

# TEGAR WICAKSONO

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## Objective

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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

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- 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 product platforms that include C++11/14 console-based applications with Boost libraries, Python and Matlab; 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 algorithm as diagnostics tool for defect identification, game development in Unity, and project 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

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- 2016-present      **Software Developer/Research Fellow, The University of British Columbia.**  
• 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 • 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.
- 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

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- 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

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- 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

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- A. T. Wicaksono, M. Militzer, C. W. Sinclair, *A molecular dynamics study on the effect of helium clusters on grain boundary migration in  $\alpha$ -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) [arXiv].

## Societies and Professional Organizations

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- 2016-present      **Engineer-In-Training (EIT) at Association of Professional Engineers and Geoscientists, British Columbia (APEG BC).**
- 2015-present      **Member of Executive Committee at American Welding Society, BC Section.**
- 2012-2014      **President at Joint Students Chapter, The University of British Columbia.**
- 2012-2014      **Volunteer at Arts Club Theater Company, ASM BC Chapter.**