

R. Shane Luttrell

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EXPERIENCE

Founder and President, HatchPoint LLC, Memphis, TN 2001 to Present

Founded and manages HatchPoint, a product development and consulting company that specializes in instrumentation for manufacturing, medicine, agriculture, and defense. Was responsible for developing both the concepts and proposals that generated nearly \$2M in private and government funding. Managed both the business and the technical development for all the project and lead teams of employees and subcontractors that ranged in size between three and twelve. Was the Principal Investigator (PI) for two Federal Small Business Innovation Research (SBIR) awards. A selection of projects include:

- Development of non-contact probes that acquire biopotentials such as the ECG without requiring direct skin contact or gels.
- A housing design for a prototype of a High Intensity Focused Ultrasound (HIFU) cauterization instrument.
- Investigation into the deposition of both structural and conductive materials using low cost desktop inkjet printers for such applications as rapid prototyping of flexible circuits, biosensors, and microfluidic cells.
- Analysis, development, and production of a series of infrasound acoustic stations that integrate sensing, digitization, processing, and communication into a single field portable instrument.
- Development and production of an ultra low power, wireless, deeply embedded sensor platform called TripWire that can be used in applications ranging from home security to agricultural monitoring.

Founder, FBC Systems Inc., Urbana, IL, Moline, IL, and Boston, MA 2002 to 2003

One of six founders in the pre-money stage. Assisted in the commercialization of academic software testbed that could predict real time part and assembly costing data extracted from the Pro/ENGINEER CAD package.

- Led FBC's beta stage software rollout at a Fortune100 company and expanded user base from 5 to over 250 users within two weeks.
- Managed revision control and bug tracking servers while adding code to support materials database.
- Investigated different methods for feature/geometry extraction from solid models using both neutral (STEP, IGES) and API-specific (Pro/E) strategies.

Senior Research Engineer, National Center for Physical Acoustics, Oxford, MS 1999 to 2001

Led a team of engineers in developing a modular, compact, and low cost Linux-based embedded SONAR for aquaculture, environmental monitoring, and industrial process control applications. See <http://www.linuxjournal.com/article/4331> for a detailed description.

- Responsible for all mechanical and packaging details as well as production and assembly of limited prototype run. Oversaw work of four engineers and three graduate students during development.
- Wrote control software and Linux device drivers for SONAR transmitter board and data acquisition system.
- Assisted in laboratory and field testing of the operational SONAR.

Research Assistant, University of Illinois at Urbana-Champaign Physics Dept., Urbana, IL 1997 to 1998

Assisted in the development of a high sensitivity instrument (approaching 1ppb) for measuring the Meisner effect in superconductors. Instruments were installed within cryogenic dewars and required highly specialized design and production techniques.

- Responsible for design, layout, and assembly of tunnel-diode oscillator and precision voltage reference boards as well as the winding of a 3kG superconducting electromagnet.
- Wrote C and LabVIEW routines for GPIB instruments that controlled and analyzed experimental results.

Research Assistant, University of Illinois at Urbana-Champaign ME Department, Urbana, IL 1996 to 1997

Managed a rebuild of the Computer Integrated Manufacturing (CIM) research and teaching lab using a budget of over \$500k in donated equipment and funds.

- Lead a group of undergraduate and graduate students in the installation of a new conveyor system as well as multiple work cells including robotic assembly, machining centers, and inspection stations.
- Taught undergraduate manufacturing and robotics labs using the CIM lab.

Associate Engineer, Pfizer/ValleyLab, Boulder, CO 1995 to 1996

Developed hardware and software for testing and evaluating the Force series of electrosurgical generators for applications in laparoscopic tissue ablation.

- Responsible for design, layout, and assembly of multiplexer board for switching generator power between ablation electrodes.
- Wrote software for collecting parameters such as temperature, conductivity, and power from tissue samples.

EDUCATION

University of Illinois at Urbana-Champaign BS Mechanical Engineering with bioengineering option 1995

University of Illinois at Urbana-Champaign MS Mechanical Engineering 1998

SKILLS

Embedded and Enterprise Software Development

Over fifteen years experience in embedded systems development. Expert in C/C++ and Assembly using toolchains for MSP430, AVR, ARM, and i386/X86 processors and IAR compiler for 8051. Expert in embedded Linux and device driver development. Expert using Python both for scripting and application layer code (Qt and PyQt). Experienced developing web applications using MySQL, SQLAlchemy ORM, jQuery, and the TurboGears Python framework. Maintain version control (SVN and GIT), bug tracking (Trac), and Apache servers on Amazon EC2 and Linode Linux virtual machines.

Electronics and Instrumentation Design

Over fifteen years experience in all stages of analog and digital circuit design including simulation, breadboarding, design capture, layout, and testing. Especially skilled at low power, small physical foot print designs using precision and low noise layout techniques. Ten years experience in board production and small batch assembly of fine pitch components. Expert in use of EDA software (Pulsonix, and Eagle CAD). Expert in use of lab test and evaluation equipment as well as analysis packages including MATLAB (Wavelet, Signal Processing, Neural Net, and Data Acquisition Toolkits) and LabVIEW (both PC and Handheld). Experienced with Mathematica and Mathcad as well as Python numerical processing libraries.

Mechanical Design and Prototyping

Very experienced with solid modeling (six years SolidWorks and ten years Pro/ENGINEER). Expert in rapid-prototyping techniques, especially with plastics and the integration of electronics into packaging. Excellent hands-on skills in making RTV and vacuum formed parts. Skilled in both CNC and manual machine work.

Office Software

Experienced in Windows, OS X, and Linux desktops. Expert with office applications (MS Office Suite, OpenOffice, Apple iWork) as well as accounting packages including QuickBooks and PeachTree accounting.

AWARDS

1st Place, Memphis Bioworks/Kauffman Elevator Pitch Competition (2009)

Phase 0 MS-FAST Award: NASA Stennis, TDAQ - A Tiny Data Acquisition System for Ethernet (2004)

SME Award for Excellence in Manufacturing (1997)

Thiokol Award for Excellence in Engineering Design (1995)

References available upon request.