resume\_43@gmail.com  
(691)-738-5977  
Guang Zeng  
Research Scientist/Imaging Specialist - MBF Bioscience Inc  
Williston VT - Email me on Indeed: indeed.com/r/Guang-Zeng/0890876cc481ccaa  
Seeking a challenging position in the area of image processing computer vision and medical image analysis  
Current Job Position  
 Company: MBF Bioscience Inc.  
 Title: Research Scientist/Imaging Specialist [...] - Present)  
 Responsibilities: Developing algorithms for stereology neuron morphology brain mapping and quantitative analysis microscopy image analysis virtual slice montage. Designing software solutions for biomedical research.  
Previous Job Position  
 Company: Mayo Clinic.  
 Title: Biomedical Imaging Software Program Developer [...] - [...]  
 Responsibilities: Automate and integrate various neuroimaging algorithms into Mayo's workflows. Design and implement efficient algorithms for MRI image analysis.  
 Company: Nanyou Engineering Design Co.Ltd China  
 Title: Assistant Electrical Engineer [...]  
 Responsibilities: Design power supply and distribution systems for civil buildings. Design fire alarm and CCTV systems for civil buildings.  
WORK EXPERIENCE  
Research Scientist/Imaging Specialist  
MBF Bioscience Inc - Williston VT - July 2010 to Present  
This work is focused on developing algorithms for stereology neuron morphology brain mapping and quantitative analysis microscopy image analysis virtual slice montage designing software solutions for biomedical research.  
Image Stitching  
Developed the Montage module for MBF software Neurolucida  
 Developed multi-scale KLT feature points detection and matching algorithms Developed fast multi-image composition method based on Dijkstra' algorithm Studied and implemented phase correlation method for image stitching  
Neuron Tracing  
Developed algorithm for neuron segmentation and tracing in Brainbow images  
 Developed algorithm for automatic neuron segmentation based on HSV color histogram Implemented the Livewire algorithm for semi-automatic neuron tracing  
3D Cells Labeling  
Developed algorithms for 2D and 3D cell segmentation from various types of microscopy images Implemented Watershed algorithm for 2D cell detection  
   
 Developed multi-scale LoG filtering method for detecting cells with different size in various types of 2D microscopy images.  
 Designed robust cell classification method based on SVM  
 Integrated the 2D cell detection and classification methods for 3D cell labeling.  
Image Registration  
Design algorithms for image registration between stained histological virtual slices and light microscopy images  
 Developed automatic brain contour detection method based on Otsu's method  
 Implemented Iterative Closes Points (ICP) method for contour matching  
 Implemented mutual information method for image registration  
 Integrated ICP and Thin-Plate Spline (TPS) for image registration  
All the above development work is in C++.  
Biomedical Imaging Software Program Developer  
The Aging and Dementia Imaging Research Laboratory Mayo Clinic 2010  
- Rochester MN - July 2009 to July  
This work focuses on automating and integrating various neuroimaging algorithms into larger workflows. Designing implementing and documenting efficient algorithms and validation experiments for scientific data analysis.  
 Integrate FreeSurfer pipeline into Mayo's workflows for automatic reconstruction of brain's cortical surface from structural MRI data  
 Integrate REST toolkit into Mayo's workflows for RESTing fMRI data analysis  
 Develop active contour-based algorithm for automatic white matter hyperintensities segmentation in MRI images.  
All the above development work is in MATLAB.  
Imaging Research Intern  
Eigen Corporation - Grass Valley CA - May 2008 to August 2008  
Participated in QCA project; this project is to develop a computer aided diagnosis system for stenosis detection with X-ray Digital Subtraction Angiography (DSA).  
 Developed an automatic computer aided diagnosis algorithm for stenosis detection and catheter measurement in DSA images based on linear feature detection and linear discriminate analysis.  
 Designed and built software GUI framework for the automatic stenosis estimation in DSA  
Research Assistant  
Department of Electrical and Computer Engineering Clemson University - January 2004 to May 2008  
Automatic linear feature analysis  
Conducted research in Automatic Linear Feature Analysis this work is focused on developing a fast and automatic algorithm for detecting linear structures such as plant root retinal vessel palmprint 2D barcode and urban road in imagery.  
 Developed a method for linear feature detection in images based on matched filtering and local entropy thresholding.  
 Developed a strong classifier for discriminating detected linear features from light-colored background objects using linear discriminate analysis (LDA) perceptron learning and Adaboost algorithm.  
 Developed a marked Gibbs point process algorithm for fast and automatic linear feature detection.  
Vehicle Detection & Tracking  
This work is focused on developing a fast and automatic algorithm for automatic detecting and tracking vehicles.  
 Integrated SIFT and Haar-like feature detector for vehicle detection  
 Applied Kalman filtering for tracking SIFT features  
Biometric Analysis  
 Developed a palm print detector based on linear feature detection  
 Implemented Haar-like feature detector for face detection  
 Implemented a face and skin detection method using HSV color segmentation Implemented a Eigenface-based facial recognition method  
Research Intern  
Radiology Support Unit Mayo Clinic - Rochester MN - May 2007 to August 2007  
Participated in IMT project; the goal is to automate the ultrasound measurements of intima-media thickness (IMT) of carotid arteries for diagnosing cardiovascular diseases.  
 Developed an algorithm to distinguish longitudinal clips from transverse clips based on edge detection  
 Developed CALEX algorithm for automatic IMT measurements  
Assistant Electrical Engineer  
Nanyou Engineering Design Co.Ltd - ShenZhen CN - August 1998 to August 2002  
ShenZhen China  
 Design power supply and distribution systems for civil buildings. Design fire alarm and CCTV systems for civil buildings.  
EDUCATION  
Ph.D. in Electrical Engineering  
Clemson University - Clemson SC December 2008  
M.S. in Electrical Engineering  
Clemson University - Clemson SC May 2005  
B.S. in Industrial Automation  
Xiangtan University - Xiangtan CN August 1998  
ADDITIONAL INFORMATION  
Expertise  
 Object Segmentation  
o Object Segmentation based on Matched filtering Watershed Gabor filtering GMM o Active contour-based segmentation  
o HSV color segmentation  
 Object Tracking  
o Point tracking based on Kalman filter  
o Kernel tracking based on KLT SIFT and Meanshift  
 Pattern Recognition and machine learning  
o Linear feature recognition  
o Biometric Analysis  
o Computer aided diagnostic  
o Supervised and unsupervised classification clustering Image Registration  
o Intensity-based registration  
o Feature-based registration  
o Affirm transformation and Spline-based transformation Image Stitching  
o Phase correlation based method  
o Feature based method  
 Software development object-oriented programming  
Computer Skills  
 Programming Language: C/C++ Matlab Simulink Maple Prolog Soar. Image Libraries: OpenCV IPL OpenGL ITK VTK CImg Blepo.  
 Brain Image Analysis Tool: FreeSurfer SPM FSL  
 Operating Systems: GNU/Linux Unix Windows.