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*
 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 – Programming Intern**
 o Developed pipeline in R for data simulation.
 o Statistical data analysis using workflow in R to evaluate drug effectiveness for client.
 o Worked in Linux environment.

Practical Experience

12/2018 – 07/2019 **ETH Zürich – Master Thesis** (https://git.bsse.ethz.ch/csb/qmcnlme)
 o Developed C++ library for statistical inference on mixed-effects models. Built models by object-oriented programming.
 o Achieved two-fold improvement in convergence rate of statistical inference.
 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 deep learning library. Developed software in Active Oberon for unsupervised training of convolutional neural network for feature recognition in images.
 o Developed fast streaming convolution component in Active Oberon for deployment on FPGA.

02/2016 – 10/2017 **Imperial College London – Visiting Researcher**
 o Developed ODE model of bacterial cell-wall dynamics in Matlab.

Programming Projects

12/2019 **Designed website for personal portfolio** (https://github.com/liweiyap/liweiyap.github.io)
 o Learnt HTML, CSS, and the Jekyll framework from scratch.

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:** *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:** *Design of personal website* **LaTeX:** *Experience with typesetting of thesis reports and résumés* **Active Oberon:** *Learnt obscure 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	Good working knowledge
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 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

Hobbies

Social-deduction board games
Comedy series
Football

Signature

Zürich, 7/1/2020