

**MARK TOUKAN**  
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### Education

- **BS Mechanical Engineering University of Colorado 1986**
- **BS Business Administration Villanova University 1980**

### CAD

- **Licensed Registered user of SolidWorks 2020 & Simulation FEA**
- **Extensive 3D Solid Modeling experience including Pro Engineer, AutoCAD, and Solid Edge**

### Experience

**TOUCAN DESIGN INC 3/91 - Present**

**Sole proprietor of design business specializing in concept-to-manufacturing product development and troubleshooting. Areas of expertise (details available on request) include the following:**

- **Hydraulics**
- **Pneumatics**
- **Machine Design**
- **Medical Products**
- **Diode Pumped Solid State & CO2 lasers**
- **LCOS Microdisplays**
- **Recreational Products**
- **PC Based Data Acquisition**
- **Plastic Injection Molding**
- **Sheet Metal fabrication**
- **Rapid Prototype Techniques**
- **Metal Casting**
- **Stamping**
- **Vacuum and Pressure formed parts**
- **Rotating Equipment**
- **Motion Control**
- **Electro/Mechanical packaging**
- **Heat Transfer/Thermodynamic analysis**
- **CNC Machining**
- **Micro – Turbines**
- **Aluminum & Plastic Extrusions**
- **Floatation Bag Design**
- **CO2 & pyrotechnic gas inflators**
- **Opto – Mechanical Design**
- **Vacuum Chambers**

**RELA 8/89 – 3/91**

- **Design engineered multiple servo actuator, PID controlled, mobile hydraulic system for Walt Disney's Indiana Jones ride.**

- **Performed analysis and devised thermal tests to map heat paths in large electronic equipment rack cabinets. Designed load matching cooling system.**
- **Designed miniature syringe pump mechanism for medical product.**
- **Engineered AC stepper drive circuit for 2000 sheet/hr paper feeder machine.**

**TYCHO TECHNOLOGY 10/88 – 8/89**

- **Electro-Mechanical packaging of 7 Kw power supply.**
- **Developed push/pull cooling system for Doppler shift wind profiler.**

**OEA 4/88 – 8/88**

- **Developed test fixtures used to analyze performance of explosively actuated mechanisms.**
- **Designed high-speed, 20 KPSI pneumatic valve/test system for cold gassing of explosively fired actuators.**

**MILBURN RESEARCH 5/87 – 11/87**

- **Design engineered cryogenic nitrogen expander for NASA utilizing nutation technology.**

**ENGINEERING MEASUREMENTS CO 5/86 – 4/87**

- **Designed high speed, precision, NBS traceable Digital Valves.**
- **Developed Vortex Shedder flow meter.**