

# ABRAHAM MULAT

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## 🎯 OBJECTIVE

Passionate and results-driven AI researcher specializing in computer vision and data science. Strong academic foundation and proven track record in implementing successful computer vision projects, including image classification, medical image processing, and object detection. Seeking an entry-level or junior position in computer vision or data science that offers professional challenges and utilizes interpersonal skills, excellent time management, and problem-solving abilities.

## 🎓 EDUCATION

### China West Normal University

Sep. 2021 – Present

MSC in Software Engineering (SE), expected June 2024, Grade: 4.2/5.0

*Thesis:* Salient Object Detection Based on Deep Learning Methods

### University of Electronic Science and Technology of China (UESTC)

Sep. 2017 – Jul. 2021

BSC in Software Engineering (SE), Grade: 3.7/4.0

*Thesis:* A U-Net Network for Brain Tumor Segmentation

## 👥 EXPERIENCE

### Teaching Assistant - Python For Deep Learning

Sep. 2021 – Jan. 2022

- Communicated with abroad students.
- Organized and collected assignments assigned by the teacher.
- Supported classroom instructions.

### Scientific Research and Engineering Training (Internship), UESTC

Aug. 2020 – Dec. 2020

- Implemented a music genre classifier based on Deep learning (CNNs).
- Achieved 92% accuracy on the test dataset.
- Worked on music source separation using open-source software called open-unmix.

## 🔧 FINAL/THESIS PROJECTS

### Salient Object Detection Based on Deep Learning Methods

Implemented two deep learning models for visual saliency detection: Saliency Fusion Attention U-Net (SalFAU-Net) and Swin Transformer-based Saliency Network (SwinSalNet). In SalFAU-Net, I developed a saliency fusion module to integrate saliency maps from each decoder block of the Attention U-Net network. SwinSalNet leverages the Swin Transformer network as a backbone for the encoder blocks, with three decoder modules designed to enhance the accuracy and efficiency of salient object detection

### A U-Net Network for Brain Tumor Segmentation

During my undergraduate studies, I conducted a comprehensive research project for my Bachelor's Thesis titled "A U-Net Network for Brain Tumor Segmentation." In this project, I implemented a U-Net model to address the challenging task of brain tumor segmentation in medical images. The project involved applying advanced image processing techniques to enhance the accuracy of tumor localization and classification, contributing to the field of healthcare technology.

## 📄 PUBLICATIONS

- **Preprint** -Mulat, K.A., Feng, Z., Eshetie, T.S. and Hasen, A.E., 2024. SalFAU-Net: Saliency Fusion Attention U-Net for Salient Object Detection. [arXiv preprint arXiv:2405.02906](https://arxiv.org/abs/2405.02906).

## PROJECTS

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### Skin diseases detector using Transfer Learning

- IEDE, Tsinghua University (Mar. 2023 - Apr. 2023)
- Core-team member in an innovative healthcare project leveraging AI.
- Developed a deep learning model using the EfficientNetB2 architecture to detect 30 different types of skin diseases, achieving 90 % accuracy on the test dataset.

### Sleep Keeper

- Led a team in developing a real-time sleep aid system based on Electroencephalogram (EEG).

### Applied Data Science Capstone Coursera

- Developed different machine learning classifier models to predict the successful landing of Falcon 9 rockets at SpaceX.
- Achieved 87 % prediction accuracy on the test dataset, influencing launch cost determination.

### Data Visualization with Python Coursera

- Implemented data visualization techniques and plots using Python libraries (Matplotlib, Seaborn, Folium) to convey compelling stories.

### Design and Implementation of Chat Application

- Utilized Java and the Netty Framework to design and implement a group chat application.
- Served as a core team member, contributing to both the client and server components.

## HONORS AND AWARDS

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- Received *3<sup>rd</sup> Prize Academic Achievement Award* for three consecutive years at UESTC, School of Information and Software Engineering from Oct. 2017 to Jul. 2020.
- Awarded the Ethiopian Government Betre Science Scholarship for exceptional academic performance from Sep. 2017 to Jun. 2021.
- Won *2<sup>nd</sup> Prize* in the *2<sup>nd</sup> Chengdu-Chongqing Economic Circle Innovation Competition for International Students* in Dec. 2021
- Received *2<sup>nd</sup> Prize* award for Cultural Trip Report on Intangible Cultural Heritage observations during Nanchong Cultural Exchange Activity for International Youth in Sichuan Province in Jan. 2022.

## SKILLS

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- **Programming Languages:** Python (Advanced), C(Basic), Java (Intermediate), HTML, CSS.
- **Platform:** Windows, Linux(Ubuntu).
- **Tools and Frameworks:** PyTorch, TensorFlow, Git, Github, LaTeX.
- **Soft Skills:**
  - Demonstrated strong work ethics in managing tight project deadlines.
  - Proven problem-solving abilities through successful project implementations.
  - Effective teamwork and collaboration in diverse environments.
  - Active listening skills for understanding and addressing project requirements.
  - Adaptability to evolving project needs and technologies.

## LANGUAGES

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- English - Fluent
- Amharic - Native speaker
- Chinese - Conversationally fluent

## EXTRACURRICULAR ACTIVITIES

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- Performed in the 27<sup>th</sup> Community Culture and Arts Festival group dance performance at China West Normal University and received best performance award in May 26, 2023.
- Participated in Chinese Cultural courses and Martial Arts at UESTC during the first semester of the academic year 2020 - 2021.
- Served as a volunteer during the 17<sup>th</sup> China International Software Cooperation Conference in Chengdu, China from August 22<sup>nd</sup> - 25<sup>th</sup>, 2019.
- Participated in the summer Chinese Language Training and Sichuan Culture Learning Experience organized by the School of International Education at UESTC in the summer of 2019.
- Attended the ‘Summer Personal Development Workshop: Build your Skills, Knowledge, and Abilities (SKAs)’ held at UESTC on August 14<sup>th</sup>, 2018.