

# Yuqian (Evelyn) Zhang, Ph.D.

Research Fellow, Mayo Clinic, Rochester, MN, 55905, USA | Permanent Resident

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## Personal Profile

Highly motivated and experienced cross-disciplinary researcher with 8 years experience in developing point-of-care testing platforms for early disease diagnosis and prognosis. Special expertise in microfluidics, droplet-based digital microfluidics, electronic-based biosensor development, electrokinetics, Finite element analysis (FEA) with COMSOL Multiphysics, mathematical modeling with MATLAB, and basic molecular biology.

## Education

### University of Cincinnati

Cincinnati, OH, USA

Ph.D in Electrical Engineering

Aug 2015 - Dec 2020

- GPA: 3.9; Graduate Student Engineer of the Month; University Graduate Scholarship
- Research Assistant: initiate 4 research projects, 8 first author papers
- Teaching Assistant: COMSOL multiphysics,
- **Research Projects:** Sequence-specific detection of DNA molecules for point-of-care testings; nanopore biosensor; electrochemical impedance spectroscopy

### University of Electronic Science and Technology of China

Chengdu, Sichuan, China

B.S. in Electrical Engineering

Sep 2011 - Jun 2015

- GPA: 3.8; People's scholarship
- **Research Projects:** Sequence-specific detection of DNA molecules for point-of-care testings; nanopore biosensor; electrochemical impedance spectroscopy

## Work Experience

### Mayo Clinic

Rochester, MN, USA

Research Fellow

Jan 2021 - present

- Phenotyping white blood cells for monitoring peripheral immune dynamics during the course of treatment using an impedance sensor-based digital microfluidic (DMF) platform
- Developing microfluidic devices consisted of mixing, separation and concentration functions to isolate bacteria from the whole blood of sepsis patients, followed by whole genome amplification and sequencing for bacteria antibiotic resistance detection
- Significantly boosted the model's accuracy by 60%, which was yielding an accuracy of 70-78% under Indian street light. The older models, had an accuracy of 10-15%.
- **Technical Skills:** Python with PyTorch, NumPy, Matplotlib, Pandas, Scikit-learn, C++, Ubuntu Linux, Linux tools, Apt, Scripting, Git.
- **Soft Skills:** Teamwork, Time Management, Communication, Presentation skills.

### University of Cincinnati

Cincinnati, OH, USA

Research Assistant

Oct 2015 - Dec 2020

- Collaborated with a four-person team to develop a CNN model that utilised YOLO as a foundation to improve the accuracy of ambient lighting conditions in the Mobile net architecture.
- Automated and optimised the data handling process for traffic signs, working with Ubuntu 20.04 did shell scripting, and employed other Linux tools.
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# University Projects

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## The Relation between GDP and IMR

University of Leeds

Leeds, UK

Feb 2022 - Apr 2022

- Analysing data from 1960 to 2020 and discover patterns in the data that show trends between Gross domestic product per capita, Infant Mortality rate, Literacy Rate, and Industrial Development.
- Study cross-sectional, longitudinal, and among various countries to find variations in trends and get the historical data to back up the change in the trend of our data.
- Specific case studies were traced back to trends seen in the UK and how they affected the GDP and IMR.
- Technical Skills:** Tableau, Overleaf, LaTeX.
- Soft Skills:** Time Management, Teamwork, Presentation skills, Report writing.

## IPL Analysis

University of Leeds

Leeds, UK

Nov 2021 - Dec 2021

- Analysing data from 2008 to 2015 to discover patterns such as trends, correlations, and probabilities.
- Finding the differences between the best teams and players in various fields, as well as their performance on the field and the opponents.
- Technical Skills:** Python with Pandas, matplotlib, Seaborn.
- Soft Skills:** Presentation skills, Leadership, Teamwork, Logical Thinking.

## Study of the behavior of Serial Killers

University of Leeds

Leeds, UK

Oct 2021 - Dec 2021

- Study of serial killers behavior with various motives such as convenience (did not want children or spouse), enjoyment, power, escape, or avoiding arrest.
- Finding patterns in their starting and ending ages (when they are caught) and other factors of killing, as well as how it varies with different motives.
- Technical Skills:** R with ggplot2, tidy, R Markdown.
- Soft Skills:** Report writing, Logical Thinking, Critical Thinking.

# Skills

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<b>Programming</b>	Python (Pandas, PyTorch, NumPy, Scikit-learn. etc.), R(ggplot2), PHP, C/C++, HTML/CSS, JavaScript, SQL.
<b>Miscellaneous</b>	Linux, Shell (Bash/Zsh), $\text{\LaTeX}$ (Overleaf/R Markdown), Tableau, Microsoft Office, Firebase, Git.
<b>Soft Skills</b>	Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation.

# Selected Publications

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## JOURNAL ARTICLES

A Digital Microfluidic Device Integrated with Electrochemical Impedance Spectroscopy for Cell-Based Immunoassay  
Y. Zhang, Y. Liu\*  
*Biosensors* 12.5 (2022) p.330. 2022

Cloud services in the Guifi.net community network  
Mennan Selimi, Amin M Khan, Emmanouil Dimogerontakis, Felix Freitag, Roger Pueyo Centelles  
*Computer Networks* 93.P2 (Dec. 2015) pp. 373–388. 2015

## CONFERENCE PROCEEDINGS

Prototyping Incentive-Based Resource Assignment for Clouds in Community Networks  
Amin M Khan, Umit Cavus Buyuksahin, Felix Freitag  
*28th IEEE International Conference on Advanced Information Networking and Applications (AINA 2014)*, 2014, Victoria, Canada

# Interests

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<b>Cooking</b>	I love cooking. I am an expert in most Indian-style cooking, enjoy baking and making my own pizza.
<b>Linux</b>	Since 2017, I have been in love with Linux. I recently switched to Mac OS, which feels like a premium of Linux.
<b>Technical Writing</b>	I write descriptive blogs about Linux some of them are on my GitHub and Medium.
<b>Art</b>	I have always enjoyed drawing since I was a child. Recently, I have shifted to digital art mostly on Deviantart.
<b>Video Games</b>	I always had the gaming gene. I mostly play on my phone and occasionally on my switch.
<b>Swimming</b>	I started swimming when I was 12. Going through submerged things while holding my breath was the most exciting part.

# Languages

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**English** Professional proficiency  
**Hindi** Native proficiency

References available upon request.