TAY XIN HUI

COMPUTER SCIENCE MAJOR

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ABOUT ME

Technical Skills R, C, C++, C#, Javascript, Java, HTML, CSS, MySQL, PHP
Languages Fluent in spoken and written in English, Mandarin, Malay
Computing Microsoft Office Applications, Adobe Premiere Pro
Soft Skills Time management, communication, teamwork, problem solving
Interests Non-fiction Books, Music, Sports, Movies
ORCID Profile https://orcid.org/0009-0007-0016-7555
Google Scholar https://scholar.google.com/citations?hl=en&user=woVrY8AAAAAJ

EDUCATION

Universiti Tun Hussein Onn Malaysia (PhD) Parit Raja, Johor (Mac 2021–Aug 2024)

- Doctor of Philosophy in Information Technology
- Passed viva with minor corrections.
- Research fields: bioinformatics, data mining, data sciences, machine learning.

Universiti Tun Hussein Onn Malaysia (Master) Parit Raja, Johor (Mac 2019–Mac 2020)

- Honours Master of Computer Science (Information Security)
- CGPA: 3.46/4.0
- Honours: Second Upper Class
- Research fields: digital forensics, file type identification, information security.

Universiti Tun Hussein Onn Malaysia (Bachelor's Degree) Parit Raja, Johor (Sept 2015–Jan 2019)

- Honours Bachelor of Computer Science (Web Technology)
- CGPA: 3.76/4.0
- Honours: First Class

WORK AND TEACHING EXPERIENCE

Universiti Tun Hussein Onn Malaysia

Graduate Research Assistant, Faculty of Computer Science and Information Technology Parit Raja, Johor (Mac 2021 - Sept 2023)

- Assisted in teaching **.Net** programming, including leading discussions, conducting lab sessions, and grading assignments.
- Provided individualised support and guidance to students, addressing questions, and clarifying course material.
- Collaborated with associate professors to develop course materials, exams, and assignments.

Silverlake Digitale, The Silverlake Group

Software Engineering Intern, Computer and Software Equipment Services Petaling Jaya, Selangor (July 2018 - Jan 2019)

- Utilised **AS/400** for building core banking applications, including account management, transaction processing, and customer relationship management (CRM).
- Utilised **NetBeans IDE** to build and enhance existing banking systems based on Java development.
- Utilised **Glassfish Server** to develop, host, and test existing web service applications.
- Utilised **SoapUI** to build message mapping, API testing, and validation.

Cosmic Office Automation Sdn. Bhd.

Temporary Worker, Photocopy and Office Equipment Supplier Batu Pahat, Johor (Jan 2013 -May 2013)

- Operated and maintained the proper functioning of printing equipment/photostate machine such as installing and adjusting printing plates, loading and feeding paper, mixing and controlling ink flow, and ensuring the quality of the final printed piece.
- Provided customer service while executing printing services in a fast-paced environment.
- Maintained stock of supplies and requisitioned any needed items such as binding rings, book tapes, and colored papers.

PROJECT EXPERIENCE

Entropy-based Directed Random Walk (PhD Thesis)

R package, programming language: **R** (March, 2024)

- Designed and developed a disease gene prediction/prioritisation tool based on pathway topology-based analysis.
- Enhanced Directed Random Walk models based on three perspectives: construction of two separate directed pathway networks, entropy-based Directed Random Walk algorithm, and entropy-based pathway activity inference method.

- Utilised **GenePattern** to transform the raw gene expression data into cleaned dataset format for analysis.
- Utilised **Rstudio** to develop and execute the proposed model for cancer classification.
- Codes and some datasets available in GitHub: https://github.com/XinHuiTay12/e-DRW

myEntropy (Master's Dissertation)

Desktop application, programming language: C (October, 2020)

- Designed and developed a web-based application for the identification of file types based on entropy scoring.
- Applied Entropy technique to produce the optimal and exact entropy scores (Average and Range) for different types of files, including Structured Query Language data file (.sql), Shockwave Flash movie file (.swf), and Java source code file (.java).
- Utilised **Dev C++** and **SharpDevelop** to develop the file types identification tool.
- Codes and some datasets available in GitHub: https://github.com/XinHuiTay12/myEntropy

Hotspot Crime Application (Bachelor's Degree Final Year Project)

Mobile application, programming language: Javascript/Node Js (June, 2018)

- Designed and developed a mobile application for the public in accordance with the crime cases that happened in an area across Malaysia.
- Implemented several functions and features within the Hotspot Crime Application, such as SOS function, search and filter crime news, insert, display, delete and retrieve crime data.
- Utilised **Ionic framework** and **Firebase** to develop the ionic application.

GoGreen System

Web application, programming language: HTML, CSS, C#, MySQL (December, 2017)

- Designed and developed a web application for the public in accordance with the air pollution that happened in an area.
- Designed and developed webpages as user interface, including about us, event, graph, login, register etc.
- Built database with **MySQL** to store user credentials information, product details, and contact messages.
- Utilised **Visual Studio Code** and **MySQL** to develop the GoGreen system.

Radin Cafe System

Web application, programming language: HTML, CSS, Javascript, MySQL, PHP (May, 2017)

- Designed and developed a web application that allows customers and administrators to add, delete, update, and display orders.
- Designed and developed more than 20 webpages as user interface, including home, about us, categories, summary, contact us, login, sign up etc.
- Built database with **MySQL** to store user credentials information, product details, and contact messages.
- Utilised **Visual Studio Code** and **phpMyAdmin** to develop the Radin Cafe system.

Online Payroll System

Web service application, programming language: Java (May, 2017)

- Designed and developed a web service application that allows users to login and calculate gross pay.
- Developed several functions and features within the system, including login account, calculate overtime paid, commission, employment tax, basic salary etc.
- Utilised **NetBeans IDE** to develop, host, and test the Online Payroll system.

Miracle Hospital Monitoring System

GUI-based application, programming language: C++ (December, 2016)

- Designed and developed a web application that allows users and administrators to add, delete, update, and display information.
- Developed several functions and features within the system, including account registration, login account, view account and patient information, delete patient information, update duty information etc.
- Utilised **Dev C++** to develop the Miracle Hospital Monitoring system.

Healthy Care System

Web application, programming language: HTML, CSS, MySQL, PHP (December, 2016)

- Designed and developed a web application based on **Waterfall Model**.
- Designed and developed the website that allows customers and administrators to add, delete, update, and display orders.
- Designed and developed more than 20 webpages as user interface, including home, about us, categories, summary, contact us, login, sign up etc.
- Built database with **MySQL** to store user credentials information, product details, contact messages etc.
- Utilised **XAMPP** and **phpMyAdmin** to manage **MySQL** databases.

- Utilised **Adobe Dreamweaver CS6** to develop the Healthy Care system.

Dutch Kitchen System

Web application, programming language: **HTML, CSS, Javascript, MySQL, PHP** (August, 2016)

- Designed and developed a web application that allows customers to add, delete, and display orders.
- Designed and developed more than 20 webpages as user interface, including home, about us, categories, summary, contact us, login, sign up etc.
- Built database with **MySQL** to store user credentials information, product details, and contact messages.
- Utilised **Adobe Dreamweaver CS6** and **MySQL** to develop the Dutch Kitchen system.

Self-service Purchase System

GUI-based application, programming language: **C++** (April, 2016)

- Designed and developed a web application that allows customers and administrators to add, delete, update, and display orders.
- Developed the login system based on **sequential search** to find a match username and password for the user-provided credentials.
- Implemented **quick sort** technique to sort the product name, quantity, and product price in ascending order.
- Implemented **linked list** to allow customers and administrators to add and delete orders in system.
- Utilised **Dev C++** to develop the Self-service Purchase system.

COMPETITION

International Research and Innovation Symposium Competition (RISE 2024) (June 2024)

- Presented research entitled - *An entropy-based directed random walk model to identify cancerous genes based on gene expression data*
- Developed an R package (e-DRW) that aims to infer reproducible pathway activities and robust disease classification.

FSKTM Postgraduate Symposium (FPS 2023) (September 2023)

- Presented research entitled – *An entropy-based directed random walk model to identify cancerous genes based on gene expression data*

Malaysian Technical Universities Conference on Engineering and Technology (MUCET) (November 2021)

- Presented research entitled - *A direct proof of entropy-based directed random walk*
- Theoretically proofed the application of entropy technique in random walk algorithm for cancer classification.

Innovate Malaysia Design Competition (Microsoft Track) 2018 (Group) (July 2018)

- Developed an ionic application (Hotspot Crime) that provides crime data for the public to raise their crisis awareness among communities.
- Utilised **Ionic framework** and **Firebase** to develop the application that provides several features such as search crime map, filter crime news, insert, display, delete and retrieve crime data.

PUBLICATION

Hui, T. X., Kasim, S., Aziz, I. A., Fudzee, M. F. M., Haron, N. S., Sutikno, T., ... & Sen, S. C. (2024). Robustness evaluations of pathway activity inference methods on gene expression data. BMC bioinformatics, 25(1), 23. **Indexed by SCOPUS, JCR IF 2023: 2.9, Q1**

Tay, X. H., Kasim, S., Sutikno, T., Fudzee, M. F. M., Hassan, R., Patah Akhir, E. A., ... & Seah, C. S. (2023). An Entropy-Based Directed Random Walk for Cancer Classification Using Gene Expression Data Based on Bi-Random Walk on Two Separated Networks. Genes, 14(3), 574. **Indexed by SCOPUS, JCR IF 2023: 3.4, Q2**

Hui, T. X., Kasim, S., Fudzee, M. F. M., Sutikno, T., Hassan, R., Aziz, I. A., ... & Sen, S. C. (2023). A Review of Random Walk-Based Method for the Identification of Disease Genes and Disease Modules. IEEE Access. **Indexed by SCOPUS, JCR IF 2023: 2.8, Q2**

Razak, M. T. A., Rahman, N. H. A., Cahyani, N. D. W., Hui, T. X., & Taylor, S. K. (2023, March). M-health digital evidence taxonomy system (MDETS): Enabling digital forensics readiness with knowledge sharing approach. In AIP Conference Proceedings (Vol. 2508, No. 1). AIP Publishing. **Indexed by SCOPUS**

Hui, T. X., Kasim, S., Fudzee, M. F. M., Abdullah, Z., Hassan, R., & Erianda, A. (2022). A Microarray Data Pre-processing Method for Cancer Classification. JOIV: International Journal on Informatics Visualization, 6(4), 784-790. **Indexed by SCOPUS**

Hui, T. X., Mohamad, K. M., & Rahman, N. H. A. (2022). myEntropy: a file type identification tool using entropy

scoring. International Journal of Electronic Security and Digital Forensics, 14(1), 76-95. **Indexed by SCOPUS, JCR IF 2022: 0.8, Q4**

Tay, X. H., Sutikno, T., Kasim, S., Fudzee, M. F., Hassan, R., Seah, C. S., & Pahat, B. (2021). A direct proof of entropy-based directed random walk. In Proceedings of Malaysian Technical Universities Conference on Engineering and Technology (MUCET).

Hui, T. X., Sutikno, T., Kasim, S., Md Fudzee, M. F., Halim, S. A., Hassan, R., & Sen, S. C. (2021). An Entropy-based Directed Random Walk for Pathway Activity Inference Using Topological Importance and Gene Interactions. *bioRxiv*, 2021-11.

Teo, M., Mahdin, H., Hwee, L. J., Dicken, H. A., Hui, T. X., Ling, T. M., & Azmi, M. S. (2018). A review on cloud computing security. JOIV: International Journal on Informatics Visualization, 2(4-2), 293-298. **Indexed by SCOPUS**

HONOURS AND AWARDS

Chancellor Award UTHM 19th Convocation (October 2020)

Silver Award for International Research and Innovation Symposium Competition 2024 (June 2024)

REFERENCES

Associate Professor Dr. Shahreen binti Kasim

- Associate Professor of Universiti Tun Hussein Onn Malaysia
- Head of Soft Computing and Data Mining Centre (SMC), FSKTM
- Deputy Dean of FSKTM Research, Development, and Publishing
- Lecturer profile: https://community.uthm.edu.my/shahreen
- Email: shahreen@uthm.edu.my
- Contact: +6012-7697349; 07-4533776

Professor Ts. Dr. Mohd Farhan bin Md Fudzee

- Professor of Universiti Tun Hussein Onn Malaysia
- Dean of Faculty of Computer Science and Information Technology (FSKTM)
- Lecturer profile: https://community.uthm.edu.my/farhan
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