Max Ellis

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Camas, WA 98607, USA

Education

Master of Science, Computing Science, University of Alberta, Edmonton   **June 2022**
- Advisor: Sarah Nadi
- GPA Overall: 4.0 / 4.0

Bachelor of Science, Computer Science, Washington State University, Vancouver   **May 2019**
- GPA Overall: 3.92 / 4.0

Technical Skills

Languages:	Java, C++, C, SQL, Python, Javascript, HTML, CSS
Libraries:	RefactoringMiner, Apache Commons, IntelliJ IDEA API, Pandas, NumPy, MatPlotLib
Tools:	Github, Excel, IntelliJ IDEA, MySQL, Eclipse, Microsoft Visual Studio, Virtual Box
Platforms:	Microsoft Windows, Ubuntu Linux

Work Experience

Research Assistant   **University of Alberta, Edmonton**   **May 2020 – December 2021**
- **Spearheaded** a project with an external collaborator to **revitalize** operation-based refactoring-aware merging, allowing it to be applied in practice with Git
- **Emulated** double dispatch in **Java** to make operation-based merging feasible to **scale and maintain**, **reducing the effort** required to update supported refactorings or add new refactoring types
- **Analyzed** experimental data utilizing **Python** libraries to compare the strengths and weaknesses of two refactoring-aware merging approaches, **providing insights** and paths forward for each approach
- **Leveraged** sparsely documented third party libraries to **programmatically perform refactorings** and detect refactoring-related merge conflicts, **supporting 17** known refactoring types
- **Presented** weekly status updates to stakeholders and **discussed** which direction to take next, **pushing** the project forward

Teaching Assistant   **University of Alberta, Edmonton**   **September 2019 – May 2020**
- **Delivered course material** in a lab setting to help students **succeed** in CMPUT 379 (Operating Systems)
- **Presented** additional information and **answered questions** about operating systems and **C/C++**
- **Designed** assessments, quizzes, and exams alongside the instructor to **assess** the students' mastery of the material

STEM Tutor   **Clark College, Vancouver**   **April 2016 – May 2019**
- **Communicated** knowledge of all computer science courses offered at Clark College to students through a **variety of methods**, **adapting to each student's** learning style
- **Fostered** a **positive and inclusive** environment for all students and staff using **interpersonal skills**

Selected Projects

RefMerge (2019 – Present). An operation-based software merging approach that considers the semantics of refactorings to improve the merge resolution process. Reduced unnecessary conflicts by **25%** while **eliminating false negatives** reported by Git.
IntelliMerge Evaluation (2019 – 2020). A **systematic investigation** to determine the limitations of the state-of-the-art refactoring-aware merging tool, IntelliMerge, followed by an **empirical evaluation** across 34,000 real-world merge scenarios.
Cornerstone Web Application (2019). Worked with a **team of four** other students to develop the client and server for a Javascript application that interfaced between a web UI and internal database using **React and NodeJS**.

Publications

Max Ellis, Sarah Nadi, and Danny Dig. "Operation-based Refactoring-aware Merging: An Empirical Evaluation". In: *IEEE Transactions on Software Engineering* (TSE 2022) Status: Major Revision Currently Under Review
Preprint: arxiv.org/pdf/2112.10370.pdf

References Available on Request