Li-Wei **Yap**

Personal Information

Date of Birth	09/03/1992
Citizenship	Singaporean (Swiss L Permit)
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Education

09/2016 – 08/2019 **ETH Zürich, M.Sc. Computational Biology and Bioinformatics** *GPA: 5.43 / 6.0*

- Foci: machine learning; data structures & algorithms; parallel programming; numerical methods.
- 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*

- Focus: computational biology.
- Thesis: *Computational model of cell-wall dynamics during bacterial sporulation.*

Work Experience

07/2018 – 09/2018 **IntiQuan GmbH, Basel – Pharmacometrics Data Intern**

- Statistical analysis of pre-clinical trial data using workflow in R. Results used to evaluate drug effectiveness for client.
- Programmed pipeline in R for data simulation by statistical sampling. Performed extensive statistical tests on simulated data, e.g. likelihood profiling, and evaluated results in report.
- Worked in Linux environment.

Practical Experience

12/2018 – 07/2019 **ETH Zürich – Master Thesis**

- Programmed numerical variant of machine learning algorithm in C++ for statistical inference on large biological dataset. (https://git.bsse.ethz.ch/csb/qmcnlme)
- Achieved two-fold improvement in convergence rate of statistical inference.
- Built statistical models by hierarchical inheritance / object-oriented programming.
- 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 – Programming Lab Rotations**

- 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.
- Programmed fast streaming convolution component in Active Oberon for deployment on FPGA.

02/2016 – 10/2017 **Imperial College London – Visiting Researcher**

- 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)

- 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)

- Implemented Metropolis algorithm.

Computer Skills

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

Languages

English	Native speaker
German	Fluent; Goethe-Zertifikat C1
Mandarin	Intermediate; good working knowledge as citizen of Singapore
Swiss German	Basic
Cantonese	Basic

Scholarships & Awards

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

Military Service (Singapore)

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

Selected Publications

[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

Hobbies

Social-deduction board games
Comedies
Football

Signature

Zürich, 17/12/2019