Roland Croft

roland.croft@gmail.com | xxxx xxx xxx | LinkedIn | Website

CAREER PROFILE

I am a Ph.D. student with a research focus on software engineering, data science, and machine learning. My research works primarily involve the application of data-centric AI for software security, and have been published in many of the top software engineering conferences and journals.

EDUCATION

Ph.D. in Computer Science (Software Engineering) Mar 2020 – Mar 2023 (Expected)
University of Adelaide

Bachelor of Computer Science (Advanced) (Honours) Mar 2016 - Dec 2019
University of Adelaide *GPA: 6.85/7 – First Class Honours*

PROFESSIONAL EXPERIENCE

Academic Researcher **2020 - Present**
CREST Research Lab, Cyber Security Cooperative Research Centre *University of Adelaide*

Research Assistant & Engineer **2017 – 2019**
CREST Research Lab *University of Adelaide*

Teaching Assistant **2018**
- Taught Algorithm Design and Data Structures *University of Adelaide*

PROJECTS

AI-Based Software Vulnerability Detection and Assessment
- Development of state of the art AI-based and data-driven methods for timely Software Vulnerability detection and assessment from source-code.
- Utilization of NLP-based methods for program analysis, and training ML/DL models for classification.

Data Quality for Software Vulnerability Intelligence
- Analysis and assessment of data quality from software vulnerability information sources, to assist with trustworthiness of security analytics.
- Development of robust analytical methods to overcome data imperfections and poor data quality.

Large-Scale Automatic Security Knowledge Retrieval and Analysis
- Creation of tools to automatically extract and disseminate large-scale security knowledge from open sources, such as Stack Overflow and GitHub.
- In-depth analysis of security considerations and information for different technologies. Development of a tool for automatic dissemination of such knowledge.

SELECTED PUBLICATIONS

An Investigation into Inconsistency of Software Vulnerability Severity across Data Sources
Roland Croft, M. Ali Babar, Li Li. *Proceedings of the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering.*

An Empirical Study of Rule-Based and Learning-Based Approaches for Static Application Security Testing
Roland Croft, Dominic Newlands, Ziyu Chen, M. Ali Babar. *Proceedings of the 15th ACM/IEEE International Symposium on Empirical Software Engineering and Measurement.*

TECHNICAL SKILLS

- **Languages:** Python, Java, C++, R, Shell
- **Data Skills:** Data mining/cleaning/analysis/wrangling/visualization
- **Statistics:** Hypothesis testing, regression analysis, sampling methods
- **Machine Learning:** Natural language processing, machine learning, deep learning, weak supervision
- **Research Methods:** Qualitative & quantitative analysis, statistical modelling, systematic review

AWARDS

- **Cyber Security CRC Research Scholarship** (Honours & Ph.D.).
- **University Medal** (Highest GPA from graduating cohort).
- **High School Valedictorian** (99.5/100 ATAR).

VOLUNTEER WORK

Academic Supervisor: Providing supervision and mentoring to several under/post-graduate students for various research projects.
Social Media Manager (CREST): Driving engagement on *LinkedIn* for the CREST research centre.