Updated January 15, 2018

Jia-Kai Chou, Ph.D.

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Summary

I design visualization and interactive systems to support effective data exploration and analytics. I constantly collaborate with experts in different domains, such as healthcare, neuroscience, and cell biology, and help them address research questions in their fields. I also focus on the privacy preserving aspect of user information while sharing, processing, and gaining insights from the data.

Research keywords: user-centered study design, evaluation and analysis, visual data analytics, privacy aware data visualization, image processing/retrieval

Employment & Experience

Jan. 2015 - Present — Post-Doctoral Researcher at University of California, Davis

Supervised more than 10 student researchers, including 5 Ph.D. students and 4 Master's students, in various research projects. Conduct research in designing and developing visual approaches and systems for supporting effective data analysis. Primary topics include:

- Privacy aware visualization design.
- Explanatory visualization & visualization for storytelling.
- Visual analytics system and interface design.

Oct. 2013 - Nov. 2014 — Assistant IT Coordinator (Alternative Military Service) at Department of Information Technology, Taipei City Government

Coordinated with FISU's IT&C consultant for planning a $1-billion NTD budget on IT&C equipment and software systems for 2017 Taipei Universiade.

Feb. 2012 - Oct. 2012 — Visiting Student at University of California, Davis

Studied the performance of audio-augmented visualization.

Summer 2010 — Summer Intern at Trend Micro, Inc.

Integrated multiple visualization toolkits for network user behavior analysis.

Sep. 2007 - Jul. 2013 — Graduate Student Research Assistant at National Taiwan University of Science and Technology

Designed algorithms and developed systems for multimedia applications:

- Interactive systems for simulating facial features and hairstyle swapping in images.
- Privacy aware image, video, and volumetric data storage and processing.
- Visual analysis of time-varying network data.

Education

Jul. 2013 — Ph.D., Information Management | Advisor: Prof. Chuan-Kai Yang
National Taiwan University of Science and Technology
Dissertation: Privacy Preserving Multimedia Data Processing

Jul. 2009 — M.S., Information Management | Advisor: Prof. Chuan-Kai Yang
National Taiwan University of Science and Technology
Thesis: Virtual Haircut and Hairstyle Cloning

Jul. 2007 — B.S., Information Management
National Taiwan University of Science and Technology

Honors & Awards

2017 Winner of PacificVis 2017 Visual Storytelling Contest

2016 Honorable Mention Paper Award, Siggraph Asia 2016 Symposium on Visualization

2015 Post-doctoral Research Abroad Grant, Ministry of Science & Technology, Taiwan

2015 Winner of Originality in IEEE VGTC VPG International Data-Visualization Contest

2012 Ph.D. Student Study Abroad Scholarship, Ministry of Science & Technology, Taiwan

Publications

[P16] Xumeng Wang, **Jia-Kai Chou**, Wei Chen, Huihua Guan, Wenlong Chen, Tianyi Lao, and Kwan-Liu Ma. A Utility-aware Visual Approach for Anonymizing Multi-attribute Tabular Data. IEEE Transactions on Visualization and Computer Graphics (Proceedings of IEEE VAST 2017)

[P15] Maksim Gomov, **Jia-Kai Chou**, Jianping Kelvin Li, Soman Sen, Kiho Cho, Nam Tran, and Kwan-Liu Ma. Aiding Infection Analysis and Diagnosis Through Temporally-Contextualized Matrix Representations. IEEE VIS 2017 Workshop on Visual Analytics in Healthcare (VAHC 2017)

[P14] **Jia-Kai Chou**, Yang Wang, and Kwan-Liu Ma. Privacy Preserving Visualization: A Study on Event Sequence Data. Invited submission to Computer Graphics Forum (under revision)

[P13] **Jia-Kai Chou**, Chris Bryan, and Kwan-Liu Ma. Privacy Preserving Visualization for Social Network Data with Ontology Information. In Proceedings of 2017 IEEE Pacific Visualization Symposium

[P12] Takanori Fujiwara, **Jia-Kai Chou**, Andrew M McCullough, Charan Ranganath, and Kwan-Liu Ma. A Visual Analytics System for Brain Functional Connectivity Comparison across Individuals, Groups, and Time Points. In Proceedings of 2017 IEEE Pacific Visualization Symposium

[P11] **Jia-Kai Chou**, Yang Wang, and Kwan-Liu Ma. Privacy Preserving Event Sequence Data Visualization using a Sankey Diagram-like Representation. ACM SIGGRAPH ASIA 2016 Symposium on Visualization (Best Paper Honorable Mention Award)

[P10] **Jia-Kai Chou** and Chuan-Kai Yang. Obfuscated Volume Rendering. The Visual Computer 32(12):1593-1604, 2016

[P9] **Jia-Kai Chou**, Chuan-Kai Yang, and Hsing-Ching Chang. Encryption Domain Content-based Image Retrieval and Convolution through a Block-based Transformation Algorithm. Multimedia Tools and Applications 75(21):13805-13832, 2016

[P8] Chien-Hsin Hsueh, **Jia-Kai Chou**, and Kwan-Liu Ma. A Study of using Motion for Comparative Visualization. In Proceedings of 2016 IEEE Pacific Visualization Symposium

[P7] Tsailing Fung, **Jia-Kai Chou**, and Kwan-Liu Ma. A Design Study of Personal Bibliographic Data Visualization. In Proceedings of 2016 IEEE Pacific Visualization Symposium

[P6] Chuan Wang, **Jia-Kai Chou**, Kwan-Liu Ma, Arpad Karsai, Gang-Yu Liu, Ying X. Liu, Evgeny Ogorodnik, and Victoria Tran. An Interactive Visual Analysis Tool for Cellular Behavior Studies using Large Collections of Microscopy Videos. 2016 IEEE International Conference on Multimedia Big Data

[P5] Kelvin Li, **Jia-Kai Chou**, and Kwan-Liu Ma. High Performance Heterogeneous Computing for Collaborative Visual Analysis. ACM SIGGRAPH ASIA 2015 Symposium On Visualization In High Performance Computing

[P4] **Jia-Kai Chou**, Issac Liao, Kwan-Liu Ma, and Chuan-Kai Yang. A Study on Enhancing Timeline-Like Visualization with Verbal Text. Cyberworlds 2013

[P3] **Jia-Kai Chou** and Chuan-Kai Yang. Simulation of Face/Hairstyle Swapping in Photographs with Skin Texture Synthesis. Multimedia Tools and Applications 63(3):729-756, 2013

[P2] **Jia-Kai Chou**, Chuan-Kai Yang, and Sing-Dong Gong. Face-off: Automatic Alteration of Facial Features. Multimedia Tools and Applications 56(3):569-596, 2012

[P1] **Jia-Kai Chou** and Chuan-Kai Yang. PaperVis: Literature Review Made Easy. Computer Graphics Forum (EuroVis 2011), 30(3):721-730, 2011

Mentoring Experience

Mar. 2017	Maksim Gomov, Master's Student, UC Davis
- Present	On supplementing clinical decision making, such as sepsis diagnosis, with computational models and interactive visualizations [P15]
Jul. 2017	Suraj Kesavan, Master's Student, UC Davis
- Present	On designing scalable visual representation for event sequence data analysis
Jul. 2017	Jing Li, Ph.D. Student, UC Davis
- Present	On gaining a better understanding of differential privacy through visualization
Mar. 2017	Meng Du, Ph.D., Beijing Forest University
- Dec. 2017	On augmenting visualization with sound for improving user engagement
Oct. 2016	Xumeng Wang, Ph.D. Student, Zhejiang University
- Mar. 2017	On balancing between privacy and utility of multi-attribute tabular datasets with direct visual feedback [P16]
Feb. 2016	Takanori Fujiwara, Ph.D. Student, UC Davis
- Sep. 2016	On supporting quick and flexible visual comparison and examination of large amounts of brain networks [P12]
May 2015	Chuan Wang, Ph.D. Student, UC Davis
- Apr. 2016	On summarizing long-lasting cellular evolution videos for fast cellular behavior comparison [P6]
Jun. 2015	Tsailing Fung, Master's Student, UC Davis
- Dec. 2015	On presenting personal bibliographic data with botanic visualization design [P7]
Apr. 2015	Tan Huu Nguyen, Master's Student, UC Davis
- Oct. 2015	On analyzing usage of electric car charging stations for deciding optimal pricing strategy

Professional Services

Program Committee Member

IEEE Pacific Visualization Symposium (2017, 2018)

Paper Reviewer

IEEE Information Visualization Conference (2016, 2017)

IEEE Conference on Visual Analytics Science and Technology (2016, 2017)

Eurographics/IEEE Conference on Visualization (2017)

IEEE Pacific Visualization Symposium (2017, 2018)

ACM Transactions on Knowledge Discovery from Data (2016)

International Symposium on Graph Drawing & Network Visualization (2016)

IEEE International Conference on Big Data Computing Services and Applications (2016)

Workshop on Visualization in Practice (2016, 2017)

IEEE International Conference on Big Data (2013, 2017)

Talks

Conference Presentations

Apr. 2017 Privacy Preserving Visualization forSocial Network Data with Ontology Information. PacificVis 2017, Seoul, South Korea

Dec. 2016 Privacy Preserving Event Sequence DataVisualization using a Sankey Diagram-like Representation. ACM Siggraph Asia 2016 Symposium on Visualization, Macao

Jun. 2011 PaperVis: Literature Review Made Easy, EuroVis 2011. Bergen, Norway

Invited Talks & (Guest) Lectures

Nov. 2017 Privacy Aware Multimedia Data Sharing, Processing, and Visualization. FXPAL, Palo Alto, CA

Apr. 2017 The Recent Advances in Privacy Preserving Visualization. Academia Sinica, Taipei, Taiwan

Oct. 2014 Introductory to Visualization. National Taiwan University of Science and Technology, Graduate-level class: Multimedia Systems taught by Dr. Chuan-Kai Yang