

Jia-Kai CHOU, Ph.D.

Post-doctoral Researcher, Dept. of Computer Science, University of California-Davis

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SUMMARY

I am a computer scientist who designs data visualizations and interactive systems to perform effective data analytics. I work closely with domain experts in various fields, to identify their needs and develop prototypes. The systems that I built allow them to derive new insights from data more efficiently and to convey their findings with others more easily. I am looking for opportunities to employ my knowledge in user-centered design to enable industry practitioners to find better ways to understand and communicate with their data.

COMPUTER SCIENCE SKILLS

UX: Controlled user study design, Quantitative analysis (within-subjects, between-subjects and mixed design and analysis: ANOVA, t-test, error correction, etc.), Qualitative analysis (think-aloud, expert interviews), Survey/Questionnaire design (Qualtrics), Usability study, Complete/incomplete block design and analysis, Counter-balancing (Latin Square)

Web: Javascript, Node.js, Express.js, D3.js, CSS

Programming: Python, Matlab, C/C++

Data Analysis: Python (Pandas, NumPy, scikit-learn), TensorFlow, R, SQL

Other: OpenGL, Qt, Git

EMPLOYMENT & EXPERIENCE

Post-Doctoral Researcher, Dept. of CS, University of California, Davis

Jan. 2015

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:

- Present

- Introduced novel visualization techniques for performing event sequence analysis.
- Developed visual interfaces that allow for identifying, reviewing, and addressing privacy concerns in different types of data, such as event sequence, social network, and tabular data.
- Incorporated data mining and statistical algorithms to interactive systems for enabling domain experts, such as neuroscientists and clinicians, analyze their data at scale.
- Conducted quantitative and qualitative user studies to evaluate and verify research hypotheses.

Assistant IT Coordinator, Dept. of IT, Taipei City Government, Taiwan

Oct. 2013

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.

- Nov. 2014

Visiting Student, Dept. of CS, University of California, Davis

Feb. 2012

Augmented text-to-speech audios to a timeline-based visualization and tested its effectiveness.

- Oct. 2012

Summer Intern, Trend Micro, Inc., Taipei, Taiwan

Summer 2010

Integrated multiple visualization toolkits for network user behavior analysis.

Graduate Student Researcher, Dept. of Information Management, National Taiwan University of Science and Technology

Sep. 2007

- Jul. 2013

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

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

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

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

HONORS & AWARDS

Winner of PacificVis 2017 Visual Storytelling Contest

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

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

SELECTED PUBLICATIONS

- 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 (in Proceedings of IEEE VAST 2017), 24(1):351-360, 2018
- 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)
- **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
- 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
- **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)
- **Jia-Kai Chou** and Chuan-Kai Yang. Obfuscated Volume Rendering. The Visual Computer 32(12):1593-1604, 2016
- **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
- 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
- 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
- **Jia-Kai Chou** and Chuan-Kai Yang. PaperVis: Literature Review Made Easy. Computer Graphics Forum (EuroVis 2011), 30(3):721-730, 2011