SERGE ROCHA DA FONSECA

E-MAIL SRDFMC@GMAIL.COM
615, "C" STREET #152 – SAN DIEGO, CA 92101 –
TEL.1-619-560-3516

Birth date: 1973
English spoken fluently
French mother tongue
Basic level in German (reader)
Spanish beginner

Mechanical Engineer

15 years of experience
Project Manager and Team leader
Independent Consultant since 2010
CAD/CAE/FEA or CFD

CORE COMPETENCIES
PRODUCT DESIGN - PROJECT MANAGEMENT - MANAGEMENT OF PRODUCTION ACTIVITIES - TECHNICAL SOFTWARE - PROCESS ANALYSIS

Project Management (examples)	- As the Technical Manager of Modul-System (MS), lead the company throught a long standing European Technical Agreement with Renault leading to the integration of MS's products on its entire fleet of commercial Vans (Kangoo, Trafic & Master) - As an external consultant on the Laser Mega Joules project, provided during 2 years technical advice, such as RFP tendering, Management of site and design of special tooling and innovative solutions for the decontamination of large sub-system and assembly parts (ISO-5) - As a project leader, developed a crash-safety system and new methodologies for a reversible/non-destructive/Low cost integration of metallic racking systems in vans (patent nbr PCT/SE2005/001743 - see patent) - Successfully filed for Modul-System the Renault'sW61 optional extended floor (tender n°681-5) dedicated to the next generation light weight commercial van - Designed a low-cost/lightweight transportable framework for an optical analysis device (registry) in a large size corrugated board printing machine (BOBST SA). - Led a 6 month program to drastically reduce the occurrences of non-conformity (~600) on the production line of the Dassault-Aviation's Falcon 900 fuselage's (electrical wire routing) See demo - Engineered in 2001 one of the first 3D CFD model available in the public domain of a high Swirl combustion chamber with reverse flow and precessing vortex core (Fluent 5.5) through an innovative modeling technique View - As an IT manager, led a SME through a successful Migration from Sage to Movex (Lawson M3) - As an external consultant at Solar Turbines (Belgium) converted to 3D the piping design methodology (Oil&gaz) with a full parametrical, modern and accurate modeling to drastically cut cost and delays (from AutoCad Lite to Solidworks) and initiate the modern usage of 3D CFD/FEA. - As an external consultant mandated by a French administration, provided analysis and wrote the RFP submitted to the industry for the introduction of a new applicative software dedicated to the management of a large population of city services users View
Management of production activities	- QCD management of production activities dedicated to the fitting of racking system in commercial vehicles (up to 1200 trucks/years – 3.7MEuros) - Introduction of new product ranges (HSS and Aluminum) and phasing out of old product range - Enhancement of production flows & optimization of products facilities - External Consultant and adviser on large assembly lines
Mechanical Engineering (examples)	- Design of parts & products for the automobile industry (steel (HSS), Aluminum and large OSB panels with crash safety concerns) - Design/modification of parts and electrical/hydraulic routing in the aviation industry - Writing of technical documentation & drafting (2D projected, 3D or Flash animated) - CAD design, CAE & CFD studies including crash-test and combustion model - Design of parts for large inline printing machine (corrugated board) -cast/forged/machined steel, Aluminum, Carbon fiber - Design/Upgrade of the range of HeatMaster Boilers for ACV Belgium (introduction of Parametric modeling, new materials and in-house usage of CAE). Promoted a point-welding and clinching process. - Design of High Pressure demineralized water tooling and methodologies for the ISO 5 cleaning of Large Laser facilities (DIN 2353 – Stainless steel) - Design of a Modular concept of a tensioned large extruded aluminum structure (~250 parts in 1 month) - Design of plastics products (molded) for the IT industry

Technical Software development (examples)	- Designed a software that enhance the production process, make generative updates and sort manufacturing documentation used by Dassault-Aviation manufacturing Engineers (VBasic 9000+ lines -3 month in shared time). Productivity gain for file generation: 3/week/operator to more than 20/week/op (View)
	- Designed a software dedicated to the study of low drag wheels in cycling races (solver refined under Mathcad (Runge-Kutta 4th order for the discretization) - Fortran 3000+ lines). Soft did provide users with the ability to simulate a full race with the inclusion of wind, gust, slopes, variable friction coefficient, different Manpower curves, basic human fatigue profiles etc…
	- Designed several general purpose routines (VBasic) to automates various production processes such as, for example, extracting and sorting data to monitor the phasing-out of a large product range (View), create automatically new products pricing (1operator single-tasked for 20 days before) or convert toward Excel and sort old unstructured BoM.
	- During the EMD phase of the MasterFlex HD at Bobst SA, designed several Catia Scripts and KWA rules to automatically update the main frame cut-outs and drilled holes in an assembly or extract data out of the main assembly and use it thought post-processing techniques (Excel/VBasic) for weight balance survey and anchoring points determination
	- As a Technical Manager, designed the formation course and wrote the User Manual for a core of users migrating toward an integrated sales management software with a 3D graphics module

PROFESSIONAL EXPERIENCE

Since Mars 2010 : CONSULTANT in ENGINEERING (company owner) - SRDFMC Conseil (Mechanical Design, Structural Engineering, CFD analysis and Technical advice for the Industries -).

From Jully. 2012 to Dec. 2012: OIL&GAS PIPING ENGINEER: Solar Turbine detached from Burotech

From Oct. 2007 to May 2009 : ENGINEER IN PRODUCT DESIGN : Bobst SA detached from Akka technologies

From Oct. 2003 to Oct. 2005: TECHNICAL MANAGER : Modul-System (*racking system for Vehicles)*

From Sept. 2002 to July 2003: PRODUCTION ENGINEER in Aeronautics: Dassault-Aviation detached from Labinal

from Sept. 2001 to July 2002: RESEARCH ENGINEER : C.I.CH (Oil burner manufacturer)

From Sept. 2000 to July 2001: Master degree project : Aerodynamics wheels efficiency in cycling

From Sept. 1995 to dec. 2001: TEACHER in Mathematics and Physic in French public schools

TRAINING COURSE

2000& 2001 (University of Bordeaux1 – France)	**Master of Mechanics** (shared diploma with the ENSAM – Ecole Nationale Supérieure des Arts et Métiers) **DEA of Mechanics** (Post graduate level) – Ecole Doctorale des Sciences Physiques et de l'Ingénieur (dedicated to flows & combustion studies at the MASTER laboratory /ENSCPB facilities)

SOFTWARES

CFD	Fluent 5.5, Gambit, CosmosFlowWorks SimulationFlows	**CAD**	Catia V4/V5 (GAS/EST- SMD -DMN/DMU, Enovia & Smarteam PDM) - SolidWorks 2003/2013 + Simulation Professional (ADAMS), CosmosWorks, CosmosDesignStar, Abaqus, IDEAS, Comsol (beginner)
Programming	C, C++, VBasic, Turbo Pascal, Fortran	**Math Analysis**	Mathcad, Mathlab
Internet	Search, browse and Design (HTML, JavaScript, PHP)		
Other	Microsoft Office, basic image edition – System & network admin (Win7&9x, NT, XP) - Unix user)		

OTHERS

Novelist - Single engine Pilot License – SEVERAL JOBS from 1989 to 1995 including 1 year working in London as a young teenager (16) – Several backpacking experiences (road trip, some rating up to 18000 km in 2 months or lasting 9 months all around the Gulf of Mexico) mainly in Europe, Caribe, North, Central and South America

SERGE ROCHA DA FONSECA

E-MAIL SRDFMC@GMAIL.COM

615, "C" STREET #152 – SAN DIEGO, CA 92101 –
TEL.1-619-560-3516

Details (filtered and non-exhaustive) of **my Consultancy works as an Independent:**

-LMJ: Laser Mega Joules – Starting in 2010

The LMJ is the French center for Nuclear related experiment using high power Laser beamed on a single target (the sphere). As an *Independent Consultant*, I was tasked on the Military fold of the program to help a major contractor to fill its obligation regarding the Clean room processes (ISO5). Work involved helping them in managing the team of operators, modify the processes, ascertain and maintain a given level of quality (cost wise), filling RFP for the subcontractor and writing RFP (with some guidance from the main contractor), selecting and managing subcontractors (SME mainly), designing special items or tools and standing as a source of innovation to lean the processes and improve the overall efficiency.

The main topics of Engineering knowledge that I had to use stands around designing high pressure tools, the preventive maintenance of a complex hydraulics circuits or the usage of components in Stainless steel according to ASME standards (some major components were sourced in the US) and minimizing all source of dust particles. RFP and tendering required a careful planning of operations with material, cost and risk analysis and the design and manufacturing of several special items necessary to fulfill the RFP. Ex 1 / Ex. 2

I stayed 2 years achieving a drastic reduction in downtime hours and improved the maintenance strategy (read Ex. 2).

- Various SME and one administration (Consultant Mech Eng/IT):
During that same time I was contracted by other SME and administration on Engineering project (design of parts and products and FEM analysis (for ex. regarding life cycle of industrial tools)) or for the writing of an RFP for a software acquisition (management of city services (Health care and Education) for a medium sized town near Paris). Ex. 1

- During a summer break (one month), as a *Consultant,* I proceeded via reverse engineering and several ameliorations to the design of a range of modular units for temporary buildings designed for events or exposition (up to 10000m² footprints – two floors). Material of choice was extruded aluminum. Resilience to Storm, snow and wind gusts were the main focus of the improvements aside of aesthetics modifications and patent liability. Ex. 1

- Nuclear waste disposal simulator (*Consultant*):
Following a serious leak in one of the main processing unit of such waste disposal in France (accidental mixing of different grade of waste material), I was selected as a contractor to create a simulator able to quickly emulate the main process and capable to assess prior to any full scale operation the level of potential hazardous emission.

- Post 2012:
Designed for a Swiss entrepreneur a Cellular accessory dedicated to Heart rate monitoring for the analysis of physiological and psychological behavior via dedicated software (App). This item was miniaturized enough to fit in someone palm and could be plugged and run only via the ear-plug of an IPhone and alike.
The initial goal was to build everything from scratch but I re-routed the project to re-use some existing hardware built in China modified to run at a lower voltage and via the usage of an already patented innovation in the public domain. We went through the hardware phase only. I was already committed to an intensive project when the customer was ready to launch the software phase. Ex.1

- As a *Consultant*, Designed some fun bar-ware materials for an opening Disco in London centered on the usage of dry ice fumes (concomitant in time with the project above). Products include a pistol like dry ice gun with a range of safety items designed via the creation of a quick multi-phase CFD model (gas--> solid).

- Solar Turbines:
Joined as a *Piping Designer* Solar Turbines in Belgium via a contractor (employed) and made good usage of my own software suite to convert the 2D process of designing the piping network of two turbines in Germany (medium power - several megawatt)) to a full 3D parametric design.
Self-designed a CFD process to predict and quote room temperature. Ex. 1

- ACV Belgium:
Was contracted as a *Mechanical Engineer* by SThree in Brussels to help a market leader dedicated in Home heater (ACV) to renew and improve one of its lines of products (3 products). Made several small improvements by reducing the amount of material, redesigning enclosures with safety in mind and ease of construction, inserting innovative locking mechanisms and made some slight adjustments to improve in-house manufacturing tolerances (stamped SMD).
Introduced the usage of clinching to replace a costly usage of SS bolts and nuts, designed and encoded a Part-list generator for the extraction and sorting out of an old DOS aged application producing non-structured BOM toward the generation of a partially automated Excel worksheet fulfilling basic ISO requirements. Ex. 1

- USA / Mexico (Consultant):
Designed several small items or Mechanical simulations for entrepreneurs and contractors including a Bio-Gas home harvesting units. Ex. 1

- USA (2014- Early2015) - Rapid Reaction Technology Office (RRTO), Thunderstorm Spiral 15-3 Technology Demonstration:
As an *individual*, Designed an UAV system selected for the Thunderstorm demonstration phase at Camp Shelby –USA to detect and analyses in front of an advancing force, chemical and biological weapon material as well as identifying surrounding flora. Read RFI
.
I work mainly with a suite of software centered around Solidworks Premium and Simulation Professional (Dassault-Systems). CFD were done under various software including Simulation Flows.