

# Mingyu (Edward) Liu

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## EDUCATION BACKGROUND

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### College of the Holy Cross

MA, United States

*Bachelor of Liberal Arts major in Computer Science*

*September 2020 – Present*

- Relevant Coursework: Multivariable Calculus, Analysis of Algorithms, Data Structure, Computer Systems and Organization, Computer Networking, Software Development, Prog Language: Design & Implementation, Computer Graphics

## PROFESSIONAL EXPERIENCE

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### J.D. Powers Research Associate Program

Worcester, United States

*Individual Researcher*

*September 2023 – December 2023*

- Learned the various menus, options, and parameters that are modulated to design the virtual environment per the project's requirements.
- Designed an online virtual timer to be placed in the virtual environment.
- Worked on developing ideas about how to manipulate the virtual environment's time lag and speed of movement through a button press.
- Determined optimal software and VR-platform compatibility and used toolkits to present surveys and questionnaires in the virtual environment and collect responses.

### Postal Savings Bank of China, Zhongyi Xi Road Branch

Zhengzhou, China

*Operations*

*June 2023 – August 2023*

- Leveraged Linux-based environment to perform system configurations, troubleshooting, and optimizations, contributing to the robustness and efficiency of IT solutions.
- Collaborated in the development of a secure web application using HTTPS protocol, allowing user file uploads for bank agent review, thereby enhancing data security and user interface.

### NotoVox

Remote

*Software Engineer*

*May 2023 – August 2023*

- Spearheaded a project utilizing AWS Textract and various AWS services to convert FHIR (Fast Healthcare Interoperability Resources) questionnaires into JSON files, streamlining data processing and integration.
- Engineered solutions to efficiently extract, transform, and manage healthcare data, significantly improving data accuracy and accessibility for downstream applications.
- Demonstrated proficiency in cloud computing and data manipulation, optimizing workflow by automating the conversion and extraction process, reducing manual efforts and potential errors.
- Enhanced overall data management practices by adopting innovative cloud-based solutions, contributing to the company's mission of leveraging technology for better healthcare data interoperability.

### Neural FLEX Technology (Shenzhen) CO., LTD

Shenzhen, China

*Research Assistant*

*December 2022 – January 2023*

- Understanding the Data: Acquired in-depth knowledge of EEG data structures in .edf format, encompassing bioelectrical activity across multiple channels and associated metadata.
- Developing a Conversion Tool: Utilized Python and the pyedflib library for efficient reading and processing of .edf files, facilitating access to EEG channels and metadata.
- Data Extraction and Transformation: Skillfully extracted and transformed EEG data from various channels into a tabular format, addressing challenges related to varying sampling rates and time synchronization.
- Exporting to .csv: Successfully exported the processed EEG data to .csv format, ensuring accurate representation with time-stamped samples and distinct EEG channel columns.
- Model Development: Pioneered in developing Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs) architectures to effectively capture spatial and temporal patterns in EEG data.
- Training and Validation: Diligently trained and validated models using a partitioned dataset. Implemented k-fold cross-validation and other techniques to prevent overfitting and enhance model generalizability.

**Institute of Automation, Chinese Academy of Science***Research Assistant***Remote***June 2022 – September 2022*

- Collected and analyzed data to assist with designing and implementing experiments, surveys, and other data collection methods.
- Conducted literature reviews and identified gaps in existing research.

**Zhangyuan Enterprise Management Consulting Co., Ltd***Strategy Consultant***Shanghai, China***July 2019 – February 2020*

- Organized and archived financial records and interview minutes of industry experts and government officials.
- Recorded and compiled interview minutes of industry experts and government officials.
- Developed a web-spider in Python to streamline data collection and analysis for all companies based in the district.
- Provided real-time translation services for foreign project leaders at major conferences.

**RESEARCH & STUDY**

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**Lumiere Education***Individual Researcher***Remote***June 2021 – July 2021*

- **Research and Development:** Conducted extensive research on state-of-the-art machine learning techniques, including reinforcement learning and deep learning, to identify optimal solutions for teaching AI to play computer games effectively.
- **Algorithm Design:** Developed innovative machine learning algorithms tailored to the unique challenges presented by different computer games, emphasizing adaptability, learning efficiency, and robust performance across diverse gaming environments.
- **Data Collection and Preprocessing:** Acquired, organized, and preprocessed vast amounts of gameplay data, ensuring high-quality input for training and validating the developed machine learning models.
- **Model Training and Optimization:** Trained AI models using the developed algorithms, continually fine-tuning and optimizing them to achieve remarkable performance levels in various computer games.

**SKILLS & INTERESTS**

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**Languages:** Native proficiency in Mandarin and bilingual in English**Programming Languages:**

- Proficient in C++, Java, Python, C#, and Swift, with extensive experience in developing complex applications and software solutions.
- Skilled in functional programming with Scheme, empowering efficient code development and optimization.
- Adept at using Bash scripting for automating tasks and enhancing system operations.

**Cloud and Web Technologies:**

- Expert in AWS services, including EC2, Route 53, and Global Accelerator, enabling the design and deployment of scalable and highly available applications.
- Experienced in designing and implementing login and signup modules using Java, AWS EC2, and SQL, ensuring secure user authentication and data management.
- Proficient in deploying and managing web applications using Nginx, offering optimal performance and security.
- Demonstrated ability to build custom VPN solutions using AWS services (EC2, Route 53, and Global Accelerator), providing secure and private network connectivity.

**Operating Systems and Software:**

- Highly skilled in Linux system administration, including user management, private and public key management, and software installation, ensuring secure and efficient system operations.
- Knowledgeable in Microsoft Office Suite (Excel, Word, and PowerPoint), facilitating efficient data analysis, document creation, and presentation development.
- Competent in developing iOS applications using Swift and SwiftUI, offering seamless and user-friendly experiences across Apple devices.