ARUN MANAVALAN

CONTACT

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arun.manavalan92@gmail.com

SKILLS

- Mechanical engineering
- LabVIEW
- Plastics Injection Molding
- CAD
- AutoCAD
- SolidWorks
- Machine design
- Advanced surfacing
- GD&T
- Plastics
- Autodesk Inventor
- Pro/ENGINEER Wildfire
- MATLAB
- CATIA
- ANSYS Fluent
- SAP
- MS office
- Zemax
- Visual Basic
- C
- Mechanical design
- CNC
- Project management
- Mechanical DFMA
- Project Planning
- Computer skills
- Six Sigma
- Microsoft Project
- Manufacturing

WEBSITES, PORTFOLIOS AND PROFILES

https://www.linkedin.com/in/arun-manavalan-304a741

Fifteen ' experience in Project Management, Product Development, Computer Aided Design (CAD), Finite Element Analysis (FEA), Computational Fluid Dynamics (CFD), Rapid Prototyping, Plastics, Injection Mold Design, Medical Devices, Thermal Analysis, Manufacturing Technology, Computer Aided Engineering, Design of Experiments, Tolerance Analysis, Process Engineering and Design Reviews.

WORK EXPERIENCE

January 2018 - Current

Mechanical Engineer ***Divya Farms***, Chennai, Tamil Nadu

- 3D mapping of entire plant layout.
- 3D modeling, 3D printing, FEA, CFD, Tolerance stack up calculations.
- Production of Plastic injection molded parts for water fittings, hoses, bore wells.
- Creation of design specifications, and drawings for castings.
- Generation of marketing plans, proposals.
- SolidWorks modeling of Large assemblies Revision management and PDM.
- Technical drawings, Castings Gears, Machined components.
- Analysis Tolerance stack-up (linear static).
- Thorough understanding of GD&T and its practical applications.
- DFMEA (Design Failure Modes Effects Analysis).
- DOE (Design of Experiments).

August 2019 - August 2020

Product Development Engineer ***Kriya Medical Technologies***, Chennai, India

- Design of mechanical components using SolidWorks.
- Product Development (Design, Testing and Validation).
- SolidWorks CAD design.
- Familiarity with manufacturing processes such as Plastic injection moulding.
- Design of medical device products with FDA standards.
- Tolerance stack up calculations, FEA, GD&T.
- Experience with Quality protocols such as ISO 13485, ISO 9001 standards.
- Experience with regulatory agencies such as the FDA.

October 2015 - January 2017

Co-founder & Consultant ***Luvozo, LLC***, Washington, DC

- Developing assistive technology solutions to enable independent living.
- Designed end effectors for pick and place robot arm.
- Simulate platform in SolidWorks.
- Raised capital, writing for NSF grants, locating incubators.
- Conceptualize, design and prototype a working platform.
- Analyze and implement solutions for technical design challenges

that come up.
- Participate in brainstorming, mock-ups and prototyping of future generations of Luvozo products.
- Design and fabricate test fixtures for component testing, qualification, and experimentation.
- Research and qualify new technology that may be applicable to our roadmap and vision.

January 2011 - August 2015
Senior Mechanical Engineer ***Pace World-Wide***, Columbia, MD
- Responsible for overseeing multiple projects around the world (China, England, Costa Rica).
- Design of Electro Mechanical Components for high volume production (million units/year) using SolidWorks.
- Application of FEA (Finite Element Analysis) using SolidWorks Simulation.
- Plastic injection mold design (integrating component modules, I/O, Displays, Batteries, PCBs, etc.).
- Travel to supplier sites, generate feasibility reports, and work with international vendors.
- Review Vendor proposals for cost and compliance with design intent.
- Create mechanical drawings with Geometric Dimensioning and Tolerancing as per ANSI standards during development of prototypes and manufacturing.
- Generate BOMS, 2-D Drawings, 3-D Parts and 3-D Assembly models using SolidWorks.

May 2009 - April 2011
Lead Mechanical Engineer ***Technest Inc***, Bethesda, MD
- Designed a Pan Tilt system using Solidworks Computer Aided Design Software.
- This Pan Tilt system simulates roll and pitch of an aircraft which was used to generate an algorithm for the FSM (Fast Steering Mirror) so that it can track the image being generated from the camera under normal operating conditions despite vibrations and other disturbances.
- Designed twin optical housings for two zoom stages using which incorporated an electro mechanical switching mechanism with a rotary bi-stable solenoid which switches the zoom optics.
- Acquisitions of quotes from vendors, selection with concurrence from cross functional teams.

January 2009 - January 2011
Lead Mechanical Engineer ***Technest Inc, Start up, Advanced Imaging Division***, Bethesda, MD
- Deloitte & Touche's Fast 50 and Fast 500 for two years in a row.
- Prestigious National Tibbetts Award.
- Ranked as one of the fastest growing privately held companies in the United States, placing 257 in Inc Magazine's top 500.
- Helped to build PD team, playing an active role in hiring and developing new product ideas. Wrote and delivered annual reviews including compensation. Team consisted of 8 engineers.
- Products: - 3D Imaging Technology Platforms, Intelligent Surveillance Technology Platforms, 3D Facial Recognition Technology Platforms.
- Complete product life cycle design.
- Utilizing Solidworks to develop detailed 3-D CAD models and drawings. Includes component, subassembly, and top-level

drawings.

- Design for high volume production using plastic injection molding, sheet metal, metal casting, stamping, blow molding, and 3D printing.
- Design and develop products from concept through market introduction. Ensuring designs meet performance specifications, regulatory and manufacturing requirements.
- Generate innovative concepts for new designs to satisfy customer requirements. Lead and participate in concept generation activities, including brainstorming sessions.
- Prepare project plans that specify project phases, task interdependencies, durations, resource assignments, and costs. Proactively communicate task assignments to responsible individuals, and ensure that tasks are completed within the planned time. Track projects to project plans and interact with client companies in a professional manner.

Title: NIH "3D CAMERA RING" - Novel Automated 360-Degree Surface Profiling System for Small Animals; NIH Project Number: 2R44RR020245-02A2 (08/2004-06/2012) Technest Inc. in collaboration with others universities propose to use a novel 3D camera ring system for small animal DOT imaging. Instead of using a single camera and a motion stage to acquire multiple images of the animal body surface, the camera ring can simultaneously acquire multiple (16) surface images in vivo and automatically generate 3D surface model of the animal. The 3D model provides accurate geometric boundary information for the DOT subsystem. The impact of this research is potentially enormous since it offers a work frame whereas specific functional or molecular events could be quantitatively imaged and hence significantly advance basic cancer research, drug discovery and healthcare practices.

• Designed the proposed "3D Camera Ring(TM)" using SolidWorks Computer Aided Design Software. • Designed a motion control mechanism using a rotary stage and a stepper motor. • Design of sheet metal parts, extrusions, stamped parts and plastic injection molded parts. • Create drawings, get quotes from vendors, and build the prototype. • Assessed the Accuracy of the 3D Camera Ring Prototype.

FA8650-09-C-1610) Spectral Bird: Electrically Tunable Active Optics Sensor The goal of this project is to develop a novel miniature imaging sensor to be used for small unmanned aerial vehicles. For this sensor, we innovatively integrate a liquid polymer lens into a miniature 4' optical zoom system and thus completely eliminate moving parts usually necessary for zoom optics and minimize the system dimension. (05/01/2009-04/30/2011)

• Designed a Pan Tilt system using SolidWorks Computer Aided Design Software. • This Pan Tilt system simulates roll and pitch of an aircraft which was used to generate an algorithm for the FSM (Fast Steering Mirror) so that it can track the image being generated from the camera under normal operating conditions despite vibrations and other disturbances. • Designed twin optical housings for two zoom stages using which incorporated an electro mechanical switching mechanism with a rotary bi-stable solenoid which switches the zoom optics. • Acquisitions of quotes from vendors, selection with concurrence from cross functional teams.

Title: Navy SBIR Phase II (N00024-08-C-4100) Omni-Guard: a Real-Time Omni-Directional and Zoom Capable Hyperspectral Recording and Processing Imager. The primary objective of this project is to develop an omni-directional (360°) and zoom capable hyperspectral recording and processing imager for Navy ISR operations (Intelligence, Surveillance, and Reconnaissance). Designed a novel imaging optics system, develop application-specific sensor hardware, and also develop imaging control and processing software. http://www.afsbirsttr.com/News/NewsDetails.aspx?pk=441985f0-ce13-4c5f-b695-8b2af525ff88

• Designed a working prototype using SolidWorks Computer Aided Design Software. • Designed mechanical housing for zoom stages, retaining rings, spacers, thread call outs. • Created prototypes using Stereolithography (SLA) from .STEP files, and worked with cross functional teams for inference on final design. • Tolerance analysis, applied GD&T (Geometric Dimensioning and Tolerancing) on all the mechanical drawings, created drawings with ANSY 14.5M dimensioning and Tolerancing.

December 2006 - January 2009 **Product Application and Consulting Engineers** ***Pace World-Wide***, Columbia, MD

- Design of castings with inference from stereo lithography.
- Application of Master-Cam and Gibbs-Cam in a wide range of Manufacturing and Prototyping.
- Non-Linear thermal analysis of Heater Enclosure.
- Design of Rack and Pinion gear assembly to serve as baffle plates.
- Material Selection based on view factor, emissivity.
- Simulation of Heat Transfer between Infrared heater and PCB board.
- Design of Soldering Irons, Conductive, Convective, and IR Rework Systems.
- Database management using SAP, Vantage, Parts & Vendor for BOM's.

EDUCATION

2006-2007
Masters in Mechanical Engineering Mechanical Engineering
Columbia University, New York, NY
USA

- Dissertation in Product Design and manufacturing
- Graduate of Mechanical Engineering

2001-2005
Bachelor of Engineering, Automobile Engineering, B.E
Sri Venkateswara College of Engineering
Chennai , Tamil Nadu,
India