Runcheng (Frank) Li

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EDUCATION

Northeastern University – Khoury College of Computer Sciences Boston, Massachusetts
Master Of Science in Computer Science *Sep. 2022 – Dec.2024*
Relevant Coursework: Algorithms, Web-development, OOD, Machine Learning, Pattern Recognition, HCI

University of Rhode Island – College of Engineering Kingston, Rhode Island
Bachelor of Engineer in Mechanical Engineering *Sep. 2018 – May 2022*
Relevant Coursework: Thermodynamics, Heat Transfer, Fluid Mechanics, FEA, Material Mechanics, Graphics

TECHNICAL SKILLS

Languages: JavaScript, Java, Python, C, C++, HTML, CSS, SQL, MATLAB, R, SQL
Frontend: React, Vue, Angular **| Backend**: RESTful API, Node.js, MongoDB **| Software Tools:** Git, AWS, Postman
Machine Learning / Robotics: Pytorch, OpenCV, ROS | **Engineer tool:** SolidWorks, Simulink, Abaqus, Msc Nastran, 3D Printing

Work EXPERIENCE

Photographer & Video Editor *Mar.2022 – Current*
Freelance – Self Employed

- Specializing in Photography & Videography in Commercial Production, Wedding, and Portraiture, Activities Video recording.
- Leveraged Adobe Lightroom and Photoshop and DaVinci Resolve, encompassing editing, color grading, and fusion, to produce aesthetic visual content to client expectations for various type of project desires.

Mechanical Engineer Intern *Oct.2021 – Jan.2022*
Global Bedding Solution lnc (MA – Fall River)

- Create a **C++** controller program that sets Pocket Spring machine operations with coil temperature and hardness correlation.
- Integrated sensor data analysis, applied control-loop algorithm to ensure dynamic response to temperature fluctuations, maintaining stringent quality standards, optimizing quick and safe delivery of bedding products efficiency.

PROJECTS EXPERIENCE

Photography Images & Face detection enhancing *NOV.2023 - Current*

- Applied photography camera expertise (ISO, CMOS, Color space etc.), developed image processing functions using **OpenCV** in **C++**. Implemented and optimized custom ML algorithms runtime for features color toning, Sobel filtering, image blurring.
- Apprehend webcam real-time face detection function using Haar Cascade classifiers. Dynamically resizing face detection marks them with bounding boxes.
- Integrated super-resolution EDSR method for advanced image upscaling, noise reduction, and sharpening. Conducted comparative analysis with Topaz AI to identify specific image features area for further enhancement.

Full Stack NEU Project Search Website *Jul.2023 – Aug.2023*

- Crafted an intuitive user interface with HCI knowledge using **Figma**. Developed the frontend with **React** and **JavaScript.**
- Constructed a robust backend system using **MongoDB, Node.js and Express.js**. Designed a backend-for-frontend layer to facilitate integration with external APIs for user input data research.
- Implemented CRUD operations and distinct permission for different users' categories. Enable user-specific database interaction such as bookmark Favorite APIs collection and profile customization.

Research Experience

University of Rhode Island + Hexagon Manufacturing Intelligence (RI) - Design engineer *Sep.2021 – May.2022*

- Designed a semi hydraulic lifting table system with portability, resulting in a **200% enhancement** in the efficiency of auto-loading for Coordinate Measuring Machines (CMM). Added ergonomic features to the system enhancing the user experience.
- Utilized **SOLIDWORKS** Simulation and applied **CNC** expertise from machine shop operations to complete the assembly design of the lifting system. Conducted evaluations and furnished data to establish maximum operation guidance of the product.

Microfluidics and Microsystem Laboratory research *Apr.2021 – Jun.2021*
University of Rhode Island

- Analyzed fluid-particle mixing in micro mixers using image analysis and fluorescence microscopy. Investigate 3D printed resin device and acoustic pulsatile micropump to improve PDMS Strength and durability preventing liquid spillage.
- Researched acoustically controlled particle separation and studied blood flow in microchannels, conduct simulation of a pulsatile blood vessel environment by controlling voltage of transducer and examining the shape of the air bubble.