# TEGAR WICAKSONO

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## Objective

To pursue a career in software development for commercial applications, working to develop client-based solutions while maintaining industry best practices, and implementing SDLC methodologies such as Agile or Waterfall to ensure timely delivery of maintainable products.

## Summary

- Current role as a developer for an engineering research group in The University of British Columbia.
- Earn a certification in Agile Practices for Software Product Management (2017, U of Alberta) and a PhD in Computational Science for Materials Physics (2016, UBC).
- 6+ years experience in software development, with products that include Windows GUI applications written on C++14 and Python via QT5.0 interface, network applications in Python, and Java web applications (via Spring Framework and Maven) connected to a relational database; 3 years in data mining and machine learning implementation; 1 year experience as a lead developer in an Agile team of 5.
- Previous projects include application of thread-based parallelism in OpenMP platform for scientific research, implementation of machine learning algorithms as diagnostics tool for defect identification, game development in Unity, system designs in a Hadoop ecosystem, and deployment using Docker containers.
- Contributor to an open-source object-oriented multi-threaded C++ software distributed by a U.S. national laboratory; intern as a master student in an institute for high performance computing.

## Experience

2016-present **Lead Developer, Research Fellow, The University of British Columbia.**
• Develop a Window GUI application on C++ platform on top of QT5.0 interface for a laser ultrasound machine that allows real-time monitoring of experimental data • Apply Agile methodologies as a lead developer in a team of 5 to deliver a code to simulate complex alloys, with calculation time reduced by 6 months and a $30k savings compared to legacy codes running on Amazon Web Service • Design and deploy Java web applications for a Canada-wide research consortium and maintain records of >200 users and their requests for high performance computing • Run statistical analyses for materials diagnostics of a nuclear reactor, preventing a damage scenario that can cost $1 million for the facility • Mentor a master student in collaboration with Tsinghua University, China.

2010-2015 **Graduate Student Researcher, The University of British Columbia.**
• Implement best practices and Boost libraries on the development of C++11 code for simulating the behaviour of engineering alloys • Contribute to an open-source object-oriented C++ software distributed by a U.S. national laboratory • Adopt test-driven development via CATCH C++ for code benchmarking • Apply unsupervised machine learning algorithms to characterize terabytes of information from nuclear reactors • Develop a Java web application for a graduate student society that handles social transaction among users including user account creation, event registration and textbook exchange.

2009-10 **Product Engineer, National University of Singapore.**
• Co-author a successful grant awarded by Singapore Ministry of Defense ($15k) • Conduct test on mechanical properties of copper alloys for submarine application.

2009 **Junior Developer, Institute of High Performance Computing, Singapore.**
• Contribute as a junior developer in a team delivering a task-based parallelism C++ code to simulate electronic properties of a semiconductor device.

## Education

2017 **Agile Practices for Software Product Management specialization, University of Alberta**
Complete 5 courses with 99% overall grade and a capstone project on delivering an educational ebook app for a children's bookstore in 4 months. [Link]

2016 **Doctor of Philosophy, The University of British Columbia**
Publish 4 peer-reviewed papers (the cohort average is 2 papers). Receive academic awards and recognitions for student leadership.

2009 **Master of Engineering, Massachusetts Inst. of Technology (MIT)**
Co-author a commercialization proposal for a novel semiconductor device, with venture capital firms as the targeted readers. Receive a fellowship from the Singapore Government.

2008 **Bachelor of Engineering, Nanyang Technological Univ., Singapore**
Earn a Minor in Business and Computing. Graduate with First-class honours. Receive Dean's List award for 3 years.

## Technical Skills and Interest

- Programming languages: compiled languages (C++11, Java), interpreted languages (Python including scikit-learn, Octave, Matlab).
- Other tools and technologies: Git version control, deployment via Docker containers, GUI applications designed in QT5.0, PostgreSQL database management, thread-based parallelism via OpenMP, application of OpenCV libraries in C++.
- Side projects: front-end web development for personal website, development of simple games on Unity Engine and Unreal (demos available on here).

## Select Publications

- A. T. Wicaksono, M. Militzer, *Interaction of carbon and manganese in a sigma-3 grain boundary of BCC iron*, IOP Series: Materials Science and Engineering, **219**, 012044 (2017) [PDF].
- A. T. Wicaksono, M. Militzer, C. W. Sinclair, *A molecular dynamics study on the effect of helium clusters on grain boundary migration in α-iron*, Philosophical Magazine, **96**, 3746 (2016) [PDF].
- A. T. Wicaksono, C. W. Sinclair, M. Militzer, *An atomistic study on the correlation between the migration of planar and curved grain boundaries*, Computational Materials Science, **117**, 397 (2016) [PDF].
- A. T. Wicaksono, C. W. Sinclair, M. Militzer, *A three-dimensional atomistic kinetic Monte Carlo study of dynamic solute-interface interaction*, Modelling and Simulation in Materials Science and Engineering, **21**, 085010 (2013) [PDF].