

Richard Luo

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🔗 <https://github.com/Skyline-9> 🖱 <https://skyline-9.github.io/> 🇺🇸 U.S. Citizen

Education

Georgia Institute of Technology, M.S. in Computer Science 08/2023 – Present | Atlanta, GA

Concentration: Machine Learning

Coursework: Deep Learning, Machine Learning, Computer Vision

Georgia Institute of Technology, B.S. in Computer Science 08/2020 – 05/2023 | Atlanta, GA

4.0 GPA, Highest Honors, Concentration: Artificial Intelligence, Information Internetworks

Extracurriculars: The Agency (ML Club) - Vice Internal Operations, GreyHat (Cybersecurity Club)- Vice President

Preprint

Joint Moment Retrieval and Highlight Detection Via Natural Language Queries, <https://arxiv.org/pdf/2305.04961.pdf>

In this project, we propose a new method for natural language query based joint video summarization and highlight detection using multi-modal transformers. This approach will use both visual and audio cues to match a user's natural language query to retrieve the most relevant and interesting moments from a video. Our approach employs multiple recent techniques used in Vision Transformers (ViTs) to create a transformer-like encoder-decoder model.

Experience

Software Engineering Intern, Amazon Web Services 05/2023 – 08/2023 | Seattle, WA

- Designed robust, performant, and scalable system to address host provisioning and metadata collection across tens of thousands of worldwide hosts using AWS serverless microservices as part of CloudFront Platform Team
- Improved critical endpoint speed by 47% using concurrency to eliminate timeout issues and increase service availability and host recovery abilities
- Eliminated throttling issues by reducing AWS API calls by 50%
- Improved service visibility for operators by creating a dashboard that monitors error rates, CloudWatch alarms, and other key metrics

Software Engineering Intern, Ultimate Kronos Group 05/2022 – 08/2022 | Remote

- Developed new features as part of Workforce TeleStaff New Product Development Team in Agile lifecycle.
- Created Angular proof-of-concept for TeleStaff, which improves UI/UX, increases responsiveness, and meets WCAG 2.1 Accessibility guidelines. Established reverse proxy to make calls with existing backend and support legacy code.
- Implemented REST APIs using Java Spring Services to support CRUD operations for MSSQL database.
- Privately presented project to VPs, Directors, and Project Managers to demonstrate a profitable future direction.

Research Assistant, Georgia Tech RAIL Lab 08/2021 – 08/2022 | Atlanta, GA

- Working with Dr. Chernova in Robot Autonomy & Interactive Learning (RAIL) Lab on developing better deep-learning models for smart-home active assistance based on sensor prediction

Undergraduate Researcher, Georgia Tech Research Institute 01/2021 – 08/2021 | Atlanta, GA

- Researched privacy-preserving biometric authentication under the supervision of Dr. Wenke Lee
- Built frontend with React.js/Tensorflow.js for facial recognition and detection
- Implemented OAuth 2.0 Authorization/Identity server for SSO using Java/SQL backend.

Projects

Reddit Place Script, Open Source Project On GitHub [🔗](#) 04/2022

- Managed (project admin and contributor) reddit-place-script-2022, becoming GitHub's #1 trending repository for April 4-5 by working on image manipulation + API calls and reviewing PRs & responding to issue tickets

HokusAI [1st Place Digital Track Horizons Hackathon Winner] [🔗](#) 03/2022

- Leveraged OpenAI's Contrastive Language-Image Pre-training and a Vector Quantized Generative Adversarial Network (VQGAN) to turn text prompt into art
- Built frontend with React.js. Implemented Firebase authentication and used Firestore as NoSQL cloud database

InvestigatAR [🔗](#) 10/2021 – 10/2021

- App allows users to view a 1:1 Augmented Reality replica of a product just by scanning a QR Code or by running object detection. React Native/ViroAR in the frontend and Java Spring Boot/MongoDB in the backend
- Built a Flask server and PyTorch YOLO object detection model API, created backend endpoints in Java Spring Boot, and made API calls using Unirest and Axios

Skills

Languages: Java, Python, JavaScript, TypeScript, SQL, C, C++, HTML, CSS

Frameworks/Tools: Tensorflow, Keras, scikit-learn, NumPy, OpenCV, React.js, Angular, Express.js, Node.js, Java Spring, JUnit, Mockito, Docker, Google Firebase, Git, Postman, MSSQL Server Management Studio, AWS