

# Yuelin Xin

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## Education

### University of Leeds

BSc in Computer Science

Leeds, UK

Sep 2022 - Current

- First Class Student
- Transferred from Southwest Jiaotong University
- Pursuing research work in LLVM IR optimization, MLIR with Machine Learning
- **Courses:** Operating Systems, Numerical Computation, Algorithms, User Interfaces, Web Application Development, Software Engineering Principles.

### Southwest Jiaotong University

BSc in Computer Science

Chengdu, China

Sep 2020 - Jul 2022

- First Class student, School Scholarship & Best Student Award
- Research work on Computer Vision / Pattern Recognition
- With 1 research publication in IJCAI-ECAI 2022 Workshop
- **Courses:** Programming for the Web, Introduction to Web Technologies, Computer Architecture, Fundamental Mathematical Concepts, Procedural Programming, Professional Computing, Databases, Computer Processors, Introduction to Discrete Mathematics, Object Oriented Programming, Programming Projects, Engineering Communication Skills.

## Research Experience

### University of Leeds

Lab Assistant & System Engineer

Leeds, UK

Sep 2022 - Current

- Starting on LLVM related research works including LLVM IR optimization with machine learning, LLDB debugging, and so on.
- Solve actual and down-to-earth engineering challenges in LLVM optimization and debugging.
- **Technical Skills:** Systems Architecture, LLVM, C/C++, Singularity, Python, Machine Learning, Version Control, Agile Development, and so on.
- **Soft Skills:** Teamwork, Time Management, Adaptability, Academic Correspondence, Critical Thinking.

### Southwest Jiaotong University & Miracle Factory

Project Leader & Corresponding Author

Chengdu, China

Dec 2021 - Aug 2022

- Developed and published a novel algorithm called 2SDS for real-time video scene segmentation and analysis. The work is featured in IJCAI-ECAI 2022 workshop (<http://ceur-ws.org/Vol-3190/paper2.pdf>).
- Built and trained a motherboard defect detection model based on YOLOv5 and 2SDS to detect and track small objects in real-time videos. The structure of the backbone network was changed to yield a much faster model.
- Significantly improved the average inference speed of the model (up to 25% faster), we benchmarked an average inference time of 4.4ms on the Nvidia Tesla P100 GPU, 80ms on the Apple M1 Pro CPU(8-Core).
- **Technical Skills:** Python(PyTorch), Qt(PySide), Deep Learning, Algorithm Design, IoT Platform Building, Cross-platform testing, Version Control, Agile Development, LaTeX, and so on.
- **Soft Skills:** Teamwork, Time Management, Project Management, Team Management, Thesis Writing, Conference Presentation.

## Projects

### The Hyper Speed Automatic Optical Inspection System(HSAOIS)

Miracle Factory & Southwest Jiaotong University

Chengdu, China

Dec 2021 - Jun 2022

- An efficient and powerful automatic optical inspection system for the detection and analysis of motherboard defects on production lines. Light enough to run on IoT devices like Nvidia Jetson Nano, powerful enough to detect tiny defects faster and more accurately than human eyes.
- Collected, labeled and published the largest public dataset of motherboard defects available for PyTorch with 1000+ items.
- Customized a new backbone for YOLOv5 to yield a much faster model without sacrificing accuracy, and we meticulously trained a family of more than 40 models on various specs & hyper-parameters.
- Wrote a technical & project specification document for the system which is more than 200 pages long.
- **Technical Skills:** Python(PyTorch), Qt(PySide), Deep Learning, Dataset Balancing, Model Training, IoT Platform Building, Cross-platform testing, Version Control, Agile Development, Linux, and so on.
- **Soft Skills:** Time Management, Teamwork, Team Management, Project Management, Group Presentation, Report & Documentation Writing.

### The $\LaTeX$ Equation Editor

Personal Project

Chengdu, China

Dec 2021 - Jan 2022

- Built an online LaTeX equation editor with a simple and intuitive UI.
- Provided a simple and elegant alternative to edit LaTeX equations without using clumsy editors like Microsoft Word.
- **Technical Skills:** HTML5, CSS3, JavaScript, LaTeX, Version Control, Agile Development, UI/UX Design, and so on.
- **Soft Skills:** Project Timing, Critical Thinking, Requirement Analysis.

## The Official Website of Miracle Factory

Leeds, UK

Miracle Factory

May 2022 - Current

- Built and deployed the official website of Miracle Factory.
- Planned, designed, implemented and tested the whole website with Agile Development, DevOps and GitHub Actions.
- **Technical Skills:** HTML5, CSS3, JavaScript, Python(Flask), Nginx, Unicorn, Sqlite, Load Balancing, Spam Blocking.
- **Soft Skills:** Teamwork, Project Management, Team Management, Cost Management, Critical Thinking, Learning by Doing.

## Community Works

### The Miracle Factory Community

GitHub / Global

Co-founder, Administrator & Research Fellow

April 2022 - Current

- Built the Miracle Factory community, a non-profit AI development and research community that gathers creativity and innovation to solve real-world problems.
- We gather creators, inventors, artists, rebels, lunatics, and dreamers to build a community of people who are incredibly passionate about AI and open-source projects.
- We care a great deal about the development of our student community, and we are planning on building a platform to support them, with Campus Expert Seminars, student support services, and so on.
- Actively maintaining the Miracle Factory GitHub organization, and other open-source projects as well.

## Skills

<b>Programming</b>	<ul style="list-style-type: none"><li>• <b>Proficiency in:</b> Python, C, HTML5/CSS3.</li><li>• <b>Also knows:</b> C++, Java, JavaScript, Hack Assembly, HDL, Shell, SQL, Swift, YAML.</li></ul>
<b>Technical Skills</b>	<ul style="list-style-type: none"><li>• <b>System:</b> Linux(Ubuntu/CentOS/RedHat), Unix-like CLIs(Bash/Zsh), System Architecture, Hardware Basics.</li><li>• <b>Development:</b> LaTeX, Markdown, Version Control, Unit Tests, Agile Development, Docker.</li></ul>
<b>Office Skills</b>	Microsoft Office suite, Apple Office suite, Adobe suite(Ps/Pr/Au/Lr), vscode, Xcode, JetBrains suite.
<b>Soft Skills</b>	Project & Team Management, Problem-solving, Documents Writing, Presentation, Adaptability, Work Under Stress.

## Interests

<b>Tech Enthusiast</b>	Love everything about tech, enjoy new tech and new products.
<b>App Development</b>	Always find satisfaction in developing cool tools and beautiful apps that me and the people around me can use.
<b>Amateur Photographer</b>	Love capturing the fine views in life, always bring along my Sony A7M4 on trips.
<b>Audiophile &amp; Music</b>	Cannot leave my apartment without a good tune in my ears playing from the absolute finest Headphones/IEMs.
<b>Professional Trekkie</b>	Star Trek has always been a spiritual guide for me, it has grew past the scope of sci-fi.
<b>TV Shows</b>	Favourite shows include: Silicon Valley, The Big Bang Theory, The IT Crowd (Yes, all are comedy about nerds).
<b>Table Tennis</b>	Started really young, once a pro player, played table tennis through 2/3 of my life.
<b>Formula 1 Fan</b>	Crazy Formula 1 Fan, want to go to every Grand Prix, love the adrenaline of motor sports.

## Languages

<b>English</b>	Academic level proficiency
<b>Chinese</b>	Native proficiency

References available upon request.