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| **Xiang Ru Zhou**  Email: JohnsonZhouXR@outlook.com| Telephone: (+86) 18502091962 |
| **CAREER PROFILE** |
| **10+ years** experience in image processing. I have a proven track record of innovation and excellence. My expertise spans the image processing industry, especially in industrial machine vision, where I have deep knowledge of process flows and a history of leading practical application projects to success. I've applied for over **10 patents** and am driven by the promise of technologies like Brain-Computer Interfaces (BCI) and medical image processing to improve lives. |
| **EDUCATION** |
| **Xi'an University of Technology  Xi’an, China**  *Bachelor of Microelectronics Sept. 2009 – Jun. 2012*  **• Average Score:** 81.6/100 (Top 15%)  **• Honours**: 2nd Prize 8th Xi'an High-tech "Challenge Cup" Academic Science and Technology Works Competition; 1st and 3rd Prize University 19th Academic Science and Technology Works Competition; Special Prize & 2nd Prize University 19th "LiAo Cup"; 1st Prize University 18th "LiAo Cup"; 2nd Prize University Innovation Achievement; University 3rd Prize Scholarship  **• Relevant courses**: C Programming (94), Probability Theory and Mathematical Statistics (87), Fundamentals of Computer Software (84), Mathematical Equations (87), Digital Electronic Technology (91), Computer Networks and Communications (84), Principles of Integrated Circuit Technology (94), Microcomputer Principles and Applications (86)  **• Programming Language**: C, C++, Python, Java, Java Script, HTML, CSS, PHP; **Development tools:** QT, Visual Studio  **• Systems:** Windows Desktop, Ubuntu Server; **Libraries:** OpenCV, PyTorch, Halcon; **IT Tools:** Git, Docker, Anaconda |
| **PROFESSIONAL EXPERIENCE** |
| **SMARTMORE Shenzhen, China**  *Software Engineer May 2020–Present*  **Key Projects:**  ***Wafer ID Reader Wafer OCR Code Reader Integrated Machine Project***  *Leader* *Oct. 2021–Present*  **•** Led the overall design and implementation of the semiconductor industry's first deep learning-based OCR wafer character recognition tool tech lead, guiding a development team of four.  **•** Worked closely with the algorithm team to develop strategies, execute experiments, and integrate optimal solutions, achieving industry-leading recognition rates on SEMI standard wafers, matching or surpassing Keyence product performance.  **•** Authored software and SDK interfaces and functionalities based on the product manager's research and user requirements.  **•** Managed a complete closed-loop process from requirement analysis to deployment, utilizing MobileNet for efficient inference, significantly enhancing usability by removing the need for parameter adjustments.  ***Defect Detection System for SONY Labels***  *Deputy Leader*  *Feb. 2023–May 2023*  **•** Improved the template matching framework by incorporating a deep learning defect detection feature. Created a two-channel image by merging the template image with the inspection image. Annotated defects and trained the model, resulting in a 2% accuracy boost during Proof of Concept (POC) with the same client samples.  **•** Conducted Proof of Concept using client samples to validate system performance, improving defect detection accuracy.  **•** Provided recommendations and made independent adjustments to algorithms, optimizing system performance.  ***BGI Genomics Reagent Bottle Testing***  *Team member* *Oct. 2022–Feb. 2023*  **•** Designed algorithmic solutions and implemented the AI model into software for real-time monitoring of reagent bottle caps, ensuring seal integrity and smoothness during the manufacturing process.  **•** Conducted Optical Character Recognition (OCR) for character detection on reagent bottle bodies, effectively identifying characters on various colored backgrounds of medication and detecting printing defects.  ***Detection Of Label Marks***  *Team member Aug. 2022–Dec. 2022*  **•** Collaborated with a partner to organize data, classify defects, and develop formatting and methodology for annotations.  **•** Utilized company platform to train models and facilitated on-site deployment.  **•** Provided software framework and contributed to interface design.  ***Specific String OCR System for Arbitrary Orientations on Tags***  *Team member Jun. 2021–Feb. 2022*  **•** Designed models responsible for the task, leveraging the existing MobileNet training framework in PyTorch. Trained four models individually: label localization, orientation determination, character localization, and recognition.  **•** Developed a software development kit (SDK) in Visual Studio to facilitate integration and usage of the OCR system.  **•** Designed and implemented a user-friendly interface using the QT framework to enhance the usability and accessibility of the OCR system.  ***Character Recognition System for Apple Watch Bands Using Laser Engraving Technology***  *Team member May. 2020–May 2021*  **•** Trained character localization and classification models on a four-card 2080Ti server running Ubuntu, utilizing the MobileNet architecture.  **•** Employed the ONNX Runtime (ORT) for model deployment, integrating a C++ SDK for inference on the server and developing a user-friendly software interface.  **•** Collaborated with colleagues to align and optimize the SDK, including pre-processing and post-processing workflows.  ***Defect Detection System for Apple Watch Bezels Using 3D Imaging Technology***  *Team member Jun. 2020–Oct. 2020*  **•** Developed a dual-stage OCR model for character segmentation and classification using MobileNet, employing ORT for inference, including pre and post-processing in C++, as well as software interface and communication process development  **•** Implemented the conversion of 3D point cloud data into 2D heatmaps for analysis purposes.  **•** Designed and programmed the user interface for the software application. |
| **SHENZHEN PHOTOSYNTHETIC DIMENSION SOFTWARE DEVELOPMENT TECHNOLOGY CO., LTD. Shenzhen, China**  *Co-founder, CTO Jan. 2017– May 2020*  **Key Projects:**  ***Android Software for A Car-Mounted Mobile Phone Controller***  *Designer* *Jan. 2017– May 2020*  **•** Designed and developed a comprehensive product comprising a mobile app and Bluetooth controller for seamless car navigation, music control, and WeChat messaging. Implemented features for one-touch activation of voice navigation, song search, and automatic WeChat message handling.  **•** Managed PCB production, designed Bluetooth chip-related programs, and 3D design/printing of product's appearance.  ***Voice Training and Recognition Program Based on The Kaldi Framework***  *Designer* *May 2018–Jan. 2020*  **•** Spearheaded integration of Kaldi library with C++ and QT interface on Ubuntu system, facilitating training and recognition of short audio clips regardless of language or sound type, such as children's crying or chair-breaking noises.  **•** Utilized languages including C/C++, Shell, and Perl in project implementation.  ***Android Platform Character Recognition OCR Software***  *Designer* *May 2017–Jan. 2019*  **•** Customized and optimized Tesseract, Google's open-source library, for seamless operation on Android mobile devices. Integrated with additional algorithms to efficiently recognize character regions captured from signage.  ***Face Recognition and Tracking Software on The Android Platform***  *Designer* *Jan. 2017–May 2017*  **•** Implemented face localization/tracking algorithms and code using libraries such as OpenCV, Caffe, dlib, and employed VGG net and BP neural networks for facial feature extraction.  **•** Utilized these technologies for integration with security cameras to monitor and identify familiar/unfamiliar faces indoors, assessing potential security threats.  **•** Successfully deployed the developed solution to a well-known domestic security camera manufacturer.  **OPT MACHINE VISION TECH CO., LTD. Guangdong, China**  *Image processing algorithm engineer Apr. 2014– Jan. 2017*  **Key Projects:**  ***One-Dimensional Barcode Localization and Recognition Algorithm***  *Designer* *Apr. 2014–Jan. 2017*  **•** Achieved automatic localization of barcodes in approximately 10ms on a PC equipped with an i3 processor, capable of identifying barcodes in complex images of up to 2 million pixels.  ***Two-Dimensional Barcode Localization and Recognition Algorithm***  *Designer* *Jan. 2015–Jan. 2017*  **•** Implemented functionality to locate and recognize QRCode, DataMatrix, and other two-dimensional barcodes.  **•** Utilized Google's open-source libraries ZXing/Zbar and made necessary modifications for enhanced performance  ***Rapid Edge And Circle Detection Algorithm***  *Designer* *Jan. 2015–Jan. 2017*  **•** Pioneered an image processing tool in the R&D department, implementing a non-Hough fitting method to efficiently detect lines and circles in complex images up to 2 million pixels.  **•** Achieved automatic localization of barcodes in any direction within approximately 10ms on a PC equipped with an i3 processor and 8GB of RAM, during complex image analysis.  **•** Benchmarking against the international leading algorithm software Halcon 2013, achieved positioning speed and accuracy rates of approximately 80% and 70%, respectively. |
| **ADDITIONAL INFORMATION** |
| **• Language**: English (Fluent; IELTS: 6.5), Japanese (N5)  **• Other Skills:** gdb/pdb, Keil (STM32), Altium Designer, Rhino, Dreamweaver  **• Books:** Computer Vision: Algorithms and Applications, Design Patterns: Elements of Reusable Object-Oriented Software  **• Patents:**  CN202311136494.1; CN202310973415.6; CN202310287581.0; CN202310051665.4; CN202211602503.7; CN202211474648.3; CN202211357774.0; CN202210994137.8; CN202230264395.1; CN201911330078.9; CN201110120104; CN201110308514.X |