

JOHN S. JACOB

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Experienced Leadership for Engineering Research and Development

- Mission:** To use my considerable experience and unique abilities to build successful innovative technology businesses.
- Education:** Utah State University, Master of Science, Mechanical and Aerospace Engineering, 1998
- Texas A&M University, graduate studies in Physics, 1989-1990
- Arizona State University, Bachelor of Science Cum Laude, Physics, 1988

Areas of Experience:

- Commercialization** Assisting companies to objectively critique, brainstorm, develop, manage and lead teams in R&D Research projects in all Areas of Experience in complete confidentiality involving their activities, business plans and IP.
- Practical Engineering** Renewable energy: wind, solar, wave energy. Greenhouse gas analysis of products and fuels. Industrial fuel gases. Metals fabrication, industrial processes, mechatronics, electronics, controls, instrumentation, data acquisition, chemistry, construction, engines, refrigeration, specialty plastics & alloys, vibration & noise control, pneumatics, hydraulics, transport & logistics.
- Analytical Engineering** Structures, mechanical dynamics, signal analysis, fluid dynamics, gas dynamics, thermodynamics, materials
- Quantitative Analysis** Calculus, analytical geometry, statistics and probability, numerical analysis, computing, data analysis and presentation
- Physics** Solid-state, nuclear, relativity, quantum mechanics, classical dynamics, optics, astronomy
- Robotics** Sensors, actuators, and control algorithms
- Rotating Machinery** Rotor-dynamics research, machine diagnostics, vibration, bearings, materials, fluids, wear and lubrication
- Business and Communication** Writing for publication, grants, effective presentations & engaging public speaking, educational programs, AGMs, Non-adversarial negotiating for win-win outcomes that preserve the relationship, Time management and next-action planning, Project planning & management, budgets, accounting, training & mentoring of peers and direct reports. Software programs. Adwords, PayPal, EBay, SEO, site analytics, mailing lists, Newsletters.

Professional Experience

2009 – Current

SCIENTRIFIC PTY LTD

Role

Science and Technology Advisor

Responsibilities

- Supporting science educational technology in WA schools & universities;
- Training science teachers and lab techs, sales and support;
- Promoting and demonstrating simple to use Data Acquisition and related equipment at Trade Shows and events.

2005 – Current

WALLINGUP RESEARCH PTY LTD - www.wallingup.com, www.p-r-o-system.com

Project

Leadership and technical expertise in R&D and Commercialization – Various companies around Perth, Australia and overseas

Role

Engineering Research Consultant, Science Advisor – all Areas of Experience, providing clients with strategies for successful innovation

Responsibilities

- Management decision-making that supports knowledge-creation outcomes;
- Team development for effective R&D thought processes;
- Roles and goals for team and individual performance;
- Brainstorming strategies that solve problems faster without personality conflict;
- High-quality, motivating and informative presentations.
- Award nomination written for a technical industry group resulting the Australian group winning a major international award.

Key Achievements

- Served on the panel of judges for the Inventor of the Year (WA) Award, Innovation Centre (DOIR)
- Assisted several businesses to reach their R&D objectives.

2002 – 2005

UNIVERSITY OF WESTERN AUSTRALIA

Project

Australian International Gravitational Observatory (AIGO), School of Physics

Role

Engineering Manager

Responsibilities

- Advanced vibration isolation systems: R&D, testing, and production;
- Data acquisition, control systems, advanced actuators and sensors for research;
- Supervising PhD students in their research;
- Supervising technical staff in the mechanical and electronics workshop;
- Vacuum chamber, 160m in length, 35m³ total volume, requiring vessel fabrication and testing, pneumatic systems for valves, a variety of pumps and sensors, and an Ethernet-based distributed control system;
- Fit-out of a new 500m² laser facility with workshops, offices and laboratories;
- Development of 35m³ vacuum system including vessels, pumps, valves, and a distributed TCP/IP industrial control system;
- Research and development of an innovative vibration isolation system for ultra-sensitive scientific application;
- Digital and analog controls, custom-designed actuators and sensors, and system integration;
- Design and construction of cleanrooms including filtration, ventilation, lighting & particulate monitoring;
- Fabrication and testing of research materials including heat treatment of specialty steels and high-performance plastics;
- Leadership of various research projects in opto-electronics and opto-mechanics.

Key Achievements

- Commissioning of lab facility;
- Publication of research results;
- Development of key technologies essential for furthering research.

Professional Experience

1998 – 2002

BENTLY ROTOR DYNAMICS RESEARCH, DIV. OF BENTLY NEVADA CORP

Project

Product Development and Commercialization

Role

Machine stabilization, Bearing Development, Vibration monitoring and analysis

Senior Research Engineer

Responsibilities

- Customer-focused R&D on a controlled feedback bearing for machine stabilization;
- Externally-pressurized bearing development, including use of water and air as supporting fluids;
- Pressurized gas mid-span rotor seals for machine stabilization;
- Study of gas dynamics, supersonic flows and shock formation supporting gas bearing development;
- Study of rotor and bearing materials, including steels, titanium, carbon graphite, polymers, and nonferrous metals;
- Rotating machinery fault diagnosis through vibration monitoring and analysis;
- Research on compressible-fluid bearings resulting in 4 peer-reviewed publications;
- Construction and use of a 10,000 RPM air-supported rotor for bearing research;
- Responding to customer inquiries (including Shell, ABB, GE);
- Working within the ERP system to develop innovative products and transfer them seamlessly into the procurement and manufacturing systems.
- Invented solution to gas instability in bearings.
- Retrofit of a 3600-hp compressor with innovative externally-pressurized bearings;
- Design of a bearing using tap water as the supporting fluid.

Key Achievements

1996 – 1998

CENTRE FOR SELF-ORGANIZING AND INTELLIGENT SYSTEMS (CSOIS), UTAH STATE UNIVERSITY

Project

Robotics, ATV, Military, DARPA

Role

Mechanical Design Engineer

Responsibilities and Key Achievements

- Testing a 6-wheeled Mars-style mobile robot in support of JPL research;
- Adaptation of a petrol-powered ATV for unmanned (robotic) agricultural use;
- Design of ¼ scale 25-kg mobile robot for military use;
- Helped establish an association with DARPA for further robotics research at CSOIS;
- Designed and built a 50-lb, 6-wheeled ultra-maneuverable automated land vehicle;
- Participated in converting an 8-wheeled amphibious ATV to robotic control;
- Presented research results to a large IEEE convention and numerous smaller groups;
- Developed systems for robotic control of a Yamaha ATV;
- Point man on initial stages of USU's Defense Advanced Research Project Admin. (DARPA) initiative on ultra-maneuverable unmanned military vehicles;
- Invented the key mechanical element of an un-cloggable irrigation water flow meter.

1992 – 1995

CLINICAL RESEARCH ASSOCIATES, UTAH

Project

Testing of Dental Equipment against standards and competition

Role

Project Supervisor, Science Division Assistant Coordinator

Responsibilities

- Project management and publication of results with an absolute customer focus and strict accountability to publication deadlines;
- Supervised, trained and motivated a team of 10 lab assistants;
- Numerous peer-reviewed publications, including a landmark 3-year study on high-speed dental drill sterilization;
- Presented the findings before a conference of over 1000 doctors and researchers;
- Dental materials, ceramics, plastics, composites, metals, material strength testing;

Professional Experience

- Scored in **Top 2%** on nation-wide postgraduate admissions exams (GRE).
 - Dynamic presentations that delivered university physics curriculum in a clear, understandable and exciting format. Students appreciated the lack of jargon, the compelling visuals, and real-life examples of physical principles.
- Key Achievements**
- USU Mechanical and Aerospace Engineering Graduate Student of the Year, 1997
 - ASU Physics and Astronomy Graduating Senior of the Year, 1988
 - Member of Sigma Pi Sigma, Physics student honor society
 - Graduated from High School in the top 10% of a class of 500 students
- Honours and Awards**
- Negotiation and Leadership skills, Motivation, Personal Performance, and Interpersonal Relationships skills. CH Training, 2008
- Professional Development**
- English, German, Russian
- Languages**
- Corporate and advisory committee member, Inventors Association of WA
 - Enterprise Club of Perth
- Memberships**