DAVID HIN

@ hello@davidhin.com   📞 +61424875767   💼 davidhin   🔗 davidhin

Experience

Development of an automated tool for detecting C/C++ software vulnerabilities

Centre for Research on Software Engineering Technologies

📅 Mar 2021 – Oct 2021 | 🔧 Python, Docker, PyTorch / PyTorch Lightning

- Conceptualised and implemented an automated software vulnerability detection tool for C/C++ code focused on usability and explainability. The tool leveraged graph neural network architectures to outperform the state-of-the-art model by 104%.
- **Hin, D.** , Kan, A., Chen, H. and Babar, M.A., 2021. LineVD: Statement-level Vulnerability Detection using Graph Neural Networks. *Under Review*.

- - -

Development of an automated pipeline for software vulnerability assessment in Java

Centre for Research on Software Engineering Technologies

📅 Jun 2020 – Jan 2021 | 🔧 Python, Java, Keras/Tensorflow

- Designed an automated software vulnerability assessment pipeline for Java code using deep learning, achieving 50% higher accuracy and requiring 6.3x less time to train compared to baseline models.
- Le, T.H., **Hin, D.** , Croft, R. and Babar, M.A., 2021. DeepCVA: Automated Commit-level Vulnerability Assessment with Deep Multi-task Learning. In *Proceedings of the 36th IEEE/ACM International Conference on Automated Software Engineering* (CORE A*)

- - -

Development of web application for tracking of vulnerable software components

The University of Adelaide

📅 Mar 2020 – Nov 2020 | 🔧 React, Node.js, Express, MongoDB, Google Cloud Services, Docker, HTML5/CSS3

- Built and deployed a microservice-based backend and front-end web application for innovatively tracking and analysing vulnerable software components.
- Awarded $10,000 by the Cybersecurity Cooperative Research Centre.
- This project achieved the highest mark for final year Honours project for Bachelor of Engineering (Software) at the University of Adelaide (2020).

- - -

Analysis and visualisation of online security vulnerability discussions

Centre for Research on Software Engineering Technologies

📅 Jan 2020 – Mar 2020 | 🔧 Python, SQL, Scikit-Learn, Docker

- Leveraged topic modeling and comprehensive data analysis techniques to extract a new taxonomy of thirteen security vulnerability discussion topics from > 20GB of data from online sites, while providing insightful visualisations.
- Le, T.H., Croft, R., **Hin, D.** and Ali Babar, M.A., 2021. A Large-scale Study of Security Vulnerability Support on Developer Q&A Websites. In *Evaluation and Assessment in Software Engineering* (CORE A)

- - -

Development of interactive visualisation-based application for spectroscopy analysis

Centre for Nanoscale BioPhotonics

📅 Jul 2018 – Feb 2019 | 🔧 R, RStudio, R Shiny

- Created an app to analyse data collected from custom built biological autofluorescence spectroscopy equipment, involving manipulation of raw signal data, unsupervised learning, and dimension reduction techniques.

Skills & Competencies

Software Development

Python   C   C++   Java   Node.js
React   SQL   Ruby   Git
Firebase   Amazon Web Services
Google Cloud Services

Data Science

Pandas   Scikit-learn   PyTorch
Tensorflow   Excel   R/RStudio
High-performance computing (HPC)

Soft skills

Cross-team collaboration   Mentoring
Project management   Presentation skills

Education

Bachelor of Engineering (Software) with First-class Honours

University of Adelaide

📅 Feb 2017 – Dec 2020

GPA: 6.8/7

Achievements

- **2021** - Cybersecurity CRC PhD Top-Up Scholarship
- **2020** - Lifelenz Prize, for achieving the highest Honours mark in Bachelor of Engineering (Software)
- **2020** - Cybersecurity Cooperative Research Centre Honours Scholarship
- **2020** - University of Adelaide: Executive Dean's Award for Academic Excellence
- **2019** - Cybersecurity Cooperative Research Centre Summer Scholarship
- **2018** - Australian Oracle User Group Prize, for achieving highest score in Web and Database Computing course
- **2018** - University of Adelaide: Executive Dean's Award for Academic Excellence
- **2017** - University of Adelaide: Executive Dean's Award for Academic Excellence
- **2016** - Dux of The Heights School, SA
- **2015** - Govhack: International Digital Humanities Hack, N3xGen South Australian Champion