Yuxin Shen

Y.Shen-80@sms.ed.ac.uk • YuxinShen233.github.io

EDUCATION

University of Edinburgh, School of Biological Science, Edinburgh, UK

PhD student in Biological Science (with internship)   Oct 2022 – present
- BBSRC EASTBIO PhD student
- Under the supervision of Dr. Diego Oyarzún and Dr. Grzegorz Kudła
- Research on machine learning for the optimization of cells

Imperial College London, Department of Chemical Engineering, London, UK

MSc in Advanced Chemical Engineering
Master of Science with Distinction (Grade: 76.26/100)   Oct 2020 – Sep 2021
- Core Modules: Modelling of Biological Systems, Advanced Bioprocess Engineering, Advanced Process Operations, Dynamical Systems in Chemical Engineering, Biochemical Engineering, Advanced Process Optimisation, Advanced Process Design

Fudan University, Department of Chemistry, Shanghai, China

BSc in Chemistry   Sep 2016 – Jul 2020
- Core Modules: Physical Chemistry I, II, III, Organic Chemistry I, II, Inorganic Chemistry, Analytical Chemistry I, II, Introduction to Modern Biological Science, Topics in Organic Chemistry, Inorganic Synthesis, Experiments in Modern Analytical Chemistry, and other related experiments
- Summer Program in Chemical Biology at University of Hong Kong

SCIENTIFIC RESEARCH EXPERIENCES

PhD Research University of Edinburgh, School of Biological Science   Oct 2022 – present

Machine learning for the optimization of cell factories
Supervisor: Dr. Diego Oyarzún and Dr. Grzegorz Kudła
- Build different machine learning models to map the cell phenotypes to genotypes
- Incorporate ODE models of the cell into the machine learning pipeline

MSc Research Project

Department of Chemical Engineering, Imperial College London   Nov 2020 – Sep 2021

A comparative study of surrogate methods in model-based design of experiments for parameter precision
Supervisor: Benoit Chachuat
- Applied different surrogates (High Dimensional Model Representation, Artificial Neural Network, Bayesian Neural Network) to approximate the model sensitivities
- Conducted design of experiments with the surrogate sensitivities, and compared the performance of surrogates
- Demonstrated the effectiveness of the surrogate method in reducing computational cost and analysed the best applicable conditions of each surrogate

WORKING & INTERNSHIP EXPERIENCES

R&D Technologist

Research and Development, Unilever (China) Limited Shanghai Branch   Jan 2022 – May 2022
- Worked on product development (formulation development) in laundry products for Homecare sector
- Focused on new functions and sustainable solutions in liquid/concentrated laundry product formulation

Bioprocess Engineering Intern

Pall Corporation, Danaher Life Science Early Career Program   Sep 2021 – Dec 2021
- Assist upstream bioprocess design for gene therapy and monoclonal antibody production
- Design single-use systems for bioreactors and the filtration processes

Lab Intern

Quality & Safety Department, Coca-Cola Beverages (Shanghai) Co., Ltd.   Jul 2020 – Sep 2020
- Conducted sensory tests, Laser Diffraction Particle Size Analysis, LC-MS, spectrophotometry, etc.
- Provided product feedback and process solutions according to experimental results

Bioanalysis Intern

Industrial Research Institute, Shanghai Fosun Pharmaceutical (Group) Co., Ltd.   Dec 2019 – Feb 2020
- Assisted the PK/PD bioanalysis of the APIs for the generic drugs
- Reviewed LC-MS methodology validation reports and bioanalytical reports

SCHOOL EXPERIENCES	**EASTBIO Student Representative**

EASTBIO Student Representative

BBSRC EASTBIO, University of Edinburgh — Oct 2022 – present

EASTBIO student representative for College of Science and Engineering, University of Edinburgh
- Organize panel and poster sessions in EASTBIO Symposium
- Attend EASTBIO information sessions for applicants

EASTBIO student representative on industrial engagement committee
- Work on maintaining the network between industrial partners and PhD students

HONORS & AWARDS

BBSRC EASTBIO PhD studentship (4-year full scholarship) — Jun 2022
Graduate Scholarship of Department of Chemistry (The Third Prize) — Jun 2020
Professional Scholarship of Department of Chemistry — Oct 2018 & Oct 2017
Outstanding Student Scholarship of Fudan University (The Third Prize) Oct 2019 & Oct 2018 & Oct 2017
First Prize in Chinese Chemistry Olympiad in Shanghai — Oct 2015

PROGRAMMING SKILLS

Machine Learning Specialization Certificate on Coursera (3 Courses: Supervised Machine Learning: Regression and Classification & Advanced Learning Algorithms & Unsupervised Learning, Recommenders, Reinforcement Learning)

Deep Learning Specialization Certificate on Coursera (5 Courses: Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization & Neural Networks and Deep Learning & Structuring Machine Learning Projects & Convolutional Neural Networks & Sequence Models)

Programming Language: Python, Julia, R
Python Packages for Scientific Computing and Visualization: NumPy, Pandas, Matplotlib, Seaborn
Python Packages for Machine Learning: Scikit-Learn, PyTorch, Tensorflow, JAX
Julia Packages: DifferentialEquations, DiffEqFlux, Optimization, Catalyst

ADDITIONAL SKILLS

Chemical Structure Characterisation: NMR, UV, Mass spectroscopy, IR, Raman spectroscopy, GC, HPLC, Gel electrophoresis
Software: LaTeX, Aspen HYSYS, GAMS, gPROMS, ChemDraw, etc.
English: IELTS 7.5

ATTENDED WORKSHOPS

EASTBIO Thematic Meeting "Computational tools for integrated Omics" — Feb 2023
- Host of this meeting

AI, Engineering Biology & Beyond - Turing Institute Workshop — Mar 2023
- Volunteer of this workshop