LI (LIAM) YUAN

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EDUCATION

Columbia University — New York, NY
Master of Science, Mechanical Engineering — Expected Dec 2023

- Robotics and Control Concentration
- GPA 3.83/4.0
- Relevant course work: Control Theory, Python, Mechatronics & Embedded Systems, Intro to Robotics

Shanghai Normal University — Shanghai, China
Bachelor of Mechanical Design and Manufacturing Automation — Jun 2022

- GPA: 3.67 / 4.0
- Relevant course work: Sensors

University of Dayton — Dayton, OH
Bachelor of Engineering, Mechanical Engineering Technology — May 2022

- GPA: 3.81 / 4.0
- Relevant Course Work: Dynamics, Data Acquisition and Measurements, Feedback Controls, Design of Machine Elements

SKILLS

- Python, C/C++, MATLAB, Linux(Ubuntu/Raspberry OS), Assembly Language
- Solidworks, AutoCAD, GD&T
- Have experience in digital manufacturing (CNC, laser cutting, waterjet cutting, 3D printing).
- LabView, Proteus
- Adobe Photoshop, Premiere, Illustrator

PROFESSIONAL EXPERIENCE

Qicai Precision Industry(Wuxi) Co., Ltd — Jiangsu, China
Summer Intern - CAD Drafter — Jul 2020 - Aug 2020

- Drafted 14 designs including several rod feeding structures, chamfering structures of both ends of rods, as well as specified length-cutting mechanisms
- Managed atomized production pipeline and allow a single worker to manage 3-4 cutting machines or grinders in the plant safely with equipment designed
- Applied and added 14 UMPs(Utility Model Patents) into the company patent library following designs developed

HUST-Wuxi Research Institute — Jiangsu, China
Summer Intern - Engineering Assistant — Jul 2019 - Aug 2019

- Assisted an engineering team to work on an Automatic Coffee Capsule Loading Line project
- Executed reverse force test for hundreds of finished coffee capsules and welding inspection
- Tracked testing process and supported engineering to manage four steps of the manufacturing process in the factory

Orient Securities Company Limited — Shanghai, China
Intern — Jan 2021 – Feb 2021

- Gathered information and data of equity funds, such as the Dongfanghong, with Wind; sorted out and screened the data according to different index rankings like the rate of return
- Analyzed the stock market in terms of corporation research and market behavior to finish a research report
- Composed reports to make a summary of different fund products under the asset management department to offer references for decision making
- Analyzed the characteristics of the CSI 300 Index and the funds in areas of NEV, semiconductors, brewing, etc.
- Familiarized with various financial products, such as funds, futures, and options, and relevant financing process

Project-based Research on Python for Financial Engineering — Online
project-based research student — Jul 2021 – Aug 2019

- Learned extensively about finance involving stocks, options, asset allocation, etc., and other concepts like machine learning, and time series; gained skills in visualization, financial data cleaning, and analysis with Python

- Led the team to finish a final project focused on asset allocation with the B-L model, taking charge of tasks assignment, progress control, and information integration
- Dealt with data collection from yahoo finance & Sina Finance, modeling for analysis, and project presentation

PUBLICATIONS

- Li Yuan, Xiang Cui, A Kind of Feeding Mechanism for Rod Flaw Detection Machine, Patent No. CN213770291U (Granted)
- Li Yuan, Xiang Cui, A Kind of Trigger for Rod Cutting Machine, Patent No. CN213764287U (Granted)
- (See Linkedin Profile for all 14 patents)

ACADEMIC EXPERIENCE

Evolutionary Computation Course Project NewYork, NY
Group Partner

- Applied Genetic Algorithm with Aged Layers Population Selection Method to solve a symbolic regression problem, reducing mean squared error under 0.2
- Built a physical simulation and applied a co-evolving method to evolve a soft robot capable of moving along a designated axis at 0.67 meters per second
- Visualized learning curve and evolution process with Matplotlib for each algorithm

Data Science Course Project
Group Partner

- Compared the performance of Random Forest, KNN, Gradient boosting, and Logistic Regression on the bankruptcy prediction problem
- Conducted hyperparameter tuning specifically for the Random Forest model
- Achieved an accuracy of approximately 84% when testing the tuned Random Forest model on historical financial statements of bankrupt companies
- Analyzed the potential future extensions and biases related to the source of the dataset

Intro to Robotics Project-Automatic Robot Grabber
Group Partner

- Designed a robot with a PPPR structure that is capable of safely grabbing books for humans.
- Formulated the DH table and Jacobian of the robot to conduct inverse kinematics.
- Conducted motion planning using the LSPB method to design a route for the robot to pick up a book from coordinates (0, 0, 0) [mm] and transport it to coordinates (3000, 600, 3000).

Robotic Studio Course Project – Danghu Bird (In progress)
Group Partner

- Designed an under-actuated bipedal robot that can walk robustly on a platform or road with thin obstacles, and can be extended to move on complex surfaces or 1D surfaces.
- Completed the preliminary design of the robot using Solidworks and will build a prototype using 3D printed components and carbon fiber tubes.
- Intend to use reinforcement learning or model predictive control to enable the robot to stand and walk.
- Plan to add four propellers to the robot as an extension, providing additional degrees of freedom to allow the robot to navigate more complex surfaces.

Southpaw Steamroller Product Redesign Dayton, OH
Project Manager Jan 2022 - Apr 2022

- Refined and tracked customer requirements and feedback by holding biweekly meetings and presentations
- Developed conceptual designs with Solidworks and AutoCAD with GD&T and delivered presentations to clients that were accepted by the clients.
- Redesigned client's product in accordance with the company's birch wood which has the same function but is safer, lighter, and takes less space.
- Cultivated prototype in maker space and finished testing process with positive comments, a result of saving 10.4% of the total cost of the product and approximately 27.7% of assembling time