

Li-Wei Yap

Personal Information

Date of Birth 09/03/1992
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Education

- 09/2016 – 08/2019 **ETH Zürich, M.Sc. Computational Biology and Bioinformatics** GPA: 5.43 / 6.0
o Foci: machine learning; data structures & algorithms; parallel programming; numerical methods.
o Thesis: *Rigorous comparison of Monte-Carlo (MC) and Quasi-MC integration for statistical inference in mixed-effects models.*
- 09/2013 – 06/2016 **Imperial College London, B.Sc. Biotechnology** Grade: First Class Honours
o Focus: computational biology.
o Thesis: *Computational model of cell-wall dynamics during bacterial sporulation.*

Work Experience

- 07/2018 – 09/2018 **IntiQuan GmbH, Basel – Pharmacometrics Data Intern**
o Statistical analysis of pre-clinical trial data using workflow in R to evaluate drug effectiveness for client.
o Programmed pipeline in R for data simulation by statistical sampling. Performed extensive statistical tests on simulated data and evaluated results in report.
o Worked in Linux environment.

Practical Experience

- 12/2018 – 07/2019 **ETH Zürich – Master Thesis**
o Programmed numerical variant of machine learning algorithm in C++ for statistical inference on large dataset. (<https://git.bsse.ethz.ch/csb/qmcnlme>)
o Achieved two-fold improvement in convergence rate of statistical inference.
o Built statistical models by object-oriented programming.
o Other tools used: Git for version control, CMake for code compilation, Eigen numerical library, and MPI for code parallelisation.
- 09/2017 – 06/2018 **ETH Zürich – Lab Rotations in Software Development**
o Contributed to in-house developed deep learning library. Programmed algorithm in Active Oberon for unsupervised training of convolutional neural network for feature recognition in images.
o Programmed fast streaming convolution component in Active Oberon for deployment on FPGA.
- 02/2016 – 10/2017 **Imperial College London – Visiting Researcher**
o Programmed ODE model of bacterial cell-wall dynamics in Matlab.

Programming Projects

- 10/2019 **Simulated stack-based CPU in C++** (<https://github.com/liweiyap/MyCPU>)
o Parsing and disassembly of hexadecimal instructions into opcode and operand. Stack used to store results of computations. Catch2 used for software testing and CMake for code compilation.
- 10/2018 **Simulated protein folding in Matlab** (<https://github.com/liweiyap/ProteinFolding>)
o Implemented Metropolis algorithm.

Computer Skills

Programming	C++, CMake, R, Matlab: <i>Professional and/or practical experience, and personal projects</i> Python: <i>Experience with machine learning and big data, e.g. Scikit-Learn, Pandas, NumPy</i> Bash: <i>Knowledge of writing short scripts to automate tasks</i> HTML, CSS: <i>Design of personal website</i> L^AT_EX: <i>Experience with typesetting of thesis reports and résumés</i> Active Oberon: <i>Learnt obscure language for university lab rotations</i> SQL: <i>Completed crash-course on Coursera</i>
Version Control	Git
Libraries/Frameworks	Catch2: <i>Basic knowledge of testing C++ software gained from personal projects</i> Eigen: <i>Familiar with numerical methods in C++</i> Boost: <i>Basic knowledge of simple mathematical functions and the MPI framework in C++</i> Jekyll: <i>Built personal website using Jekyll framework</i> Scikit-Learn, TensorFlow: <i>University coursework in machine learning using Python</i> Pandas, NumPy: <i>University coursework in big data analysis using Python</i> MPI: <i>University coursework in code parallelisation on supercomputing cluster</i>
Operating Systems	Linux, Mac OS, Windows

Languages

English	Native speaker
German	Fluent; Goethe-Zertifikat C1
Mandarin	Good working knowledge
Swiss German	Basic
Cantonese	Basic

Scholarships & Awards

08/2016	C. Ewart Stickings Memorial Prize: <i>academic excellence (Imperial College London)</i>
08/2016	Life Sciences Dean's List: <i>top 10% of undergraduates (Imperial College London)</i>
05/2015	UROP Bursary: <i>£1000 sponsorship for summer research (Imperial College London)</i>
10/2014	Wiley Prize: <i>Top 3 first year biotechnology undergraduates (Imperial College London)</i>

Military Service (Singapore)

02/2011 – 12/2012	Achieved Outstanding Performance & Conduct in National Service (top <10% of cohort).
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Selected Publication

- [1] **Yap L.-W.** & Endres R.G. (2017) A model of cell-wall dynamics during sporulation in *Bacillus subtilis*. *Soft Matter*. 13(44), 8089-8095.

Volunteering

06/2015 – 07/2015	Conservation of loggerhead turtles in Kefalonia, Greece
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Hobbies

Social-deduction board games
Comedy series
Football

Signature



Zürich, 2/1/2020