

## PROFILE

### Politecnico di Torino

*ICT (Information and Communication Technologies) for Smart Societies*

**Master**

*Sept. 2019 – Oct. 2022*

### SouthWest University

*Electronic Science and Technology*

**Bachelor**

*Sept. 2013 – Jun. 2017*

## EDUCATION

### Politecnico di Torino

*ICT (Information and Communication Technologies) for Smart Societies*

**Master**

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## WORK EXPERIENCE

### Syncroweb Srl.

*Software Engineer*

*Feb. 2023 – May. 2023*

#### Details

- I have a good foundation in Android development. I am proficient in the Kotlin programming language and have a good understanding of the Android SDK. I am also familiar with a variety of Android development tools and technologies.

### Shenyang Automation Research Institute (Kunshan) Intelligent Equipment Research Institute

*Electrical Control Engineer*

*Oct. 2017 – Aug. 2019*

#### Details

- Debugging of six-axis robots for selling goods, mainly for the writing robot programs, fault maintenance, human-robot interaction display, and voice unit production
- PCB design of the peripheral control board of the multi-circuit breaker
- Modbus communication debugging between dual-arm robot and Siemens PLC

## RESEARCH PAPER

**An improved seq2seq-based car-following model for connected automated vehicles considering multi-vehicle information topology**

*TRB Annual Meeting 2024*

**Comparative analysis of neural networks techniques to forecast Airfare Prices**

*IEEE COMPSAC 2023*

## PROJECT EXPERIENCE

### Programming for IoT Applications

- We developed a smart gas valve for kitchen safety during cooking. Our system uses microservices: Home catalog registers devices, Gas Control analyzes sensor data and controls valves, ThingSpeak visualizes sensor data, Node-Red provides the user interface and remote control, and a Telegram bot receives alerts and can control valves remotely.

### ICT for Health

- I use four different methods (linear least-squares regression, ridge regression, Adam optimizer, and conjugate gradient descent) to predict the total UPDRS, which is a very important score in the research of Parkinson's disease. In the end, we also give comparisons between these four algorithms.
- I designed an algorithm to extract borders and asymmetry to help doctors diagnose Melanoma. I also evaluate the mole dataset using designed algorithms and give the result of the experiment, which shows the effectiveness of the proposed algorithms.

## Statistical Learning and Neural Networks

- KNN classifier; Multivariate Gaussian analysis; model fitting for discrete distributions: Bag of Words; classification-discrete data MAP classifier, Naïve Bayes Classification; classification for continuous data (Gaussian discriminative analysis); Principal component analysis; Kalman filter

## Big Data for Internet Applications

- Apache Spark, HDFS, RDD, Spark SQL, DataFrame, Machine Learning with Spark MLlib, Graph analytics with Spark GraphFrames

## Operational Research: Theory and Applications

- I solved the vertex disjoint undirected path network problem by using Barabási–Albert (BA) model in the network and can set the number of neighbors as we like.

## ICT in Building Design

- Based on the settings or schedules of heating, cooling, and ventilation due to climate change throughout the year. I proposed the implementation of a series of models (Prophet, LSTM, Hidden Markov model, and Regression neural network) for the forecast of home energy consumption.

## ICT in Transport System

- I used MongoDB and do predictions using ARIMA models, to check how the error changes with respect to parameter tuning. I consider the various parameters in the ARIMA model training, including both the model parameters (p,d,q), and the training process, i.e., the training windows size N (how many past samples are used for training), and the training policy, i.e., expanding versus sliding windows.

## Interdisciplinary Projects

- I created a tool to predict future pandemics. We trained our model with past epidemic data, finding key parameters. These parameters help estimate future trends like daily infections and mortality rates. We also studied policy effects to enhance predictions.

## A Method of Small Particle Crop Drying Control

- The paper presents a small grain crop drying control system utilizing STM32F103RBT6 as the central control unit. It manages the stepping motor, axial fan, and carbon fiber heating tube, regulating the drying box temperature, drying duration for small particle crops, and other functionalities. This system allows customization of parameters based on the unique characteristics of various small grain crops, ensuring efficient, high-quality, and energy-efficient drying processes.

## The Design of a Small Intelligent Spraying Device for Wall Surface

- The paper introduces a new pattern of wall-spraying equipment with double suction cups which set the minimum system of MC9SXS128 as the control center. The user can plan the route and let the device work voluntarily or can connect the Bluetooth with their mobile phone and send instruments through the connection to realize the spraying process on a smooth wall.

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## AWARDS

### Scholarships

- University Third Class Scholarship Jun. 2014
- National inspirational scholarship, the 2nd rank student Jun. 2015
- National inspirational scholarship, the 1st rank student Jun. 2016

### Technology Innovation

- Grand Prize in The Second Mobile Robot Contest, Science and Technology Committee May. 2015
- Successful Entry Prize in Chongqing Board of Education Jun. 2015
- Design of Multi-axial Spray Aircraft based on Rice Planning in Hilly areas, National Undergraduate Innovation and Entrepreneurship Training Program Dec. 2015
- Meritorious Winner, ICM (Interdisciplinary Contest In Modeling) Feb. 2016
- Research on a Serpentine Robot Device, Second Prize, Southwest University Jul. 2016