

Paul Liu

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EDUCATION

Masters of Science, Computer Science
University of British Columbia, Vancouver, BC, expected May 2017

Bachelor of Science, Honours Mathematics and Physics
University of British Columbia, Vancouver, BC, May 2015

SKILLS

Languages: C++, Python, Matlab, Java, Mathematica, Go
Operating Systems: Windows, GNU/Linux

EXPERIENCE

Research Assistantship (Summer 2015)
Computer Science Department, UBC

- Working with Prof. David Kirkpatrick (UBC) on shortest path problems in 2-body coordinated motion. Given two robots on an obstacle-free plane and two destination points, what is the shortest path each robot should take so that the two robots are not within unit distance of each other? Existing results have solved the case for which the two robots are always unit distance apart. Our aim is to extend these results to cases where the robots can be arbitrarily far away from each other.

NSERC Idea to Innovation Grant (Spring 2014 - Current)
Sensorimotor Lab, UBC

- Working on an OpenGL library for thin skin elastodynamics. Our aim is to model thin skin accurately and swiftly on a conventional GPU. Such work can be applied to simulating human and animal skin, as well as skin-tight clothes. An outline of the approach as well as sample work can be found at <http://www.cs.ubc.ca/research/thinskinelastodynamics/>.

*NSERC Research Assistantship (Summer 2012 - Spring 2013) &
Undergraduate Research Assistantship (Fall 2013 - Spring 2014)*
Scientific Computing Lab, UBC

- Working with Prof. Chen Greif (UBC), I created a C++ software package for performing incomplete factorizations of symmetric indefinite matrices. Currently we are trying to extend the package to handle skew-symmetric matrices. The complete source code, as well as extensive documentation can be found at <https://github.com/inutard/matrix-factor>.

Software Engineering Intern (Summer 2013)
Google, Los Angeles

- Created a stochastic model for proposed ads by potential advertisers. Purpose of the model was to predict an ad's performance (cost, clicks, etc.) before the ad is released to the public. Found evidence that the model would be feasible in terms of computation as well as accurate. Additionally created pipelines to automatically validate accuracy of model.

ScienceOne Teaching Assistant (Fall 2012 - Spring 2013)

ScienceOne Programme, UBC

- Was the mathematics TA for Science One. Responsibilities include grading homeworks and holding review sessions every week.

Science One Module Design (Summer 2012)

Mathematics Department, UBC

- Working with Prof. Fok-Shuen Leung (UBC), I was part of a group of students that helped create a new math curriculum for Science One. Science One is a rigorous first year programme that combines Math, Physics, Chemistry, and Biology into a single yearlong course.

DISTINCTIONS ACM-ICPC Contest (2014) - 4th in Pacific NW Region, Canada Site Winner
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ACM-ICPC Contest World Finals (2013)
U. Chicago Invitational Programming Contest (2013) - Bronze Medal
International University Physics Competition (2012) - Bronze Medal
ACM-ICPC Contest (2012) - 3rd in Pacific NW Region, Canada Site Winner
Google AI Contest (2011) - 7th in Canada
IT-BHU Codefest Mathmania Contest (2010) - Top 15 globally
Dean's Honour List/Science Scholar (2010 - 2014)

AWARDS Computer Science Merit Scholar (2015) NSERC CGS-M Grant (2015) G.C. Webber Memorial Prize (2015) Physics and Astronomy Undergraduate Scholarship (2015)
Reginald Palliser-Wilson Scholarship (2014 - 2015)
John Collison Memorial Scholarship (2014)
Dharma Master Chuk Mor Memorial Scholarship (2014)
Dorothy Gladys Studer Memorial Scholarship (2013)
Volkoff Scholarship (2013)
Rick Sample Memorial Scholarship (2013)
W.H. MacInnes Scholarship (2012) - Highest standing in Math/Physics
NSERC USRA Research Award (2012)
Trek Excellence Scholarship (2011 - 2013)
President's Entrance Scholarship (2010)
BC Provincial Examination Scholarship (2010) - Top 20 in Province

EXTRA-CURRICULAR *Computer Science*
• UBC ACM Team (2011 - Present)
Mathematics
• UBC Math Circle Organizer (2012 - Present)