
<b>Bachelor of Science in Computer Science and Information Engineering</b> <b>Fu Jen Catholic University, Taipei, Taiwan</b> <ul style="list-style-type: none"><li>• Overall GPA: 3.96/4.0 (Major GPA: 4.0/4.0)</li><li>• Best Ranked 1<sup>st</sup>, Average Ranked 2<sup>nd</sup> in class</li></ul>	<b>09/2008-06/2012</b>

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## RESEARCH EXPERIENCES

<b>Algorithms and Theory Lab</b> (Advisor: Professor Dipak Ghosal) <b>University of California, Davis</b> <ul style="list-style-type: none"><li>• <u>Backpressure-based Schemes for Maximizing Throughput at Multiple Intersections</u> [3]<ul style="list-style-type: none"><li>• Apply the network model to schedule traffic signal controls for multiple intersections</li><li>• Security analysis on Backpressure-based schemes</li></ul></li><li>• <u>Delay-based Reinforcement Learning for Multiple Intersections</u><ul style="list-style-type: none"><li>• Apply SARSA, SARSA <math>\lambda</math>, and Q-learning for scheduling</li></ul></li></ul>	<b>09/2017-present</b>
<b>Visual Communication Lab</b> (Advisor: Professor Jia-Shung Wang) <b>National Tsing Hua University, Hsinchu, Taiwan</b> <ul style="list-style-type: none"><li>• <u>Distributed Delivery of Videos over Ultra-dense Networks</u> [4][6][7]<ul style="list-style-type: none"><li>• Deploy distributed storage using LT codes on cloud platform for popular videos</li><li>• Evaluate distributed delivery techniques for hot videos over ultra-dense wireless environments</li></ul></li><li>• <u>Clustering Algorithm for Gene Expression Data</u> [2]<ul style="list-style-type: none"><li>• Affinity propagation-based clustering algorithm for time-series gene expression data</li><li>• Outperform other methods when the same datasets were used in the evaluation</li></ul></li><li>• <u>Data Compression in WSNs</u> [1][5]<ul style="list-style-type: none"><li>• Tree-structured linear approximation with optimal RD control method for IoT Data</li><li>• Considering the heterogeneity of sensors simultaneously using the R-D distortion allocation</li></ul></li></ul>	<b>09/2012-07/2014</b>

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## 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 Sensors Journal*, 2018, **submitted**.
- [2] 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

- [3] **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*, 2018, **accepted**.
- [4] 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 16<sup>th</sup> International Conference on Pervasive Intelligence and Computing (PICom)*, 2018.
- [5] Chu-Ming Wang, **Chia-Cheng Yen**, Wan-Yane Yang, and Jia-Shung Wang, "Tree-Structure Linear Approximation for Data Compression over WSNs," *IEEE 12<sup>th</sup> International Conference on Distributed Computing in Sensor Systems (DCOSS)*, 2016.
- [6] **Chia-Cheng Yen** and Jia-Shung Wang, "Distributed Delivery of Popular Videos over Ultra-Dense Networks," *IEEE Symposium on Computers and Communication (ISCC)*, 2015.
- [7] Hsien-Tzu Chiu, **Chia-Cheng Yen**, and Jia-Shung Wang, "A Framework of Temporal Data Retrieval for Unreliable WSNs Using Distributed Fountain Codes," *IEEE 9<sup>th</sup> International Conference on Mobile Ad-hoc and Sensor Networks (MSN)*, 2013.

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## WORK & TEACHING EXPERIENCES

- 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 9<sup>th</sup> International Conference on Mobile Ad-hoc and Sensor Networks, International Workshop on Software Defined Sensor Networks, Dalian, China, December 11-13, 2013
- 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

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## AWARDS

- 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 2<sup>nd</sup> out of 27 teams

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## 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

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## PROGRAMMING LANGUAGES

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