Yubo Cai

Email : yubo.cai@polytechnique.edu
Github: https://github.com/yubocai-poly
Mobile : +33 7 67 19 79 16 or +86 15902740448
Personal Webpage: link

LANGUAGES/COMPUTER SKILLS

- **Computer Skills**: Python, C++, SQL, R, STATA, Julia, Coq, Linux, Unix, MATLAB, Html, CSS, JavaScript, PHP, LaTex
- **Languages**: Chinese - Native, English - Professional in Working (C2 Level), French - Intermediate (B1)
- **Tools**: Numpy, Pandas, PyTorch, Dataspell, Rstudio, MySQL, Matplotlib, Spyder, JupyterLab, Overleaf

EDUCATION

- **École Polytechnique(X)** — Paris, France
  Bachelor of Science - GPA: 3.91/4.00 — *Aug. 2021 - Jul. 2024*
  - **Major**: Double major in Applied Mathematics and Computer Sciences
  - **Courses**: Mathematical Analysis 1 2 3, Linear Algebra, Discrete Mathematics 1 2, Computer Programming, Advanced Programming, Micro/Macroeconomics, Topics in Economics, Econometrics, Calculus, Numerical Analysis, Web Programming, Vector and Fourier Analysis, OOP in C++, Advanced Algorithms, Probability, Statistics, Abstract Algebra, Topology and multivariable calculus, Machine Learning, Computer Architecture, Optimisation, Formal Language, Numerical Linear Algebra.
- **ESSEC Business School** — Paris, France
  Bachelor of Business Administration - GPA: 16.88/20 4.00/4.00 Rank: 8/586 — *Sep. 2020 - Jun. 2021*
  - **Major**: Business Administration; Minor in Finance
  - **Courses**: Microeconomics, Macroeconomics, Financial Accounting, Marketing, Finance, Geopolitics, Business Law, Statistics, Entrepreneurship
  - **Honors**: ESSEC Dean's list, ESSEC Excellence Scholar
- **University of Cambridge - Cambridge Centre for AI in Medicine** — Cambridge, UK
  AI and Machine Learning in Healthcare Summer School — *Aug. 2022 - Sep. 2022*
  - **Content**: Analysis of genomic data and clinical trial data through biostatistics and machine learning. Topics about biostatistics, Machine Learning in Medical Imaging.
  - **Honor**: With full financial scholarship provided by Cambridge University

RESEARCH PROJECT

- **INRIA** — Paris, France
  Research Intern — *May. 2022 - Jul. 2022*
  - **Research Topics**: Research Internship in the joint team of Inria and CMAP from Ecole Polytechnique. Topics on Acceleration of the solution of Fractional Diffusion Equations in time. Transformation from Matlab code to C++ code and improve the complexity of algorithms from $O(N_S N_T)$ to $O(N_S \cdot logN_T)$

INTERSHIP EXPERIENCE

- **Microsoft** — Paris, France
  Student Ambassador and Mentorship Program — *May. 2022 - Jul. 2022*
  - **Working Content**: Microsoft's official student ambassador program, hosting seminars and events on the latest technologies. And participate in the development of some projects under the guidance of Microsoft's team. Build the English version of the Sigma website under the guidance of Microsoft engineers, using the React framework and Javascript
- **Roland Berger** — Beijing, China
  Consultant Intern — *Apr. 2021 - Jul. 2021*
  - **Policy Analysis**: Collect economic and industrial policies on the development of IPv6 architecture in each country, formulation of the detailed marketing and RD strategy in different country for the client.
  - **Data Analysis**: Collect data about the IPv6 architecture transition development and analysis on the situation of the development in each country.
  - **Presentation and Report**: Assist for the presentation organization for client and written of the sides.

PROJECTS

- **Optimal Algorithms on numerical solution of Time-Fractional Diffusion Equations**: My work was based on the newly proposed more efficient Caputo fractional derivative numerical method for a time-fractional equation using Matlab to implement the algorithm in one and two dimensions. We mainly based our approach on Monte Carlo and randomized algorithms to complete the implementation. We are also trying to explore the possibility of using the algorithm ah in some option pricing related models.
- **Basic Tutorial Project for Coq**: I am trying to create a web project for a tutorial of Coq language in Mathematical Proof and logic application
- **Lossy Image Cpmpression**: More advanced level programming in python. Programs about data struction, algrothims and Computer Vision, also conclude basic knowledge about cryptography. The goal of this project is to develop a lossy image compression format close to JPEG. Lossy compression algorithms allow to greatly reduce the size of image files at the price of loosing some data from the original image.
- **OpenReader**: Creating quantitative image analysis-based antigen test reader. Working on the software Team about converting the MATLAB code to C++ and use C++ do image analysis work one identify strips and locate the peaks
- **CSE104 Web Programming Final Project - École Polytechnique(X)**: In this project, we tried to create an integrated website by using HTML, CSS and JavaScript, with a recreation of the classic trivia game with those tools. You can also find the code from this website link.
- **MAA106 Introduction to Numerical Analysis - École Polytechnique(X)**: Application of Jupyterlab and dataspell on the analysis of taylor expansion and integration, and other numerical methods in Function stimulation.
- **ECO102 Topic in Economics - École Polytechnique(X)**: Application of STATA in data analysis of Economics data, using the data to do OLS regression, statistics analysis of the data.
- **The FRC 6986 Group**: Robot design making: drawing blueprints by Solidworks, workshop work (digital lathe, milling machine, etc.) for components manufacturing.