Chaiyong Ragkhitwetsagul

Address

Faculty of ICT Mahidol University 999 Puttamonthon Rd. Salaya Nakhon Pathom 73170 Thailand Tel: +66 2 441 0909 Fax: +66 2 849 6099 Email: <u>chaiyong.rag@mahidol.ac.th</u>, <u>chaiyong.rag@mahidol.edu</u>

Research Interests

Software Engineering, Static Software Analysis, Code Clone Detection, Mining Software Repositories, Software Testing, Software Dependency, Code Competency

Professional Experience

Lecturer, Faculty of ICT, since December 2012 Assistant Dean of the Academic Administration, October 2018 – October 2020 Mahidol University Thailand

System Analyst, 2009 – 2012 National Economic and Social Development Board Thailand

Software Test Engineer, 2006 – 2007 Microsoft (Thailand) Thailand

Education

Doctor of Philosophy (Computer Science – Software Engineering) Department of Computer Science , University College London, UK, October 2018

Master of Science in IT – Very Large Information Systems Carnegie Mellon University, USA, December 2008

Bachelor of Engineering, Department of Computer Engineering (Magna cum Laude) Kasetsart University, Thailand, March 2006

Selected Honors

- Distinguished Reviewer Awards 2023, the 31st IEEE/ACM International Conference on Program Comprehension (ICPC '23)
- Best Reviewer Awards 2022, Journal of Systems and Software.
- Best Paper Award, 29th Asia-Pacific Software Engineering Conference (APSEC '22) Software Engineering Education Track, Virtual Event, 2022.
- Best Paper Award and the People's Choice Award (best presentation), 16th International Workshop on Software Clones, Limassol, Cyprus, 2022.

- Recipient of the Scholarships for Ph.D. Students 2022 from Mahidol University, 24 March 2022.
- Recipient of the Research Grant for New Scholars (RGNS) for 2 years from the Ministry of Higher Education Science Research and Innovation (MHESRI) on the topic of "Code similarity applications for improving software quality.", 9 November 2021.
- Honorable mention for the Learning Innovation for Online Courses Awards in the category "Online Engagement and Motivation Techniques, Innovations and Learning Models" for Using Virtual Reality for Project Presentation (ITCS431 Software Design and Development), 3 July 2021.
- PhD Thesis Awards, National Research Awards 2020, National Research Council of Thailand, 16 November 2020.
- The Best Tool Demo Award, 36th IEEE International Conference on Software Maintenance and Evolution (ICSME 2020) Tool Demo, Adelaide, Australia (Virtual Event), 2020.
- The People's Choice Award (best presentation), 12th International Workshop on Software Clones, Campobasso, Italy, 2018.
- The People's Choice Award (best presentation), 11th International Workshop on Software Clones, Klagenfurt, Austria, 2017.
- Full PhD scholarship, Mahidol University, 2014.
- Full Master's degree scholarship, The Royal Thai Government, 2007.
- Winner of the 8th National Software Contest of Thailand (NSC) Software for Entertainment, 2006.

Selected Professional Services

Reviewer of software engineering journals:

- Transactions on Software Engineering (TSE)
- Empirical Software Engineering (EMSE)
- ACM Transactions on Software Engineering and Methodology (TOSEM)
- Journal of Systems and Software (JSS)
- Software: Practice and Experience (SPE)
- Journal of Software: Evolution and Process (JSEP)
- IEEE Access
- Science of Computer Programming (SCP)
- Software Quality Journal (SQJ)

Organizing committee of international conferences and workshops:

2022

• Diversity, Inclusion and Outreach Co-Chair of the 2022 Mining Software Repositories Conference (MSR 2022).

- Program co-chair, Early Research Achievement (ERA) track of the 29th IEEE/ACM International Conference on Program Comprehension (ICPC 2021).
- Guest Editors (with Hitesh Sajnani) for the Journal of Systems and Software: Special Issue on Software Clones.

- Judge for the ACM Student Research Competition-track of the 42nd International Conference on Software Engineering (ICSE 2020).
- Program co-chairs of the 14th International Workshop on Software Clones (IWSC 2020).

Reviewer of international conferences and workshops:

2024

- Program committee of the 32nd IEEE/ACM International Conference on Program Comprehension (ICPC '24), Research and Tool Demonstration tracks.
- Program committee of the 46th International Conference on Software Engineering (ICSE '24), Journal First track.
- Program committee of the 3rd International Conference on AI Engineering Software Engineering for AI (CAIN '24).
- Program committee of the 21st Mining Software Repositories conference (MSR '24), Data and Tool Showcase track.

2023

- Program committee of the 17th International Workshop on Software Clones (IWSC '23).
- Program committee of the 38th IEEE/ACM Interntional Conference on Automated Software Engineering (ASE 2023), Tool Demonstration and NIER tracks.
- Program committee of the 39th International Conference on Software Maintenance and Evolution (ICSME '23), Research Track.
- Program committee of the 20th International Joint Conference on Computer Science and Software Engineering (JCSSE '23).
- Program committee of the 16th International Conference on Cooperative and Human Aspects of Software Engineering (CHASE '23) Registered Reports Track.
- Program committee of the 2nd International Conference on AI Engineering Software Engineering for AI (CAIN '23).
- Program committee of the 20th International Conference on Mining Software Repositories (MSR '23) Registered Reports Track.
- Program committee of the 20th International Conference on Mining Software Repositories (MSR '23) Data and Tool Showcase Track.
- Program committee of the 20th International Conference on Mining Software Repositories (MSR '23).
- Program committee of the 45th IEEE/ACM International Conference on Software Engineering (ICSE '23) Posters Track.
- Program committee of the 31st IEEE/ACM International Conference on Program Comprehension (ICPC '23) Tool Demonstration Track.
- Program committee of the 31st IEEE/ACM International Conference on Program Comprehension (ICPC '23).
- Program committee of the 30th International Conference on Software Analysis, Evolution, and Reengineering (SANER '23).

- Program committee of the 16th Innovation in Software Engineering Conference (ISEC '23).
- Program committee of the 14th Symposium on Search-Based Software Engineering (SSBSE '22) (Replications and Negative Results/New Ideas and Emerging Results) RENE/NIER track.
- Program committee of the 16th International Workshop on Software Clones (IWSC '22).

- Program committee of the 37th IEEE/ACM International Conference on Automated Software Engineering (ASE '22) Tool Demonstration Track.
- Program committee of the 38th IEEE International Conference on Software Maintenance and Evolution (ICSME '22) Research Track.
- Program committee of the 1st International Conference on AI Engineering Software Engineering for AI (CAIN'22).
- Program committee of 30th IEEE/ACM International Conference on Program Comprehension (ICPC 2022) Research Track.
- Program committee of the 2022 Mining Software Repositories Conference (MSR 2022) Registered Reports, Registered Report Track.
- Program committee of the 2022 Mining Software Repositories Conference (MSR 2022) Registered Reports, Data and Tool Showcase Track.
- Program committee of the 2022 Mining Software Repositories Conference (MSR 2022) Registered Reports, Hackathon Track.
- Program committee of the 29th IEEE International Conference on Software Analysis, Evolution and Reengineering (SANER 2022) Early Research Achievements (ERA) track.
- Program committee of the 15th Innovations in Software Engineering Conference (ISEC 2022) Research Track.

2021

- Program committee of the 13th IEEE International Conference on Knowledge and Systems Engineering (KSE 2021).
- Program committee of the 15th International Workshop on Software Clones (IWSC 2021).
- Program committee, Replications and Negative Results Track of the 13th Symposium on Search-Based Software Engineering (SSBSE 2021).
- Program committee, Research Track of the 37th International Conference on Conference on Software Maintenance and Evolution (ICSME 2021).
- Program committee, Late Breaking Results track of the 36th IEEE/ACM International Conference on Automated Software Engineering (ASE 2021).
- Program committee, Posters Track of the 36th IEEE/ACM International Conference on Automated Software Engineering (ASE 2021).
- Program committee, Posters Track of the 43rd International Conference on Software Engineering (ICSE 2021).

- Program committee, Late Breaking Results track of the 35th IEEE/ACM International Conference on Automated Software Engineering (ASE 2020).
- Program committee, Research Papers track of the 35th IEEE/ACM International Conference on Automated Software Engineering (ASE 2020).
- Program committee, Technical Research track of 28th IEEE/ACM International Conference on Program Comprehension 2020 (ICPC 2020).
- Program committee of the 13th Innovations in Software Engineering Conference (ISEC 2020).

- Program committee, Technical Research track of the 35th IEEE International Conference on Software Maintenance and Evolution (ICSME 2019).
- Program committee, Technical Research track of 27th IEEE/ACM International Conference on Program Comprehension 2019 (ICPC 2019).
- Program committee, the 13th International Workshop on Software Clones (IWSC 2019).

Ph.D. Thesis Examiner

• Brittany Reid, *Improving Developer Efficiency through Code Reuse*, Doctor of Philosophy, The School of Computer and Mathematical Sciences, University of Adelaide, 2023.

Funded Research Grants

- MAINTAIN Intelligent Maintenance of Software Systems, CNPq/MCTI No 10/2023 Universal 2023, Researcher (lead by Dr. Matheus Paixao, UECE, Brazil)
- Mahidol's Scholarship for Ph.D. Student 2022.
- Research Grant for New Scholars (RGNS) from Ministry of Higher Education Science Research and Innovation (MHESRI) on the topic of "Code similarity applications for improving software quality", 2021-2023.
- Mahidol University Mini Research Cluster (MU MiniRC) on the topic of "Applying Software Engineering for Improving the Development of Data Science Application", 2021-2022 (lead by Dr. Apirak Hoonlor).
- Automated Software Engineering for Thailand Software Industry, Royal Academy of Engineering, UK and Thailand Science Research and Innovation (TSRI) (13,345 GBP), 2019 2021.
- UIC grant, University of Wollongong, 2019 2020.
- Amazon AWS Credits for Research (20,000 USD), 2018.
- NSF Student Travel Support (700 USD), the 8th Symposium on Search-Based Software Engineering, 2016.
- Microsoft Azure Research Award (20,000 USD), 2016.

Selected Invited Talks and Keynote Addresses

• "Automated Software Engineering for Thailand Software Industry", Dev Mountain Tech Festival Season 2, 11-13 November 2022, Chiang Mai, Thailand

Publication Statistics

Monographs: 0 Journal Articles: 7 Conference Papers: 18 Book Chapters: 1 Workshop Papers: 6 Edited Volumes: 0 Citations (27 December 2023):

Google Scholar: 733 with h-index of 13 Scopus: 406 with h-index of 10

Selected Publications (Full publication list: <u>https://cragkhit.github.io/research.html</u>)

Book Chapters

• Krinke, J., & Ragkhitwetsagul, C. (2021). *Code Similarity in Clone Detection (Book Chapter)*. In K. Inoue & C. K. Roy (Editors.), Code Clone Analysis (pp. 135–160), Springer.

Journals

- Choetkiertikul M., Puengmongkolchaikit A., Chandra P., Ragkitwetsakul C., Maipradit R., Hata H., Sunetnanta T., Matsumoto K., *Studying the association between Gitcoin's issues and resolving outcomes*, Journal of Systems and Software, 2023.
- Sangaroonsilp, P., Dam, H. K., Choetkiertikul, M., Ragkhitwetsagul, C., & Ghose, A. (2023). *A taxonomy for mining and classifying privacy requirements in issue reports*. Information and Software Technology.
- Choetkiertikul, H. K. Dam, T. Tran, T. Pham, C. Ragkhitwetsagul, A. Ghose. *Automatically recommending components for issue reports using deep learning*. Empirical Software Engineering (EMSE), (2021) 26:14.
- M. Paixao, J. Krinke, D. Han, C. Ragkhitwetsagul, M. Harman. *The Impact of Code Review on Architectural Changes*. Transactions on Software Engineering (TSE), 2019.
- C. Ragkhitwetsagul, J. Krinke. Siamese: Scalable and Incremental Code Clone Search via Multiple Code Representations. *Empirical Software Engineering*, 2019.
- C. Ragkhitwetsagul, J. Krinke, M. Paixao, G. Bianco, R. Oliveto, Toxic Code Snippets on Stack Overflow, *IEEE Transactions on Software Engineering*, 2019.
- C. Ragkhitwetsagul, J. Krinke, D.Clark. A Comparison of Code Similarity Analysers. *Empirical Software Engineering*, https://doi.org/10.1007/s10664-017-9564-7, 2017.

Conferences

- Choetkiertikul M., Hoonlor A., Ragkhitwetsagul C., Pongpaichet S., Sunetnanta T., Settewong T., Jiravatvanich V., Kaewpichai U., *Mining the Characteristics of Jupyter Notebooks in Data Science Projects* in the Mining Software Repositories 2023 (MSR '23) - Registered Report, 15-16 May 2023, Melbourne, Australia.
- Rattanukul, P., Chansida Makaranond, C., Pumipat Watanakulcharus, P., Ragkhitwetsagul, C.,Nearunchorn[†], T., Visoottiviseth, V., Choetkiertikul, M., Sunetnanta, T., *Microusity: A testing tool for Backends for Frontends (BFF) Microservice Systems* in the The 31st IEEE/ACM International Conference on Program Comprehension (ICPC '23), 15-16 May 2023, Melbourne, Australia.
- Ritta, N., & Settewong, T., Kula, R. G., Ragkhitwetsagul, C., Sunetnanta, T., & Matsumoto, K., *Reusing My Own Code : Preliminary Results for Competitive Coding in Jupyter Notebooks* in the 29th Asia-Pacific Software Engineering Conference (APSEC 2022), 6-9 December 2022, Virtual Event.
- Settewong, T., Ritta, N., Kula, R. G., Ragkhitwetsagul, C., Sunetnanta, T., & Matsumoto, K., *Why Visualize Data When Coding ? Preliminary Categories for*

Coding in Jupyter Notebooks in the 29th Asia-Pacific Software Engineering Conference (APSEC 2022), 6-9 December 2022, Virtual Event.

- Ragkhitwetsagul, C., Choetkiertikul, M., Hoonlor, A., & Prachyabrued, M., *Virtual Reality for Software Engineering Presentations* in the 29th Asia-Pacific Software Engineering Conference (APSEC 2022), 6-9 December 2022, Virtual Event (best paper award).
- Jarukitpipat, V., Chhun, K., Wanprasert, W., Choetkiertikul, M., Sunetnanta, T., Kula, R. G., Chinthanet, B., Ishio, T., & Matsumoto, K., *V-Achilles : An Interactive Visualization of Transitive Security Vulnerabilities*. The 37th IEEE/ACM International Conference on Automated Software Engineering (ASE '22) - Tool Demonstration Track, 10-14 October 2022, Michigan, USA.
- Ragkhitwetsagul C., Paixao M., *Recommending Code Improvements Based on Stack Overflow Answer Edits*, International Conference on Mining Software Repositories (MSR '22) Registered Report, 18-20 May 2022, Pittsburgh, PA, USA (Virtual Event).
- Ragkhitwetsagul C., Krinke J., Choetkiertikul M., Sunetnanta T., Sarro F., *Identifying Software Engineering Challenges in Software SMEs: A Case Study in Thailand.* in the 29th International Conference on Software Analysis, Evolution, and Reengineering (SANER'22) Industry Track, 15-18 March 2022, Honolulu, Hawaii (Virtual Event).
- Phaithoon S., Wongnil S., Pussawong P., Choetkiertikul M., Rakhitwetsagul C., Sunetnanta T., Maipradit R., Hata H., Matsumoto K., *FixMe: A GitHub Bot for Detecting and Monitoring On-hold Self-Admitted Technical Debt.* in the Proceedings of the International Conference on Automated Software Engineering (ASE) - Tool Demonstrations Track, 2021 (Virtual Event).
- Robert White, Jens Krinke, Earl Barr, Federica Sarro, Chaiyong Ragkhitwetsagul, *Artefact Relation Graphs for Unit Test Reuse Recommendation.* in the Proceedings of IEEE International Conference on Software Testing (ICST), Virtual Event.
- D. Han, C. Ragkhitwetsagul, J. Krinke, M. Paixao, G. Rosa, *Does code review really remove coding convention violations?*. in the 20th IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM) in Adelaide, Australia.
- C. Khanan, W. Luewichana, K. Pruktharathikoon, J. Jiarpakdee, C. Tantithamthavorn, M. Choetkiertikul, C. Ragkhitwetsagul, T. Sunetnanta. *JITBot: An Explainable Just-In-Time Defect Prediction Bot*, in the 35th IEEE/ACM International Conference on Automated Software Engineering (ASE '20) - Tool Demo Track, September 21–25, 2020, Virtual Event, Australia.
- P. Phan-udom, N. Wattanakul, T. Sakulniwat, C. Ragkhitwetsagul, T. Sunetnanta, M. Choetkiertikul, R.G. Kula *Teddy: Automatic Recommendation of PythonicIdiom Usage For Pull-Based Software Project*, in the 36th IEEE International Conference on Software Maintenance and Evolution (ICSME 2020) in Adelaide, Australia.
- J. Wilkie, Z. Al Halabi, A. Karaoglu, J. Liao, G. Ndungu, C. Ragkhitwetsagul, M. Paixao, J. Krinke. Who's this? Developer identification using IDE event data. In the 15th International Conference on Mining Software Repositories Mining Challenge (MSR 2018), 2018. Gothenburg, Sweden.
- M. Paixao, J. Krinke, D. Han, C. Ragkhitwetsagul and M. Harman. Are Developers Aware of the Architectural Impact of Their Changes? In *the 32nd IEEE/ACM International Conference on Automated Software Engineering (ASE 2017)*, 2017. Illinois, USA.

- C. Ragkhitwetsagul, M. Paixao, M. Adham, S. Busari, J. Krinke, and J. H. Drake. Searching for Configurations in Clone Evalution: A Replication Study. In δth International Symposium on Search-based Software Engineering (SSBSE): Challenge Track, 2016. Raleigh, NC, USA.
- C. Ragkhitwetsagul, J. Krinke, D. Clark. Similarity of Source Code in the Presence of Pervasive Modifications. In 16th IEEE International Working Conference on Source Code Analysis and Manipulation (SCAM), 2016. Raleigh, NC, USA.
- C. Ragkhitwetsagul. Measuring Code Similarity in Large-scaled Code Corpora. In 32nd International Conference on Software Maintenance and Evolution (ICSME): Doctoral Symposium, 2016. Raleigh, NC, USA.

Workshops

- Krinke J. and Ragkhitwetsagul C.,*BigCloneBench Considered Harmful for Machine Learning*. in the 16th International Workshop on Software Clones (IWSC '22), 2 October 2022, Limassol, Cyprus (best paper and best presentation awards).
- N. Assavakamhaenghan, M. Choetkiertikul, S. Tuarob, R. G. Kula, H. Hata, C. Ragkhitwetsagul, T. Sunetnanta, and K. Matsumoto. *Software Team Member Configurations: A Study of Team Effectiveness in Moodle*, in the 10th International Workshop on Empirical Software Engineering in Practice (IWESEP 2019), Tokyo, Japan.
- T. Sakulniwat, R. G. Kula, C. Ragkhitwetsagul, M. Choetkiertikul, T. Sunetnanta, D. Wang, T. Ishio and K. Matsumoto. *Visualizing the Usage of Pythonic Idioms Over Time: A Case Study of the with open Idiom*, in the 10th International Workshop on Empirical Software Engineering in Practice (IWESEP 2019), Tokyo, Japan.
- V. Arammongkolvichai, R. Koschke, C. Ragkhitwetsagul, M. Choetkiertikul, T. Sunetnanta. *Improving Clone Detection Precision using Machine Learning Techniques*, in the 10th International Workshop on Empirical Software Engineering in Practice (IWESEP 2019), Tokyo, Japan.
- C. Ragkhitwetsagul, J. Krinke. A picture is worth a thousand words: code clone detection based on image similarity. *In the 12th International Workshop on Software Clones (IWSC 2018)*, 2018. Campobasso, Italy.
- C. Ragkhitwetsagul, J. Krinke. Using Compilation/Decompilation to Enhance Clone Detection. In 11th International Workshop on Software Clones, 2017. Klagenfurt, Austria.

Technical Reports

• C. Ragkhitwetsagul, J. Krinke, R. Oliveto. Awareness and Experience of Developers to Outdated and License-Violating Code on Stack Overflow: An Online Survey. UCL Computer Science Research Note (RN/17/10), 2017.

Doctoral Student Supervision

In-on Wiratsin, *Recommending Solutions for Error Handling by Stack Overflow Mining*, Recipient of the Mahidol PhD scholarship 2022.

Undergraduate Student Supervision

- Veerakit Prasertpol, Natanon Ritta, Paphon Sae-wong, Project: *Recommending Python coding alternatives in Jupyter notebooks*
- Komsan Kongwongsupak, Thanakit Maneesawas, Natpichsinee Puttiwarodom, Project: *Defining and evaluating JavaScript code competency*
- Tasha Settewong, Natanon Ritta, NAIST summer internship (co-supervised with Asst. Prof. Dr. Thanwadee Sunetnanta and Dr. Morakot Choetkiertikul, Raula G. Kula).

2021

• Chansida Makaranond, Pattarakrit Rattanukul, Pumipat Watanakulcharus Project: *Microusity: Security Testing Tool for Backend for Frontend (BFF) Microservice Architecture* (co-supervised with Asst. Prof. Dr. Vasaka Visoottiviseth and Tanapol Nearunchorn, Lineman Wongnai)

2020

- Tasha Settewong, Natanon Ritta, NAIST summer internship (co-supervised with Asst. Prof. Dr. Thanwadee Sunetnanta and Dr. Morakot Choetkiertikul, Raula G. Kula).
- <u>Phattharapong Poolthong</u>, <u>Panaya Sirilertworakul</u>, <u>Kanika Wonwien</u> Project: *JARVAN: Automatic checker for outdated StackOverflow answers in software projects.*
- <u>Vipawan Jarukitpipat, Wachirayana Wanprasert, Klinton Chhun</u> Project: *Achilles: Analysis of effects from software dependency vulnerabilities*

2019

- <u>Vara Arammongkolvichai</u>, <u>Weekit Ausavaserenont</u>, Wannaporn Vichaisri Project: *Merry: Web-based Code Clone Detection System using Machine Learning*
- Purit Phan-udom, Naruedon Wattakul, Tattiya Sakulniwat Project: *TEDDY: Automated tool for detection and suggestion of Pythonic idiom* usage
- (Co-supervisor) <u>Thanachanok Siripittakul, Peerachai Banyongrakkul, Thayut</u> <u>Indramaha</u>

Project: Sprint2Vec: A deep learning-based model for learning vector representation of iterative software development

 (Co-supervisor) Krissakorn Pruktharathikoon, Natcha Sirikunanon, Rapipat Udomgun Project: *Bug Hunter v.2*

Program and Curriculum Development

• Bachelor of Science in Digital Science and Technology (DST), Faculty of Information and Communication Technology, Mahidol University.

Courses Taught at Mahidol University

- ITCS371 and ITDS261 Introduction to Software Engineering
- ITDS262 Software Engineering Lab
- ITCS431 and ITDS361 Software Design and Development
- ITCS473 and ITDS362 Software Quality Assurance and Testing
- ITCY553 Secure Software Design

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- ITCS335 Introductions to e-Business Systems ITDS101 Industry Experiences and Problems I ITCS155 Introduction to Computer •
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