

# 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 helps 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 design, evaluation and analysis, visual data analytics, privacy aware visualization design, image processing/retrieval

## EMPLOYMENT & EXPERIENCE

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| JAN. 2015<br>- PRESENT   | Post-Doctoral Researcher at UNIVERSITY OF CALIFORNIA, DAVIS<br>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: <ul style="list-style-type: none"> <li>• Privacy aware visualization design.</li> <li>• Explanatory visualization &amp; visualization for storytelling.</li> <li>• Visual analytics system and interface design.</li> </ul> |
| OCT. 2013<br>- NOV. 2014 | Assistant IT Coordinator (Alternative Military Service) at<br>DEPARTMENT OF INFORMATION TECHNOLOGY, Taipei City Government<br>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<br>- OCT. 2012 | Visiting Student at UNIVERSITY OF CALIFORNIA, DAVIS<br>Studied the performance of audio-augmented visualization.   |
| SUMMER 2010              | Summer Intern at TREND MICRO, INC.<br>Integrated multiple visualization toolkits for network user behavior analysis.   |
| SEP. 2007<br>- JUL. 2013 | Graduate Student Research Assistant at<br>National Taiwan University of Science and Technology<br>Designed algorithms and developed systems for multimedia applications: <ul style="list-style-type: none"> <li>• Interactive systems for simulating facial features and hairstyle swapping in images.</li> <li>• Privacy aware image, video, and volumetric data storage and processing.</li> <li>• Visual analysis of time-varying network data.</li> </ul>  |

## EDUCATION

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| JUL. 2013 | Ph.D., Information Management<br>National Taiwan University of Science and Technology<br>Dissertation: Privacy Preserving Multimedia Data Processing | Advisor: Prof. Chuan-Kai Yang |
| JUL. 2009 | M.S., Information Management<br>National Taiwan University of Science and Technology<br>Thesis: Virtual Haircut and Hairstyle Cloning                | Advisor: Prof. Chuan-Kai Yang |
| JUL. 2007 | B.S., Information Management<br>National Taiwan University of Science and Technology   |                               |

## HONORS & AWARDS

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- 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

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- [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

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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

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### 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

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### Conference Presentations

- APR. 2017 Privacy Preserving Visualization for Social Network Data with Ontology Information. PacificVis 2017, Seoul, South Korea
- DEC. 2016 Privacy Preserving Event Sequence Data Visualization 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