Preet Desai

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Skills Summary

- Proficient at software development using C and C++. Experience developing tools, libraries and applications for projects in medical, automotive and GIS.
- Dependable self starter with experience collaborating with individuals from different backgrounds including researchers, physicians, lab technicians and engineers.
- Electronic circuit design, assembly and testing. Exposure to circuit design software, sensor design, surface mount assembly, and testing using freq. generators and oscilloscopes.

Independent Projects

Vehicle Telemetry May 2011 - Current

- Built software to communicate with OBD-II systems over an ELM327 interface for Linux and Android using C++ and JNI.
- Included the ability to dynamically build and parse complex vehicle messages with XML and JavaScript to support vehicle-specific parameters.

Map Rendering May 2011 - Current

- Designed a library for rendering map data in 3d that can combine data from multiple sources to create a detailed environment using C++ and OpenSceneGraph.
- Added in extensive customization based on level of detail to define the look and feel of maps, improve user accessibility and control rendering overhead.
- Special attention was given to optimize performance for mobile graphics by minimizing overdraw and reducing draw calls through batching.

Work Experience

Robarts Research Institute, London, Ontario Sept 2009 - Dec 2009 / May 2010 - Aug 2010
Engineering Assistant

- Participated in a project for the design and development of a robotic system to perform minimally invasive cardiac surgery remotely.
- Built a modular software control system and UI for the robot to serve as a test bed to assess system requirements, improve ease of operation and allow for the use of multiple components. Development was done on Linux with C++ and Qt.
- Designed and evaluated special ultrasonic motor controllers to achieve specific motion control requirements. Directly responsible for circuit design, simulation, prototyping and validation.

Sunnybrook Research Institute, Toronto, Ontario May 2008 - Aug 2008 / Jan 2009 - Apr 2009
Imaging Research Assistant

- Built a framework for the visualization, implementation and evaluation of vascular registration techniques using C++ and Matlab.
- Worked with researchers and lab techs to obtain specific X-ray images of blood vessels during in-vivo animal research catheterization procedures.
- Developed OS X programs and Quartz Composer plugins using C/C++ to demonstrate real-time object tracking using a motion tracking camera.

Trak Com Wireless Inc., Markham, Ontario Sept 2007 - Dec 2007
QA Technician

- Completed parametric testing and troubleshooting of mass transit communication systems and components using RF test sets, multimeters, and audio analyzers.
- Performed assembly for communication control units including chassis, wiring, and test panels.
- Inspected mechanical and electrical components to ensure parts were within tolerances.

Extra Curricular

UW Formula SAE Team, Waterloo, Ontario Jan 2008 - Apr 2008
FSAE Team Member - Electrical

- Student run team that designs and builds a formula-style car to race against other universities anually in an international competition.
- Helped to design, build and mount fusebox for the 2008 car. Involved circuit design with the use of automotive relays and blade fuses, and using EagleCAD to design a PCB for fabrication.

Education

University of Waterloo, Waterloo, Ontario Sept 2006 - Apr 2011
Bachelor of Applied Science, Mechatronics Engineering

National University of Singapore, Singpore Jan 2010 - May 2010
Undergraduate Exchange Term (Engineering)