

# Ali Zandifar

Address: 88 Howard Street Apt 809, San Francisco CA 94105

Cell: (408)505 3460

Email: [alizandusa@gmail.com](mailto:alizandusa@gmail.com)

Website: <http://www.ali-zandifar.com>

Status: Permanent Resident [READY TO BE RELOCATED]

## Objective

To obtain full-time position in computer vision or machine learning; interactive video, image and video search, feature extraction and detection, face recognition, object detection, object tracking, feature extraction, image segmentation and registration

## Education

- **Ph.D. in Electrical Engineering/Computer Vision**, University of Maryland at College Park, Aug 2004, GPA:3.88/4.0
  - Thesis: Computer Vision for Scene Text Analysis
  - Supervisors: Ramani Duraiswami, Larry Davis and Rama Chellappa
- **M.Sc. in Electrical Engineering/Control**, Sharif University of Technology, Iran, May 1997
  - Thesis: Position Estimation of a Moving Object via Optical Method using Extended Kalman Filter with pseudo measurements”
  - Supervisor: Prof. Mohammad A. Masoumnia
- **B.Sc. in Electrical Engineering**, Sharif University of Technology, Iran, Feb 1994

## Experience

- **Lead Computer Vision Scientist/Engineer**, Affine Systems Inc. San Francisco, CA, Aug 09-present  
*Responsibilities: Computer vision, image/video processing, machine learning, algorithm development, writing patents and project management.*
  - Developed face detection and recognition for internet video streams using face parts detector/descriptor, intra and extra personal dual subspace modeling and SVM based classification
  - Developed BOVW-based and motion-vector based internet video stream intelligent labeling
  - Developed 3D interest point feature detector/descriptor for action recognition of video streams
  - Developed feature-based video jitter/non-jitter video stream detection
  - Engineer intermediate module and wrappers for easy-to-use train detectors based in-house core algorithms
- **Senior Member of Technical Staff**, Novafora Inc. San Jose, CA, Mar 07-Aug 09  
*Responsibilities: Computer vision, image/video processing, applied estimation and database experience involved, algorithm development, writing patents and project management.*
  - Developed interactive image segmentation based on the geodesic framework of images
  - Develop an interactive video annotation tool including object tracking, video temporal segmentation, object visual similarity, semantic web look-up (e.g. freebase), compact annotated video object representation (xml or xsd) , data access layer and interfaces to different modules.
  - Develop feature-based and region-based trackers
  - Developed virtual tracker ground-truth sequences based on the collected in-house annotated contents

- Actively involved in other projects: MSER and affine invariant feature detection/description and its testing platform, partial video similarity and matching, logo detection and shot detection
  - Used AviSynth, post-production editing tool (script). AviSynth works as a frame-server, providing instant editing
  - Developed scripts to submit jobs to cluster system to analyze and run experiments of temporal and spatial alignment, tracking and shot detection modules using condor open source.
- **Senior Member of Technical Staff**, Epson R&D Inc. San Jose CA, Sep 04-Mar 07  
*Responsibilities: Computer vision, image/video processing, applied estimation and pattern recognition experience required, software development and release, writing patents and funding proposals, providing customer service satisfaction and project management.*
    - Developed watermarking of document images (Japanese or English languages) module including innovative embedding and extracting bit-strings, approximate bit-string matching and error correction [6 patents]
    - Visual inspection of microscopic industrial inkjet-printed circuit boards (PCB) project: built-up the system with scratch, updated device SDKs, developed high image quality capture, PCB simulation from dot-pattern maps, calibration, automatic scanning and registration, fault detection, SIFT feature extraction and description for large PCB circuits and efficient memory management [6 patents]
    - Developed deformation correction of scanned document images: flat/non flat documents, Japanese or English content based on the textual layout [2 patents]
    - Fast camera calibration with minimal user effort [1 patent]
- **Graduate Research Assistant**, University of Maryland at College Park, Jan 00-Aug04  
*Responsibilities: Computer vision and image/video processing, applied estimation and pattern recognition experience required, software development, research and development, writing journal and conference papers.*
    - Computer vision for scene text analysis [Ph.D. Thesis] including high quality video capture, text detection, mosaic images, differential geometric approach to deformation correction, video-based interface to access textual information for the visually impaired, studies on texture analysis and so on.
    - Developed fast multi-pole method to evaluate thin plate (elastic) mapping including 2-d tree data structure, function approximation and fast products of dense matrices with vectors
    - Speech compression using multi-resolution filter banks and gender recognition [course project]
    - Fitting animated head to mesh models [course project]

## Patents

1. **Ali Zandifar** and Anoop Bhattacharjya, “Fast imaging system calibration”, EPSON R&D Inc., US Patent filed Ser. No 11/260,964. **[ISSUED]**
2. **Ali Zandifar** and Anoop Bhattacharjya, “Distortion correction of a captured image”, EPSON R&D Inc., US Patent filed Ser. No. 11/679,664. **[ISSUED]**
3. **Ali Zandifar** and Anoop Bhattacharjya, “Distortion correction of a scanned image”, EPSON R&D Inc., US Patent filed Ser. No. 11/679, 648. **[ISSUED]**
4. **Ali Zandifar** and Anoop Bhattacharjya, “Low-memory auto-focus/auto-exposure, EPSON R&D Inc., US Patent filed Ser. No. 11/ 778968.
5. **Ali Zandifar**, “Characterization of a printed droplet”, Epson R&D Inc., US Patent filed Ser. No. 11/85154. **[ISSUED]**
6. **Ali Zandifar**, Che-bin Liu and Jing Xiao, “Embedding data in images”, Epson R&D Inc., US Patent filed in Nov. 2007.
7. **Ali Zandifar**, Che-bin Liu and Jing Xiao, “Extracting data from images”, EPSON R&D Inc., US Patent filed in Nov. 2007.

8. **Ali Zandifar** and Che-bin Liu, "Identifying embedded data in an image", US Patent filed in Nov 2007.
9. **Ali Zandifar** and Jing Xiao, "Identifying steganographic data in an image", US Patent filed in Nov 2007.
10. **Ali Zandifar** and Jing Xiao, "Segmenting a string using similarity values", Epson R&D Inc., Us Patent filed in Nov 2007.
11. **Ali Zandifar** and Jing Xiao, "String reconstruction using multiple strings", Epson R&D Inc., US Patent filed in Aug 2008.
12. **Ali Zandifar**, High resolution inspection of large scale PCB substrates by vision-based feedback, Epson R&D Inc., US Patent filed in Aug 2008.
13. **Ali Zandifar**, "Simulation of large PCB substrate dot-pattern bitmap by inkjet printing technology", Epson R&D Inc., US Patent filed in Aug 2008.
14. **Ali Zandifar** and Jing Xiao, "High quality image capture, intelligent scanning and registration of large PCB substrates", Epson R&D Inc., US Patent filed in Aug 2008.
15. **Ali Zandifar**, "Fault Detection of large PCB substrates by inkjet printing", Epson R&D Inc., US Patent filed in Aug 2008.
16. **Ali Zandifar**, Alex Bronstein, Michael Bronstein, Ron Kimmel and Shlomo Rakib, "", Novafora Inc., July 2009.
17. **Ali Zandifar**, Robert Impollonia and Mike Sullivan, "Systems and methods for matching a video to an advertisements", Affine Systems Inc, July 2010.

## Publications

1. **Ali Zandifar**, A. Chahine, R. Duraiswami and L. S. Davis, "Video-based Interface to Textual Information for the Visually Impaired", IEEE int. conf. at multimodal interfaces, 2002.
2. **Ali Zandifar**, Ser-Nam Lim, N. Gumerov and R. Duraiswami, "Fast Evaluation of Thin Plate Spline (TPS) in Computer Vision", IEEE int. conf. of image processing, ICIP 2004.
3. N. Gumerov, **Ali Zandifar**, R. Duraiswami and L. S. Davis, "Structure of Applicable Surfaces from Single Views", ECCV 2004.
4. **Ali Zandifar**, R. Duraiswami and L. S. Davis, "Video-based Framework for Analysis of Presentations/Posters", Int. journal of document analysis and rectification (IJDAR), Nov 2004.
5. N. Gumerov, **Ali Zandifar**, R. Duraiswami and L. S. Davis, "3D Structure Recovery and Unwarping Surfaces Applicable to Planes", Int. journal of computer vision (IJCV), Dec 2004.
6. **Ali Zandifar**, "Unwarping scanned image of Japanese/English documents", Int. Conf. on Image analysis and processing (ICIAP) 2007.

## Honors and Awards

- **Graduate Research Assistantship**, University of Maryland, Jan 00-Aug 04
- **Graduate Teaching Assistantship**, University of Maryland, Aug 99-Jan 00
- **Ranked 157<sup>th</sup>/300,000**: Nationwide B.Sc. university entrance contest, Aug 89
- **Ranked 51<sup>th</sup>/10,000**: Nationwide M.Sc. university entrance contest, Aug 94

## Skills

- **Programming**: MATLAB, C/C++, python, Avi-synth script, CPPUnit and PERL (basic)
- **Libraries**: OpenCV, wxWidgets, OpenGL and GLUT, condor, ffmpeg, google-test
- **Platforms**: Windows 95/98/NT/2000/XP, Linux

## Professional Affiliations

- *Member, Institute of Electrical and Electronic Engineers (IEEE)*
- *Reviewer, ICPR, IJECE, WirelessCOM, IEEE-ITIP and ACCV*

## Miscellaneous

- **Languages:** English , Farsi (mother tongue), Spanish

## References

- **Prof. Ron Kimmel**
  - Fellow and Co-founder, Novafora Inc., San Jose, USA, 2460 N 1<sup>st</sup>, San Jose, CA, Ron.Kimmel@novafora.com
  - Full Professor, Computer Science Department, Technion University, Israel
- **Dr. Alex Bronstein**
  - VP of Eng. and Co-founder, Novafora Inc., San Jose, CA, USA, alex.bronstein@novafora.com
- **Dr. Michael Bronstein**
  - VP of Eng. and Co-founder, Novafora Inc., San Jose, CA, USA, mbronstein@novafora.com
- **Dr. Anoop Bhattacharjya**
  - CTO Asterpix Inc., San Jose, CA, USA, anoop@asterpix.com
- **Dr. Ramani Duraiswami**
  - Associate Professor, Computer Science Department, University of Maryland at College Park, USA, ramani@umiacs.umd.edu
- **Prof. Larry S. Davis**
  - Full Professor, Computer Science Department, University of Maryland at College Park, USA, lsd@umiacs.umd.edu