




# 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: 3.86/4.0
- 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 1<sup>st</sup>, Average Ranked 2<sup>nd</sup> 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 Reinforcement Learning for Multiple Intersections
    - Apply SARSA, SARSA  $\lambda$ , and Q-learning 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 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*, Dec. 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)*, Aug. 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)*, May 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)*, Jul. 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)*, Dec. 2013.

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## WORK & TEACHING EXPERIENCES

<b>Teaching Assistant, <i>Department of Computer Science</i></b> <b>University of California, Davis, CA, USA</b> <ul style="list-style-type: none"><li>ECS 10, ECS 50</li><li>Led discussion classes and assisted students with programming and examining</li></ul>	<b>03/2018-present</b>
<b>Graduate Student Researcher, <i>Algorithms and Theory Lab</i></b> <b>University of California, Davis, CA, USA</b> <ul style="list-style-type: none"><li>Research topics including Reinforcement Learning, Traffic Signal Control, and Security</li></ul>	<b>09/2017-present</b>
<b>Research Assistant, <i>Advanced Network Technologies and Services Lab</i></b> <b>Institute of Information Science, Academia Sinica, Taiwan</b> <ul style="list-style-type: none"><li>Research topics including Wireless Networks and Machine Learning</li></ul>	<b>04/2017-08/2017</b>
<b>Research Assistant, <i>Visual Communication Lab</i></b> <b>National Tsing Hua University, Hsinchu, Taiwan</b> <ul style="list-style-type: none"><li>Research topics including Networks, Clustering, Stereo Matching, and Data Compression</li><li>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</li></ul>	<b>09/2012-07/2014</b>

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## AWARDS

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

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## SELECTED TERM PROJECTS

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

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## PROGRAMMING LANGUAGES

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