

Kun-Ting Chen

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Researcher | Consultant | Senior Software Engineer | DevOps | Full-stack IT Applications Development | Cybersecurity Data Quality | Data Visualization | Software Architecture | Artificial Intelligence | Fare Collection applications development | Java Professionals | Device Owner | Leadership | Problem Solving | Agilist Knowledge

CURRENT APPOINTMENT :

➤ Apr, 2023—current: **Researcher at the Centre for Research on Engineering Software Technologies (CREST)**, Adelaide, Australia

- Theme postdoc / drive Research and Development for Cyber Security Cooperative Research Centre (CSCRC) projects
- Research visual analysis tools for enhancing and exploring software vulnerability understanding, detection and prediction
- Develop & Execute evidence-based R&D prototypes for human AI collaboration
- Conduct empirical evaluation with security analysts and developers for requirement analysis and software evaluation

EDUCATION :

- Apr 2019—May 2022: **Ph.D. in Data Visualization & Immersive Analytics, Faculty of Information Technology**, Monash University, Melbourne, Australia
- Sep 2007—Jul 2009: **M.Sc. in Computer Science and Engineering**, National Chiao Tung University, Hsinchu, Taiwan
- Sep 2002—Jun 2006: **B.Sc. in Computer Science Engineering**, Tatung University, Taipei, Taiwan

PROFESSIONAL EXPERIENCE :

Experienced senior software engineer in managing mission-critical Automatic Fare Collection (AFC) software for transportation systems across multiple cities. Skilled in software design and development, combined with significant experience developing, and deploying software applications system-wide of AFC software in numerous production stations and depots across multiple cities.

Strong research professional with a PhD focused on interactive data visualization, network visualization, visual analytics for eye tracking data, and interaction design, with a strong publication record top-tier venues in data visualization and human computer interaction. The research, Gazeanalytics, an open-source sophisticated software, was recognized in the popular social media platform, Geomob podcast.

➤ **May 2022—Apr 2023: Researcher at Visualisation Research Centre of Universität Stuttgart (VISUS), Stuttgart, Germany**

- Drive the research and development for eye tracking and data visualization projects.
- Designed and developed a unified and flexible visual software, Gazeanalytics, for eye tracking data analysis. (Available at [GitHub](#))
- Developed and Executed evidence-based empirical software evaluation with eye tracking analysts
- Co-organized the 7th Workshop on Eye Tracking and Visualisation ([ETVIS 2023](#)) as a Publicity Chair and International Program Committee (in conjunction with ETRA 2023)

➤ **Sep 2017—Apr 2019: Consultant at Fare System Business Unit, System Development Division, MSI Global Pte Ltd, Subsidy of Land Transport Authority (LTA), Singapore**

- Device lead / Full-stack software developer of Fare Collection System applications for overseas projects
- Design and develop full-stack IT applications for monitoring real-time fare collection devices status, event sequence across multiple client applications using technologies such as Angular platform, MQ and web sockets
- Analysed and improved performance of Windows GUI applications and the MySQL database server
- Design and develop a new SVG-based station layout authoring tools for monitoring real-time equipment status and controlling fare collection devices
- Travel across region to stage patches of in-production software in trial and deploy phases; provide technical consultation/solutions to clients.
- Researched software visualization tools Visual Studio Code Map/IntelliJIDEA Flow to improve software design and issue discussion, debugging, and knowledge transfer

➤ **Sep 2015—Sep 2017: Senior Software Engineer at Zenith InfoTech (S) Pte Ltd, working at client site: Fair system department, Land Transport Authority (LTA), Singapore**

- Device lead / Full-stack developer of Auto Fare Collection (AFC) systems and applications.
- Design and develop web applications for monitoring real-time fare collection devices status
- Research technologies such as ExtJs / Angular platform and provide knowledge sharing within the group
- Skill in agile tools: Scrum, Jira, Trello to manage / update product development process

➤ **Oct 2013—Sep 2015: Software Engineer at Trek 2000 International Ltd. Singapore**

- Software developer of a comprehensive Media Broadcasting Ecosystem that is based on cloud computing platform, named Cloudstringers, with Wifi-enabled SD Card project
- Chief software developer in charge of Cloudstringers web server application design and development, developing Linux shell script to automate backend media files conversion/uploading/downloading, and MySQL database update process

➤ **Jul 2008—Dec 2010 (part time): Assistant Engineer at Computer Vision Lab, National Center for High-Performance Computing (NCHC), Taiwan, R.O.C.**

- Developed OpenGL Graphical User Interface (GLGUI) applications (using C++) for rich text display, image display used by National center for high performance computing (NCHC)

➤ **Aug 2008—Jul 2009 (part time): Assistant Engineer of Safety and Health Technology Center (SAHTECH), Industrial Technology Research Institute (ITRI), Taiwan, R.O.C.**

- Role: in charge of developing and maintaining four of SAHTECH's project websites including council of labor affair (CLA), Taiwan Occupational Safety & Health Management System (TOSHMS), SAHTECH official website, and internal employee website

MEDIA :

➤ Our open-source toolkit, Gazealytics, was featured on a popular social media platform - the [Geomob podcast](#) in June 2023, on geographical map usability.

TECHNICAL SKILLS :

- Programming languages: JavaScript, TypeScript, Python, R, Java, C#, SQL, OpenGL
- Data visualization frameworks: D3.js, Cola.js, Processing, Observable Notebook, React.js
- Web development: Angular platform, Django, Gatsby, Node.js
- Database management: Neo4j, Entity framework
- Machine learning: Scikit-Learn
- Server management: VMWare ESXI, Red Hat Enterprise Linux, CentOS, Nginx

PUBLICATIONS :

- **Kun-Ting Chen**, Quynh Quang Ngo, Kuno Kurzhals, Kim Marriott, Tim Dwyer, Michael Sedlmair, and Daniel Weiskopf, “Reading Strategies for Graph Visualizations that Wrap Around in Torus Topology,” ACM Symposium on Eye Tracking Research & Applications (**ETRA 2023**)
- **Kun-Ting Chen**, Arnaud Prouzeau, Joshua Langmead, Ryan T Whitelock-Jones, Lee Lawrence, Tim Dwyer, Christophe Hurter, Daniel Weiskopf, and Sarah Goodwin, “Gazealytics: A Unified and Flexible Visual Toolkit for Exploratory and Comparative Gaze Analysis,” ACM Symposium on Eye Tracking Research & Applications (**ETRA 2023**)
- **Kun-Ting Chen**, “It’s a Wrap: Visualisations that Wrap Around Cylindrical, Toroidal or Spherical Topologies,” doctoral dissertation, (**Monash University 2022**)
- **Kun-Ting Chen**, Tim Dwyer, Yalong Yang, Benjamin Bach, and Kim Marriott. “GAN’S-DA Wrap: Geographic And Network Structured DATA on surfaces that Wrap around,” ACM CHI Conference on Human Factors in Computing Systems (**CHI 2022**)
- **Kun-Ting Chen**, Tim Dwyer, Benjamin Bach, and Kim Marriott. “Rotate or Wrap: Interactive Visualisations of Cyclical Data on Cylindrical or Toroidal Topologies.” IEEE Transactions on Visualization and Computer Graphics (**VIS 2021**)
- **Kun-Ting Chen**, Tim Dwyer, Benjamin Bach, and Kim Marriott. “It’s a Wrap: Toroidal Wrapping of Network Visualisations Supports Cluster Understanding Tasks.”

ACM CHI Conference on Human Factors in Computing Systems (**CHI 2021**)

- Florian ‘Floyd’ Mueller, Rohit Khot, Tim Dwyer, Sarah Goodwin, Kim Marriott, Jialin Deng, Han Phan, Jionghao Lin, **Kun-Ting Chen**, Yan Wang. “Data as Delight: Eating data”. ACM CHI Conference on Human Factors in Computing Systems (**CHI 2021**)
- **Kun-Ting Chen**, Tim Dwyer, Kim Marriott, and Benjamin Bach. “DoughNets: Visualising Networks Using Torus Wrapping”. ACM CHI Conference on Human Factors in Computing Systems (**CHI 2020**). p1–11
- **Kun-Ting Chen**, Chien Chen, and Po-Hsiang Wang, “Network Aware Load-Balancing via Parallel VM Migration for Data Centers.” in Proc. of the 23rd International Conference on Communications and Networks (**ICCCN 2014**)
- Shin-Shiang Lan, **Kun-Ting Chen**, Chien Chen, Jing-Ying Chen, and Rong-Hong Jan, “An Integrated Bus and Taxi Routes for a Mobile Trip Planning System.” in Proc. of the IEEE International Conference on e-Business Engineering (**ICEBE 2010**)
- Chih-Chiang Yang, **Kun-Ting Chen**, Chien Chen and Jing-Ying Chen, “Market-based Load Balancing for Distributed Heterogeneous Multi-Resource Servers.” in Proc. of the 15th IEEE International conference on parallel and distributed systems (**ICPADS 2009**)
- **Kun-Ting Chen**, “A Token-based approach of Heterogeneous multi-resource Systems.” master’s thesis, National Chiao Tung University Library, 2009

AWARDS :

- Dec 2021: [Global Talent Program](#) for a permanent residency in Australia
- Nov 2021: **Special Recognitions for one Outstanding Review** at **ACM CHI 2022**
- Jun 2019 – Apr 2022: Faculty of Information Technology Research Scholarship
- Jun 2019 – Apr 2022: Faculty of Information Technology International Postgraduate Research Scholarship
- Apr 2015: Oracle Certified Professional - Java SE 7 Programmer

SUPERVISION :

- Jul., 2021-Aug., 2022: Co-supervising Monash Faculty of Information Technology research project: “Visual Software for Eye Tracking Data Analysis”
- Jun., 2011: Co-supervise undergraduate project in Department of Computer Science & Engineering, National Chiao Tung University: Travel Web server/Android mobile applications of Fleet system using Trip planner web services. The project was entered in European Satellite Navigation Competition (ESNC, 2011)

CHAIRING & ORGANISING CONFERENCE EVENTS :

- IEEE Visualization Conference (VIS) Student Volunteers Organising Co-chairs (VIS 2023)
- The 7th Workshop on Eye Tracking and Visualisation (ETVIS 2023) Publicity Chair and International Program Committee (in conjunction with ETRA 2023)
- IEEE Visualization Conference (VIS) Student Volunteers Organising Co-chairs (VIS 2022)

COMMITTEE & SERVICES

- International Symposium on Visual Information Communication and Interaction (VINCI 2023) International Program Committee
- Eurographics conference on visualization (EuroVis 2023) International Program Committee for Posters track
- IEEE Visualization Conference (VIS) Student Volunteer/Captain (VIS 2019-2022)
- Co-organised SommerFest 2022 for the Institute for Visualisation and Interactive Systems (VIS) at University of Stuttgart
- EuroVis Conference 2021 Student Volunteer Captain
- ACM CHI Conference 2021 Student Volunteer Captain
- Convener of Monash Faculty of Information Technology Data Visualisation & Immersive Analytics (DVIA) Lab PhD group meeting (2020-2021)

JOURNAL/CONFERENCE PAPER REVIEWER :

- ACM CHI Conference on Human Factors in Computing Systems (CHI) – 2022, (CHI Late breaking work) – 2021, 2022
- ACM International Conference on Mobile Human-Computer Interaction (MobileHCI) – 2022
- ACM Symposium on Eye Tracking Research & Application (ETRA) – 2022
- China Visualization and Visual Analytics Conference (ChinaVis) – 2021, 2022
- Eurographics conference on visualization (EuroVis) – 2023
- IEEE Computer Graphics and Applications (CG&A/journal) – 2023
- IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR) – 2022, 2023
- IEEE International Symposium on Mixed and Augmented Reality (ISMAR) – 2021, 2022, journal - 2023
- IEEE Pacific Visualization Symposium (PacificVis) – 2022, 2023
- IEEE Transactions on Visualization and Computer Graphics (TVCG/journal) – 2021, 2022
- IEEE Visualization Conference (VIS) – 2021-2023
- International Symposium on Graph Drawing and Network Visualization (GD) - 2021
- International Symposium on Visual Information Communication and Interaction (VINCI 2023) - 2023
- Visual Informatics (Elsevier journal)- 2021
- Visualization in Data Science (VDS) - 2021

TEACHING :

- 2022 Winter semester: Information Visualisation & Visual Analytics (teaching & tutoring)
- 2011: Vehicular Mobile Commerce with Android Platform: Information and Communication technology (ICT) project in National Chiao Tung University, sponsored by **Ministry of Education**, Taiwan: Provide lab tutorials of software development of Android mobile applications, Java web server applications, Java Servlet, JDBC, XML, JQuery, AJAX, and Google API using Trip planner web services to provide better routes in Taipei

city based on criteria of traveling time, budget, and walk distance

- 2010: VLSI programming (National Chiao Tung University, Taiwan)
- 2009: C++ Programming (National Chiao Tung University, Taiwan)
- 2008: C Programming (National Chiao Tung University, Taiwan)