YI-CHUN (RIMI) CHEN

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SUMMARY

Yi-Chun obtained her Ph.D. in computer science from NCSU, specializing in machine learning, computer vision, multimodal understanding, and multimedia. Her Ph.D. work concentrated on comprehending and generating visual narratives, where she constructed learning models for understanding visual media and analyzing narratives. Additionally, she crafted interactive tools and models to create visual content.

EDUCATION

North Carolina State University (NCSU), Raleigh, NC, US *Aug. 2015 - Aug. 2023*

- Ph.D. in Computer Science (Computer Vision and Multimodal Understanding) GPA: 3.56/4.0
  - Dissertation: A Framework with Hierarchical Models for Visual Narrative Sequence Comprehension and its Applications.

National Tsing Hua University (NTHU), Hsinchu, Taiwan, ROC *Sep. 2007 - Jul. 2013*

- M.S. in Computer Science, 2013 (Multi-agent System and Machine Learning) GPA: 4.17/4.3
  - Thesis: Oracle Learning for Agent Negotiation Based on Rationality in Task Allocation Problem.
- B.S. in Computer Science, 2011 (High Performance Computing) GPA: 3.46/4.3

WORK & RESEARCH EXPERIENCE

North Carolina State University, Raleigh, NC, US 2015 - Present

- Research Assistant @Automated Reasoning for Narratives And Visuals Laboratory (ARNAV Lab)
  - Cognitive Process Simulation: *"A framework for simulating human comprehension process."*
    - Proposed a framework to combine hierarchical Long short-term memory (LSTM) with knowledge graphs to encode and understand visual storytelling data.
  - Computational Model: *"A layered LSTM model to comprehend visual narrative sequences."*
    - Simulated the process of visual narrative comprehension through deep learning models.
    - Released analytical results and new annotations of comics to support future applications.
  - Document Analysis: *"An automatic comic panel transition labeling model for genre analysis."*
    - Applied layered Convolutional neural network (CNN) to feedback-in-loop process.
  - Neural Style Transfer: *"An experimental study on comic style through neural style transfer."*
    - Implemented neural style transfer models with a multi-channel pipeline to decompose comics.
  - Image Sequence Generation: *"Comic generation through adjustable editing processes."*
    - Proposed a model to generate image sequences through the customizable layers.
    - Produced a sample dataset as the basic materials for comic generations.
  - Story Reasoning: *"A planning-based pipeline to infer the missing part of stories."*
    - Decomposed text through Natural Language Processing (NLP) tools to infer missing story.
    - Built tools to map verb predicates–Verbnet's subject-object triples–into logical literals.
  - Text Visualization: *"A web tool to display large-scale text and index of story content."*
    - Designed an interface to visualize story text and let readers interact with story content.
    - Analyzed the sentiment in novels' text through natural language processing tools.
  - Interactive Authoring Tool: *"V-SET: an authoring tool for visual novels."*
    - Designed a graphical interface to assist authors in modifying visual content in games.
    - Provided functions to render story content from scripts to narrative adventure games.

Institute of Information Science—Academia Sinica, Taipei, Taiwan, ROC 2014 – 2015

- Research Assistant @Open Framework for Disaster Information Systems Project

– Developed a distributed, event-triggered service–Intelligent Active Storage Service (IASS)

National Tsing Hua University, Hsinchu, Taiwan, ROC 2010 - 2013

- Student Researcher @Artificial Intelligence Lab (AI Lab)
  - Applied and improved the multi-agent reinforcement learning algorithm for task allocation.
  - Designed a task allocation protocol for power restoration in self-adaptive multi-agent systems.
- Undergraduate Student Researcher
  - Student Cluster Competition (SCC) in Supercomputing 2010 (SC10), overall Winner.
    - Tuned hyperparameters for scientific applications in high-performance computing environments.

REFEREED PUBLICATIONS

- **Yi-Chun Chen**, Jhala A. ***" A Customizable Generator for Comic-Style Visual Narrative."*** In arXiv preprint arXiv:2401.02863, 2023.
- F Freitas, T Berreth, **Yi-Chun Chen**, A Jhala. ***" Characterizing the perception of urban spaces from visual analytics of street-level imagery."*** In AI & society 38 (4), 1361-1371, 2023.
- **Yi-Chun Chen**, Jhala A. ***" Panel Transitions for Genre Analysis in Visual Narratives."*** In arXiv preprint arXiv:2312.08695, 2023.
- **Yi-Chun Chen**, Jhala A. ***" CPST: Comprehension-Preserving Style Transfer for Multi-Modal Narratives."*** In arXiv preprint arXiv:2312.08720, 2023.
- **Yi-Chun Chen**, Jhala A. ***"A Computational Model of Comprehension in Manga Style Visual Narratives."*** In Proceedings of the Annual Meeting of the Cognitive Science Society 2021 (Vol. 43, No. 43).
- **Yi-Chun Chen**, Robertson J, Jhala A. ***"Abstractions for Narrative Comprehension Tasks."*** In INT/WICED@ AIIDE 2018.
- Yi-Wei Huang, **Yi-Chun Chen**, Wan-Yu Yu, Von-Wun Soo. ***"Stochastic Negotiation with Market Utility for Automated Power Restoration on a Smart Grid,"*** In the third international workshop on Agent Technologes for Energy Systems (ATES2012)@ AAMAS 2012.

SELECTED PROJECTS

- **Computer Graphic, WebGL**, Implemented shadowing and rendering algorithms and Q*bert.
- **Game Engine, Java**, Built the infrastructure of a game engine, then delivered sample games.
- **Game AI, Java**, Designed a multi-agents game environment with limited-sighted agents and adjusted agent's behaviors through reinforcement learning.

OTHER EXPERIENCE & SERVICES

- **Reviewer for Annual Conference of the Cognitive Science Society (CogSci2024)** 2024
- **Graduate Teaching Assistant @North Carolina State University** 2015-2023
  - CSC 281 Foundations of Interactive Game Design Fall 2015 - Spring 2023
  - CSC 481/581 Game Engine Foundations Fall 2020
  - CSC 230 C and Software Tools Summer 2016
- **Student Volunteer in Autonomous Agents and Multiagent Systems (AAMAS)** 2011
- **Volunteer of Recording Books Service Center for the Blind, NTHU, Taiwan** 2007

SKILLS

- **Programming:** Python, C/C++, Java, HTML, Javascript.
- **Numeric computing & Deep learning:** Matlab, Tensorflow, Keras, Sklearn.
- **Graphical tool & Game development:** WebGL, Unity, GameMaker, PuzzleScript.
- **Language:** English—professional, Mandarin—native, Japanese– limited working proficiency