Dequn Teng

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EDUCATION BACKGROUND

University of Liverpool (UoL), United Kingdom **09/2019 – 06/2021**
BEng in Computer Science and Electronical Engineering (First Class) | GPA: 83.0/100.0 (1%)

Stanford University, United States of America **06/2019 – 09/2019**
Summer Session | Artificial Intelligence Principle and Techniques (86), Algorithm (84) | GPA: 85/100.0

Xi'an Jiaotong-Liverpool University (XJTLU), P.R.China **09/2017 – 06/2019**
BEng in Computer Science and Technology (First Class) | GPA: 80/100.0 (1%) | GRE: 321+4 | TOEFL: 103

Coursework (Math & Software): Linear Algebra |Calculus| Computer Systems | Complex Analysis| Probability and Statistics | Java/C++ Programming |Distributed Systems | Neural Networks | Software Engineering | Database Development | Game Theory

Coursework (Hardware): Analog/ Digital Circuits I, II| Electromagnetism (94)| Integrated Circuits & Design (95) | Communication System| Instrumentation and Control| Microprocessors and Assembly| Embedded Systems| Digital System Design | Electronic| Signal Processing & Digital Filtering| Signals and Systems| Electronic Circuits & Systems| Multi-Agent System

CONFERENCE PUBLICATIONS

- **D.Teng**, Y.Yue, X.Huang, *An Covid-19 Lockdown Indoor Electric Arm Training Machine' Design and Mechanism.* 2020 3rd International Conference on Control and Robots (ICCR)., Tokyo, Japan. Under review. **First Author**
- **D.Teng**, T.Yang, Q.Chen, *A Students' Ability Analysis Methods, Devices, Electronic Equipment And Storage Media Design.* 2021 International Workshop on Information Management (WSIM)., St. Petersburg, Russia. Under review. **First Author**
- **D.Teng**, T.Yang *A Full Caterpillar Robotic Vehicle Design.* 2021 International Conference on Computer, Control and Robotics (ICCCR)., Shanghai, China. Preliminary Review Accepted. **First Author**
- **D.Teng**, *Blockchain-based Methods, Equipment for Covid-19 Charity Fund Tracing and Processing System.* 2021 the 7th International Conference on Information Management (ICIM)., London, United Kingdom. Under review. **First Author**
- **D.Teng**, Z.Zhao, Y.Yue, *Efficient and Portable Spraying SPA Device' Design and Mechanism.* The 7th International Conference on Control, Automation and Robotics (ICCAR)., Singapore. Preliminary Review Accepted. **First Author**
- **D.Teng**, T.Yang, Q.Chen, *Blockchain Improves Credibility of Educational Background.* 2021 4th International Conference on Information and Computer Technologies (ICICT)., Hawaii, United States. Accepted for publication, in press. **First Author**
- **D.Teng**, T.Yang, *A Transparent and Trustable Approach for Donation Fund Tracing using Blockchain Technology.* 2020 6th International Conference on Industrial and Business Engineering (ICIBE)., Macau, China. **Best Presenter (Top 1)**

RESEARCH EXPERIENCES

University Students' Resources Gather, Consultation, Model System: SyncStudy, XJTLU **08/2020-**
- Created and implemented a system that integrates resources for university students, evaluates human resource ability, recommends pathways, provides consultation, and provides feedback on practice based on applied inventory patent.
- Leveraged PHP, JavaScript, CSS, HTML, MySQL to build frontend and backend in Ubuntu Linux Version collectively.
- Applied the agile development model with requirement discovery, design, implementation, testing, and maintenance.
- Optimized database query data structure and algorithm to reduce space and time complexity using MySQL index.
- Implemented a recommender system based on students' current capacity model, and received 94 % positive feedback.

A Transparent Way of Donation Tracing: Chain Charity, XJTLU **05/2020-07/2020**
- Invented a Blockchain Charity Fund Tracing Platform using UTXO mechanisms for donations tracing in facing Covid-19.
- Built a corresponding "Transparent Donations Tracing Website" using JavaScript, PHP, HTML, Vue for user interactions.
- Led a team of ten using Notion, Typora, PPT in project management, business plan iteration, and interactive presentations.

Soccer Performance Evaluation and Strategies Optimization, UoL **02/2020**
- Modelled a Markov decision process for goal playing in Q (Reinforcement) learning for best team performance strategies.
- Applied Depth-First-Search to discover the strongly connected components of passing for analyzing minimum passing units.
- Built Artificial Neural Networks to predict team level performance metrics and Made corresponding improving suggestions.
- Applied the Maxflow-Mincut Algorithm to analyze the most important defensive areas of the game for strategies setting.

A Threshold Digital Signature Scheme & Applications in Blockchain Based Electronic Contracts, XJTLU 01/2019-09/2019
- Studied of digital signature algorithms and threshold secret sharing schemes with research and presentation skills.
- Designed demonstration with (2,2) threshold mechanism and a poster presentation with live demo in Python.
- Supported by Summer Undergraduate Research Fund with Research Poster Demonstration reviewed By Community.

Blockchain Based Export Credit Insurance System Design, XJTLU **09/2018-01/2019**
- Applied Blockchain approach to mitigate Export Credit Insurance Risk and to keep student records in a trusted manner.
- Implemented backend with Ubuntu, Docker, Hyperledger using Python, frontend in Vue with two patents applied.

Leaf Feature Recognition Application Based on Morphological Approach, XJTLU **06/2018-09/2018**
- Supported by Summer Undergraduate Mathematics Research Fund with undergraduate admission rate of 1%.
- Conducted feature selection and dimensionality reduction based on factor analysis and Principle Components Analysis.
- Applied Green formula and morphological methods in Calculus for shape features for leaf recognition applications.

Student Information Management System Based on Blockchain Technology, XJTLU **01/2018 – 06/2018**
- Designed, implemented and deployed a school-operated centralized platform for managing students' educational profiles, attaining exceptional immutability, transparency, auditability, and security.
- Reviewed the underlying technology of Blockcerts, an open standard for creating, issuing, viewing and verifying blockchain-based certificates, and Indorse, a rewards-based decentralized professional network on the Ethereum blockchain.
- Built a fit-for-purpose centralized platform for managing students' educational data based on modifying the Blockcerts and

Indorse technology, allowing 1) students to create accounts and submit various events, 2) school to verify students' behaviors and upload verified experiences to the blockchain, and 3) employers to access students' profiles data based on public-key.

- Led a team of 7 to conduct theoretical design, code implementation, scenario construction, and testing.

WORK EXPERIENCES

GUI Programming Intern | Unilever & Senser City, Liverpool **10/2020 –**

- Generated of an R Shiny App for data visualization, data modelling analysing and data reporting with structured data capture.

Robotic Engineer Intern | Institute of Software Chinese Academy of Science (ISCAS), Beijing **06/2020 – 10/2020**

- Built, trained, validated and deployed Cartographer Mapping algorithm on the latest Linux Operation Distribution OpenEuler
- Programmed C++ for the obstacle avoidance algorithm deployment with improvement on TurtleBot of ROS Kinetic.
- Applied Git, Typora, and Visio for design version control, and product documentations, and visual diagram preparing.

Student Lecturer | Alumni MAX Educational Technology Company, Liverpool **09/2019-06/2020**

- Demonstrated in Software Engineering, Database Development, Signals and Systems, Communication Systems, Digital System, Microprocessor, Distributed System, Electronic Systems, Instrumentation and Control in videos on Youtube.

Student Lecturer | PTC*CSSE Student Tutoring Program, Suzhou **03/2018 – 06/2018**

- Taught Integrated Circuit Design and Engineering Mathematics II: Statics and Probability with all students scored 80+.
- Demonstrated Presentation, Demonstration skills, and Developed a Delivery-Led learning method for efficient learning.

PROJECTS

Smart Follow Me drone by Autopilot *Year Two* Project Leader (Python, ROS), UoL **11/2019-04/2020**

- Completed a Drone Control System using Pixhawk, achieving remote control, GPS control, and navigational routing.
- Implemented Voice Control Model, using Alexa Drone Skill in fly up, forward, left, right, and down, using vocal command.
- Integrated an Image Transmission Module in remotely transmitting visual signal back to VR goggles, user-friendly.
- Achieved a wireless charging power system, with a wireless charging port, with automatic back-charging function achieved.

Multi-Agent Pacman in Python | *Artificial Intelligence Principle and Techniques* Project, Stanford **08/2019**

- Described a State-based zero-sum games for two agents in demonstration game theory, and multi-agent system knowledge.
- Applied the Min-Max algorithm for the best strategy against the opponent, and Alpha-Beta Pruning for efficiency updating.

Car Tracking in Python | *Artificial Intelligence Principle and Techniques* Project, Stanford **08/2019**

- Designed car agents using sensors to locate other cars based on Hidden Markov Models for network location mapping.
- Programmed automatically driving cars based on Bayesian Probabilistic Inference and Maximum Likelihood algorithms.

Course Scheduling in Python| *Artificial Intelligence Principle and Techniques* Project, Stanford **07/2019**

- Formulated course arrangements as factor graphs to model course dependency characteristics of constraint satisfaction.
- Applied backtracking search, dynamic ordering, and forward checking to enhance Arc consistency for best arrangements.

Sentiment Analysis in Python| *Artificial Intelligence Principle and Techniques* Project, Stanford **07/2019**

- Applied Scikit-Learn in modelling the correspondence between comments and movie scores based on text frequency analysis
- Constructed an Artificial Neural Network and tuned an optimal parameter using on stochastic gradient descent approach.
- Realized a movie rating predicting system based on user's corresponding comments with cross validation accuracy of 95%.

Movie Ticket Selling System in C++ Team Leader | *Group Software* Project, XJTLU **04/2019-06/2019**

- Designed and implemented a movie ticket sales system using C ++ and SQLite in Qt for a GUI user interface design.
- Included Add, Delete, Modify, Browse Movie Information, and Analyze Tickets Statics for cinema Administrators.
- Programed Browse, Purchase, tickets, and Select seats functionalities for Customers, with Code Shared on Github.

Robomaster Infantry Robot in C Team Leader | *Group Software* Project, XJTLU **12/2017-05/2018**

- Applied ROS, Solidworks and Kernel in designing and implementing a Mecanum wheel-based infantry robot for competition
- Programmed in C++, in motor control, and practiced PID tuning for robot Gimbal stabilization in system integration.

PATENTS APPLICATIONS

- A Method and Apparatus for Confirming Commodity Transaction Information (Substantive Review) **First Inventor**
- A Large-area Skin Drug Delivery Device (Disclosure Protection) **Patentee & First Inventor**
- Blockchain-Based Methods, Apparatus, Equipment and Storage Media for Funding Projects **Patentee & First Inventor**
- Blockchain-Based Auditing Method, Apparatus, Auditing Device and Storage Medium (Substantive Review) **First Inventor**

ENTREPRENEURSHIP

- Suzhou SyncStudy Educational Technology Company **Founder & Tech Leader**
- Incubated in International Innovation Hub and Backed by Institute of Leadership and Educational Advanced Development.

SKILLS

Programming Language: Java |C++ | R | Python | SQL | MATLAB | LATEX | Verilog | Assembly | JavaScript |Go|CSS|PHP|html
Software: Jetson| TLT| TensorRT| Git| Nginx| PSpice| Visual Studio Code | VMware | Pr | MS Office | Visio | XMIND | Quartus | Shapr3D | Keil | Axure | Qt | OBS | Access | mySQL |Gephi |Android Studio| Wordpress | wix |Typora| Overleaf| Docker
OS/Framework/Libraries: Linux (Ubuntu) |ROS |Android |Omnibasis |Hyperledger |Vue |NumPy |Pandas | Scikit-Learn | EVM

AWARDS AND HONORS

- University of Liverpool First Class Scholarship **07/2020**
- Xi'an Jiaotong-Liverpool University Blockchain Application Innovation Competition.Grand Prize (Top 1) **06/2020**
- Meritorious Winner (M prize) Interdisciplinary Contest in Modeling (ICM) (rank 8%) **04/2020**
- The Excellent Student of Jiangsu Province (rank 1%) **06/2019**
- National Encouragement Scholarship (rank 3%) **03/2019**
- Xi'an Jiaotong-Liverpool University Academic Excellence Scholarship (rank 5%). **07/2018**
- Chain Valley Cup National Blockchain Innovation Competition Award of Merit (rank 4%) **06/2018**
- The Excellent Student of Xi'an Jiaotong-Liverpool (rank 10%, 2 times) **05/2018 &2019**
- The 2nd Xi'an Jiaotong-Liverpool University Research-Led Learning Competition Third Prize (rank 10%) **04/2018**