

## **QUALIFICATIONS**

Design/R&D Engineer (Mechanical) specializing in new product development with an outstanding track record of managing the entire development cycle from inception/feasibility to release. Combines passion, and imagination with solid mathematical analysis to generate optimal solutions. Expert at winnowing poor ideas in feasibility phase and troubleshooting problems during development. Effective team member who combines individual contributor skills with compassionate support of all colleagues. Develops mathematical models by deriving governing equations from first principles. Expert in feasibility analysis and benchmarking.

- Conceived and patented a waste transfer system based on positive pressure differential that offers significant advantages over all current technology. US Patent 6,804,840
- Conceived and patented a minimally invasive hybrid jet injector for drug delivery. Device operates at 10% of normal pressures allowing subcutaneous injection with glass pressure vessel. Device patented and currently in production by Antares Pharma. US Patents 6,746,429 6,682,504 6,565,553 6,428,528 6,309,371
- Conceived and developed FRAM's SureGrip product leading to approximately \$40 million (10%) increased annual sales as company's entire automotive filtration line now utilizes the concept.
- Developed new coolant filters using engineering polymers (Polysulfone and Polyarylsulfone) and patented replaceable, environmentally friendly inner cartridges. US Patents 5,549,821 5,556,542
- Invented laminar flow, thin channel centrifuge, including mathematical model. Characterized by internal energy recovery and non-turbulent flow, the device operates with minimal parasitic losses.
- Developed process engineering software tools for environmental services departments including QA, analysis of labor, time studies, consumables and equipment. Sales in excess of \$1.5M and over 600 copies sold. Manages all aspects of distribution from coding to training & marketing. Works well in a group environment as well as working on his own with little to no supervision. Mostly as a sideline, generated over \$1.5M in sales over the past ten years.

## **EXPERIENCE**

2012 – 2017	iManage Informed LLC (self-owned)	Ankeny, Iowa
Development Engineer		

- Develop sophisticated masks incorporating automatic oxygen and dilution air regulators
- Redesign and port existing products to SolidWorks 2016
- Manage Healthcare Related complex QA Database
- Develop database tools (data migration, data reformat)
- Developed process engineering software tools for healthcare and other sector environmental service departments for analysis and optimization of workload (core software) and quality (inspection software)
- Conduct training and consulting remotely and on-site. Produced all marketing collateral (website, press releases, training materials, graphics, etc.)

2003 – November 2011	Micromold Products, Inc.	Yonkers, New York
Manager of Engineering PTFE (Teflon™) component manufacturer		

- Managed engineering efforts in small, specialty manufacturing operation supporting all aspects of design and manufacturing
- Manage all aspects of PTFE product line engineering including specifications, design and development. Ensure compliance with relevant ASTM, NSF and other standards
- Generate all marketing collateral and engineering documentation for major product lines
- Manage design and development projects for new product development including classified development projects for a major defense firm

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| 1999 – 2003<br>Senior Engineer  | Thetford Corporation<br>Recreational vehicle accessories manufacturer            | Ann Arbor, Michigan   |
| <ul style="list-style-type: none"> <li>Responsible for engineering and mechanism design in RV product lines from early conception phase through production release. Supported almost all major projects when engineering problems arose, utilizing analysis and testing to ensure teams met project goals</li> <li>Invented and prototyped new, positive pressure waste transfer system after benchmarking competitors' systems. System included plastic pressure vessel, electronic controls, sensors, and flow control devices. US Patent 6,804,840</li> </ul>  |  |                       |
| 1996 – 1999<br>Product Engineer   | Medi-Ject Corporation<br>Medical device manufacturer                             | Plymouth, Minnesota   |
| <ul style="list-style-type: none"> <li>Led research efforts to minimize power requirements for new needle-free jet-injector including development of test equipment and procedures, mathematical analysis and field-testing on cadavers</li> <li>Prototyped and proved minimally invasive injector concept using a combination of analysis, laboratory research and cadaver testing. Performed patentability analysis and worked with legal consul to ensure broad patent protection. US Patents 6,746,429 6,682,504 6,565,553 6,428,528 6,309,371</li> </ul>   |  |                       |
| 1995 – 1996<br>Project Engineer   | AlliedSignal Filters & Spark Plugs (FRAM™)<br>Automotive filtration manufacturer | Perrysburg, Ohio      |
| <ul style="list-style-type: none"> <li>Lead engineer for coolant filtration product lines managing new product design, and maintenance of existing product lines</li> <li>Introduced new concepts to marketing and sales including the SureGRIP™ filter coating that strongly impacted the DIY market leading to approximately \$40 million (10%) increased annual sales as company's entire automotive filtration line now utilizes the concept</li> </ul>   |  |                       |
| 1991 – 1995<br>Project Engineer   | Fleetguard, Inc. (sub of Cummins Engine)<br>Heavy duty filtration manufacturer   | Cookeville, Tennessee |
| <ul style="list-style-type: none"> <li>Lead engineer for coolant filtration product lines managing new product design, and maintenance of existing product lines. Introduced blow-molded coolant filter and finalized production</li> <li>First team member of Advanced New Product Development Group and major contributor to all new product concept and development efforts. First engineer in company trained to use ProEngineer solid modeling package and responsible for training and guidance of peers in using the tool. Performed FEA on selected components for cost/weight/strength optimization</li> </ul> |  |                       |

## ADDITIONAL SKILLS

**CAD:** ProEngineer (5 years' experience), SolidWorks (10 years' experience), AutoCAD (2 years' experience)  
Most recent SolidWorks 2016

**Analysis Software:** FEA (Mechanica), CFD and other CAE packages as appropriate.

**Communication:** Excellent writer and speaker who enjoys training others and presenting data.

**Product Classes:** Injection Molded, Blow-Molded, Sheet Metal, Machined, Cast, Extruded, Stamped

**QA Background:** Six-Sigma/Black Belt, Geometric Dimensioning & Tolerancing, Statistical Quality Control

**Technical Writing:** Proficient writing user guides, technical reference works, and marketing collateral

**General Software:** Expert-Level Access, Excel, Word, Outlook, MS Project and Basic Visio skills.

**Other Software:** Google Analytics, SEO, Adobe Products, ERP

## EDUCATION

BS in Mechanical Engineering 1990

University of Minnesota Minneapolis, Minnesota

**G.P.A. 3.67 of 4.0**

Undergraduate concentration in thermal and mechanical design.

Two years graduate work in particle technology and filtration.

Awarded: 3M Scholarship for high achievement.

Sealy Corporation Award for analysis in design as an undergraduate.