Resume
Shalender Singh
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PROFESSIONAL REFERENCES:
Beas Dev Ralhan, CEO, Next Education:
+91-8688112233, beasr@nexteducation.in, we have developed & delivered various education software and hardware to him.

Sandeep Nair, Design Engineer/Project Manager/ MGTS, Texas Instruments Inc.
+1-202-344-7270, sandeep_n@ti.com, colleague at Texas Instruments Inc.

Anup, Senior Project Manager, Adobe Systems:
+91-9810290265, anup@adobe.com, colleague at Adobe System Inc in the PDF suite product (Acrobat + PDFMaker).

 Founder of Red Herring Asia 100 award winner company Priza Technologies http://www.herring100.com/rha2010/winners/2010winners.html

 Alumni of IIT Bombay, best ranked engineering school in India.

SUMMARY
Graduate in Electrical Engineering from Indian Institute of Technology, Mumbai (1998 Batch) with 15 years of experience in entrepreneurship, project management, software, Hardware & R&D.

EXPERIENCE SUMMARY
Current Position: CEO & President of Priza Technologies Inc., Milpitas.
Application/Areas: Project management, R&D, Product designing & development.

PUBLICATIONS & PATENTS:
Patents Pending:
US 61/427,118: A method of real time and enhanced video/image detection, recognition, decoding and enhancement using 'continuously updating' artificially generated panorama.
US 61/412,837: Augmented Reality Projector (AR Projector): An apparatus and method of auto focus and motion stabilization of the projection output in any condition
US 61/407,055: A Method and apparatus to determine user intended location and locator with respect to projected frames from a hand-held projector without using any external physical or radio connection device.
US 61/374,392: Augmented Reality Projector (AR Projector): An apparatus and method of geometrical correction and color correction of the projection output in any condition.
US 61/373,855: Augmented Reality Projector (AR Projector): An apparatus and method of projecting dynamic context sensitive information from a mobile pico-projector based on feedback from camera and other sensors.
US 61/373,840: Elliptical Augmented Reality Codes (EAR codes): A method of storing and retrieving printed information reliably Invention.

Paper Publications:
1. Design of a nanosystem for creation of a self replicating macro system using super specialization and functional redundancy, Shalender Singh, 2003 NSTI Nanotechnology Conference & Trade Show,
http://www.nrc.org/Nanotech2003/showabstract.html?absno=105

CAREER PROFILE:

Organization: Priza Technologies Inc.
Period: Dec 2012 - *Current*
Position: C.E.O. & President.
1. Joined Priza's USA as CEO from Dec 2012.
2. Was involved in recruitment process, market study, establishing new business relationship etc.
3. Grown the company from 1 to 4 employees.
4. Increased the office space from 125 sft to 650 sft in same building at Milpitas, California.
5: Raised the "Angel funding" for Priza USA.

Organization: Priza Technologies Pvt Ltd. Mumbai & Priza Technologies HK Ltd.
Period: Jan 2008 – Nov 2012
Position: CEO & President.
1. Design of firmware and integration software interface for Microsonic System Inc micro fluid mixer (http://www.microsonics.com)
2. Design of high speed & high fidelity 2D color code decoder for color code technologies Japan (http://www.colourcodetech.com)
3. Design of Semantic web/Natural Language processing engine for better product recommendation using GATE-4.0 & proprietary algorithms for Rediff.com (http://www.rediff.com)

4. Design of Bluetooth based secure payment device for Paytronics Panama (http://paytronicworldwide.com/blog/?cat=15)

Organization: M L Research Pvt Ltd.
Period: May 2006 – Nov 2007
Position: CTO
1. Modeling of purchase likelihood and offer targeting/offer creation.
2. Profitability set models.
3. Semantic web/Natural Language processing.
4. Super fast association mining and clustering engine using self-designed file system, data base management system and web server.
5. Novel user behavior model deriving algorithm from the data.
6. Leading and managing a team of 15 – 20 engineers and interns on various projects to plan schedule as well as technical details.
7. Super indexing and search engine.

Organization: Adobe Systems India
Period: Aug 2002– Mar 2007
Position: Computer Scientist.
1. Edge preserving cubic spline based super sampling.
2. Cubic spline based mesh for view interpolation.
3. Very high speed H.264 codec.
4. Adobe Reader 7.0 for Linux (http://www.adobe.com/aboutadobe/pressroom/pressreleases/200504/041205LINUX.html)
5. Adobe Reader for palm devices

Organization: Texas Instruments India
Period: July 2000 – Aug 2002
Position: Software design engineer/Architect.
1. Cable home for residential gateway on cable media.
2. Multimedia Terminal Adapter for Multimedia over Cable Networks.
3. **PacketCable system integration:** I solved various integration issues for the MTA device. Also involves some looking into hardware.

Organization: Eyesmax Software Pvt. Ltd.
Position: R&D consultant.
Project Title: View interpolation for images taken from different camera angles.
Period: Mar 2000 – July 2000
The Project: This product interpolates view in between of images taken from different camera angles.

Organization: Hughes Software Systems
Project Title: Operations and Maintenance Cell (OMC) for Network Management of Thauraya Satellite communication network
Period: Mar 1999 – July 2000
Position: Software Engineer

The Project: OMC for Thuraya Satellite communication network was designed to perform the network management for TDMA, DAMA satellite network.

Front End: ILOG/Java/Developer 2000

Back End: Oracle/C++

Responsibilities: As a Team Member, I implemented:

- Archive and restore unit for selective archive and recovery of all Management Data.
- Audit unit for auditing all configuration changes and user activities at OMC.
- Network hierarchy in SEM Viewer.
- Network Statistics in Statistics Monitor.
- Development of health monitor for OMC.
- Security for OMC user.

Organization: Defense Electronics Application Lab (DRDO)

Project Title: Network Management System for FDMA/CDMA DAMA satellite network system

Period: August 1998 - March 1999

Position: Scientist 'B'

The Project: Network Management System for FDMA/CDMA DAMA satellite network system was being designed specifically for Indian Defense with added security.

Responsibilities: I was involved in the design of the Satellite communication network and development of overall requirements/standards. I also developed C++ code for controlling the initial fixed frequency assignment network for proof of concept.

TELECOMMUNICATION SKILLS:

Protocols & Standards:

- Packet Cable 1.0 for Voice and Multimedia over cable networks.
- DOCSIS 1.0 for data over cable networks.
- SNMP/SMIv2.
- Designed a protocol for satellite signaling, which doesn't go into unstable regions.
- Improvement over CDMA for better bandwidth utilization.

COMPUTER SKILLS

Platforms: embedded linux, Android, iPhone, MAC OSX, vxWorks, HP-Unix, Sun Solaris, MS Windows, Java.

Programming Languages: C/C++, BC++, BC++ Builder, Java

Programming Scripts: Shell Scripts

RDBMS: Mysql, Oracle

HARDWARE SKILLS

1. Bluecore 4.0 based hardware design.
2. ADSP200X assembly, design of ADSP based systems.
3. 8751 assembly and design of systems based on it.
4. Have exposure to modem design.

List of R&D projects
- A protocol for satellite signaling, which doesn't go into unstable regions.
- Improvement over CDMA for better bandwidth utilization.
- A novel approach to geometry (new axiomatic system).
- A new paradigm for programming languages.
- An algorithm for terrain estimation from single image.

EDUCATION
Bachelor of Technology (Electrical and Engineering) Indian Institute of Technology, Mumbai

Research:

Patents Pending:
US 61/427,118

A method of real time and enhanced video/image detection, recognition, decoding and enhancement using 'continuously updating' artificially generated panorama

Problems it solves
Problem 1: If a complex enhancement, feature calculation, segmentation, detection, decoding or recognition operation is applied per frame on a continuous stream of video frames, many a times the operation takes more time to complete than the generation of next frame. This may lead to a lag effect or a jittery effect. In case the scene is fast moving, the object thus recognized may be out of the current frame, thus leading to wrong operation.
Problem 2: If a complex enhancement, feature calculation, segmentation, recognition, detection, decoding or recognition operation is applied per frame on a continuous stream of video frames, many a times the scene or objects might not be covered in a single frame, it might be larger than a single frame or divided partially into multiple frames. This leads to failure of operation.

Invention
A very useful method to use 'continuously updating' artificially generated panorama from a series of images or video frames for enhancement, feature calculation, segmentation, detection, decoding or recognition is presented.

US 61/412,837
Augmented Reality Projector (AR Projector): An apparatus and method of auto focus and motion stabilization of the projection output in any condition

Problems it solves
Problem 1: A pico-projector needs to be focused manually every time the distance of the projection surface changes from it. An automatic focus mechanism is highly desirable
Problem 2: A mobile projector is generally hand-held so is susceptible to vibrations, shaking of hand and other motion movement downgrading the quality of the projection.

Invention

A very handy apparatus and method to correct the projection using a camera attached very near to projector is presented.

US 61/407,055

A Method and apparatus to determine user intended location and locator with respect to projected frames from a hand-held projector without using any external physical or radio connection device.

Problems it solves

Problem 1: Doing projection Augmented Reality using static projectors camera cannot give feeling operating in 3D but looks like a sticker pasted on the surface because it shows the same view from all angles. A pico projector moves along with the user so can shift view as per the user himself, giving a sense of 3D.

Problem 2: Projection based Augmented Reality systems using static projector, which project on a 2D screen require static and carefully calibrated systems.

Problem 3: Pico-projectors are intended to hand held by user and the major purpose is to generate projections on the fly. For enabling Augmented Reality through a pico-projector, it needs to track and generate the projections in real-time with the correctly pre-compensated and positioned content.

Invention

A very handy apparatus and method of Augmentation of Reality using the pico-projection with a camera attached very near to projector is presented here. The only mandatory requirements for Augmentation are:

1. The camera is able to see some part of the projection. This may be accomplished putting camera aperture in approximately the same or parallel plane as the projector aperture.
2. The AR projection system has a way of computing the pre-compensation using the camera capture and the reference projector image.

US 61/374,392

Augmented Reality Projector (AR Projector): An apparatus and method of geometrical correction and color correction of the projection output in any condition

Problems it solves

Problem 1: Correcting the geometrical deformation in the projected output is a very important fidelity problem. In case where the projection surface is at a angle with respect to projector or the surface is non-planar, the projection by a projector shows up as deformed.

Problem 2: Correction of color deformation in the projected output is another very important fidelity problem. In case where the surface is shiny or non-white colored or un-evenly colored or ambient lighting conditions are not correct, there is a huge loss of fidelity of colors.

Invention

A very handy apparatus and method to correct the projection using a camera attached very near to projector is presented.

US 61/373,855

Augmented Reality Projector (AR Projector): An apparatus and method of projecting dynamic context sensitive information from a mobile pico-projector based on feedback from camera and other sensors

Problems it solves

Problem 1: Doing projection Augmented Reality using static projectors camera cannot give feeling operating in 3D but looks like a sticker pasted on the surface because it shows the same view from all angles. Pico-projector moves along with the user so can shift view as per the user, giving a sense of 3D.

Problem 2: Projection based Augmented Reality systems using static projector, which project on a 2D screen require static and carefully calibrated systems.

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Invention

A very handy apparatus and method of Augmentation of Reality using the pico-projection with a camera attached very near to projector is presented here. The only mandatory requirements for Augmentation are:

1. The camera is able to see some part of the projection. This may be accomplished putting camera aperture in approximately the same or parallel plane as the projector aperture.
2. The AR projection system has a way of computing the pre-compensation using the camera capture and the reference projector image.

US 61/373,840

Elliptical Augmented Reality Codes (EAR codes): A method of storing and retrieving printed information reliably Invention

Elliptical Augmented Reality Codes (EAR codes): EAR codes is a method to display, print or encapsulate in magnetic or electronic circuit form following information:

1. A desired bit sequence.
2. A desired elliptical shape.
3. A desired reliability information.
4. A desired blank space for any kind of graphics at the center or in-between.
5. A desired image at the background.

EAR codes retrieves following information from a machine reader:

1. Encoded bit sequence information.
2. Position of the code in space.
3. Angle between the code and the reader plane.

4. The graphics at center or any white space in-between.
5. The background image.

An example of EAR Code is illustrated below. We have been able to decode EAR code over IPhone in real time.

Paper Publications:

Design of a nanosystem for creation of a self replicating macro system using super specialization and functional redundancy, Shalender Singh, 2003 NSTI Nanotechnology Conference & Trade Show, http://www.nrc.org/Nanotech2003/showabstract.html?absno=105

Abstract
This paper investigates the paradigm under which nano machine can be used for automatic assembly of a desired complicated system and also gives a conceptual model and design for a nano system. It takes an approach similar to the way the cells specialize to from various organs and functions of a living being to build requirements. Further in the paper, a conceptual model and design for a nano system is given which would meet various requirements listed in the paper. Divide and conquer approach is taken to create the nano system design from nano-subsystems and nano-subsystem from basic manufactured molecules. For solving problem of self-replication, functional redundancy approach is taken for nano system. For solving the problem of selective specialization, statistical manufacturing of the super specialized subsystems for creating the desired form is taken.